



Berniepeyton.com



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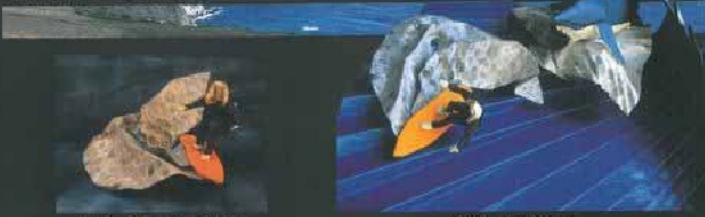


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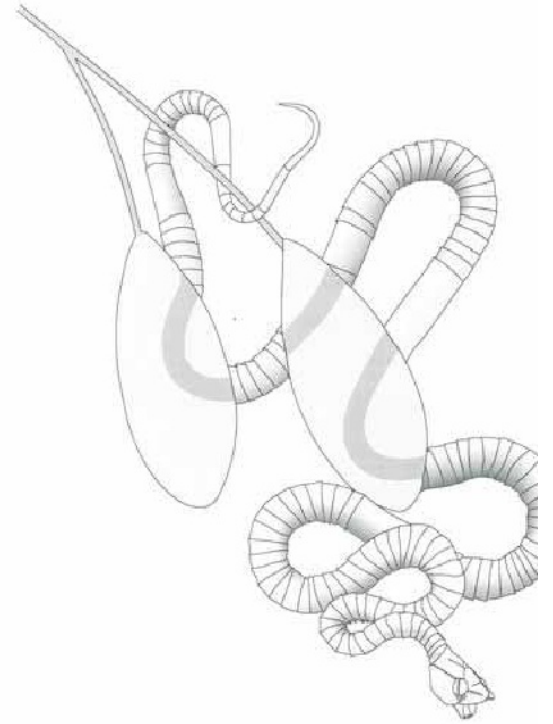
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Eco-Origami

Bernie Peyton

Acknowledgements

I want to thank, first and foremost, my family for their encouragement and sacrifices that made this book possible. My wife Susanne, to whom I dedicate this book, and children Caleb and Avery can attest to the years of doing this book, sometimes at the expense of their needs. This they not only tolerated, but supported my efforts as did my mother, Joan Tilney, and my siblings. My step father Robert Olney gave me Isao Honda's book "How to make Origami" when I was 9 years old, saying "this might interest you." To him I owe the spark that ignited over 50 years of folding pleasure. And now thanks to Nicolas Terry, I have the pleasure of seeing my book in print.

This book would never have come about without the help of many origami designers. Jeremy Shafer showed me that I could design my own models. He and Robert Lang taught me a great deal about design process, and then helped me get started with Freehand software to make diagrams. I take full responsibility for any errors in this book in both design and rendering. We can all thank Pere Oliveira and Guillermo Crespo for catching errors in the diagrams, and Ariel Achtmann, Maruo Noguchi, Mehdi Zaradi, and Patrick Bergot for correcting my text before publication.

Many people provided encouragement and advice along the way to help me become a better folder, designer, or teacher. I am grateful for the support from the staff of OrigamiUSA, especially Jan Polish, who saw hope in my early designs. Three generations of the Mihara family have been central to my origami world, from early books, and later to many exhibits curated by Linda Mihara. At the risk of offending many who will feel left out, I especially want to thank these additional people for their support and inspiration: David Brill, Brian Chan, Marie-Hélène Clavel-Cattau and Yves Clavel, Roman Diaz, Giang Dinh, Peter Engel, Vanessa Gould, Eric Josiel, Jamie Kelley, Goran Konjevold, Jason Ku, Ping Luo, Eric Madrigal, Yamaguchi Makoto, Kate Kline May, Felipe Moreno, Jaime Niño Bernal, Daniel Robinson, Boaz Shuvail and the members of Imagiro, Saadya Sternberg, Joseph Wu, and Hon-Tsen Yu. Origami is not just about folding. It is about content. My mother took me around the Bronx Zoo in New York as a child to introduce a city kid to the world of animals. Later, summer camps and trips to exotic wildlife reserves nurtured a passion in me for the natural world. My appreciation owes much to my mentors at the Museum of Vertebrate Zoology at the University of California, notably James Patton, Harry Greene, and David Wake; and to hunters Renato Marin, and Gustavo del Solar and their guides, whom I collaborated with in the field. To these individuals and many more I give many thanks.

Remerciements

Je tiens à remercier, tout d'abord, ma famille pour leurs encouragements et les sacrifices qui ont rendu ce livre possible. Ma femme, Susanne à qui je dédie ce livre, et mes enfants Caleb et Avery qui peuvent témoigner des années nécessaires pour faire ce livre, parfois au détriment de leurs besoins. Ils ont non seulement toléré mais aussi soutenu mes efforts, tout comme l'ont fait ma mère, Joan Tilney, et mes frères et sœurs. Quand j'avais 9 ans, mon beau-père Robert Olney m'a offert le livre d'Isao Honda "How to make Origami" en me disant : "cela pourrait t'intéresser". Je lui dois l'étincelle qui fut le départ de plus de 50 ans de plaisir de pliage. Et maintenant, grâce à Nicolas Terry, j'ai le plaisir de voir mon livre imprimé.

Ce livre n'aurait jamais vu le jour sans l'aide de nombreux créateurs tels que Jeremy Shafer qui m'a montré que je pouvais créer mes propres modèles. Lui et Robert Lang m'ont beaucoup appris sur le processus de création, puis m'ont aidé à maîtriser le dessin sur ordinateur des diagrammes. J'assume l'entière responsabilité de toute erreur dans ce livre. Nous pouvons aussi tous remercier Pere Oliveira et Guillermo Crespo pour les tests des diagrammes, ainsi qu'Ariel Achtmann, Maruo Noguchi, Mehdi Zaradi, et Patrick Bergot pour avoir corrigé mon texte avant sa publication.

Beaucoup de gens m'ont encouragé et fourni des conseils sur la façon de devenir un meilleur plieur, concepteur, ou enseignant. Je suis reconnaissant pour le soutien du personnel de OrigamiUSA, en particulier Jan Polish, qui a cru en moi dès mes premières créations.

Trois générations de la famille Mihara ont pué un rôle essentiel, depuis l'obtention de mes premiers livres d'origami jusqu'aux nombreuses expositions de mes modèles, montées par Linda Mihara. Au risque de choquer beaucoup de gens qui se sentiront mis de côté, je tiens tout particulièrement à remercier ces personnes pour leur soutien supplémentaire et leur inspiration : David Brill, Brian Chan, Marie-Hélène Clavel-Cattau et Yves Clavel, Roman Diaz, Giang Dinh, Peter Engel, Vanessa Gould, Eric Josiel, Jamie Kelley, Goran Konjevold, Jason Ku, Ping Luo, Eric Madrigal, Yamaguchi Makoto, Kate Kline May, Felipe Moreno, Jaime Niño Bernal, Daniel Robinson, Boaz Shuvail et les membres d'Imagiro, Saadya Sternberg, Joseph Wu, et Hon-Tsen Yu.

L'origami n'est pas juste du pliage. Il est aussi question de contenu. Ma mère m'a emmené un jour dans le zoo de Bronx à New York lorsque je n'étais qu'un gamin de la ville, pour me présenter le monde des animaux. Plus tard, la passion du monde naturel a grandi en moi, nourrie par des camps d'été et des voyages dans des réserves de la faune exotique. Je le dois aussi beaucoup à mes mentors du Musée de zoologie des vertébrés à l'Université de Californie, notamment James Patton, Harry Greene et David Wake, et aux chasseurs Renato Marin, Gustavo del Solar et leurs guides, avec qui j'ai collaboré. Pour ces personnes et bien d'autres encore, un grand MERCI.

Informations

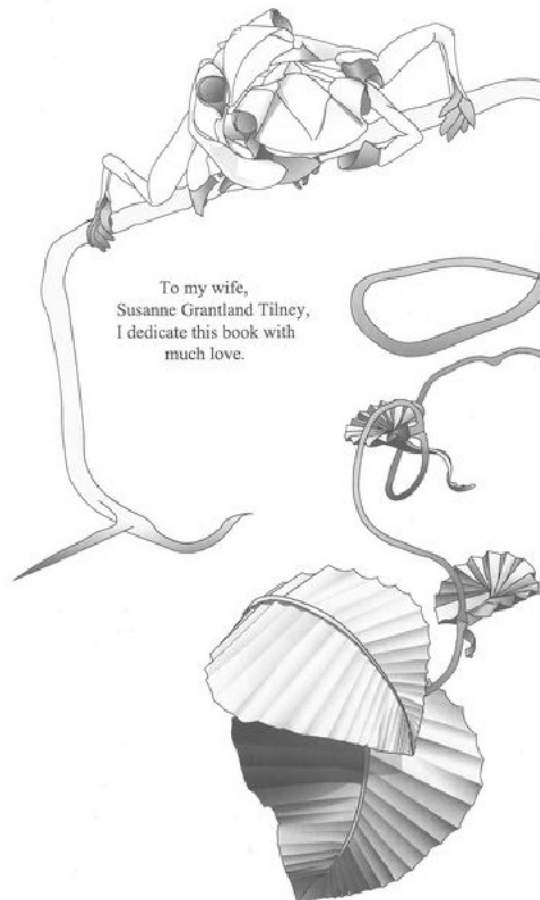
Secret Code : - - - - - Find it in this book / Cherchez-le dans ce livre

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To my wife,
Susanne Grantland Tilney,
I dedicate this book with
much love.



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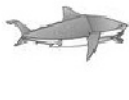
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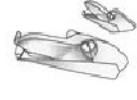
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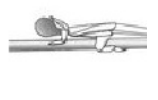
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Foreword

As the world of origami has become interconnected by books, conferences, and the internet, origami artists tend to become aware of other artists gradually as they evolve, and mature. We see their first tentative folds, often minor modifications of someone else's work. Gradually, they begin to develop and show off their own designs, and then, over time, their work develops a personality and their own characteristic presentation. We are usually fortunate to watch the growth and development of the young artist over a period of years.

But then, once in a blue moon, along comes a Bernie Peyton who appears full-blown on the origami scene with a unique vision and artistry. In the American origami world, that happened in 1998, at an origami convention design panel when a tall, unfamiliar man stood up and laid out an arrangement of his own designs, natural subjects that were astonishing in their life and elegance, and that were unlike any of the then-prevalent design schools. They were irregular, non-geometric, but incredibly lifelike. In fact, coming as they did, at the height of the technical revolution in origami, they served as an almost implicit rebuke to origami technicians: what was important in Bernie's works were not points and flaps, but personality and life that were conveyed by an edge, a curve, a ripple. Nothing was flat, nothing was regular, nothing symmetric, but each of his natural forms conveyed their subject more deeply than any treatment had done to date.

As we learned more about this mysterious folder, we learned that it was partly because Bernie knows his subject more deeply than perhaps any other natural-subject origami artist. A trained field biologist who spent thousands of hours observing his quarry from the highlands of Peru (where his eponymous flower, *Tristerix peytonii*, may still be found) to the wilds of Alaska, Bernie understands how context and gesture can speak volumes about the natural form, and his origami designs rely on both. His designs are utterly unlike those of any other origami artists, and so this book provides a unique glimpse into the mind of a master and an opportunity to follow in his "foldsteps."

And so these are not easy figures to fold - even if they don't contain many creases. Traditional origami instructions rely on detailed and specific references for every fold: bring point A to intersection B, C to D, and so forth and so on, and Bernie has translated his sculptural free-form style into clear and detailed step-by-step instructions in this book. But Nature refuses to be so precise (or even consistent) when creating her own forms; when we follow her with our origami works, there is no reason to expect that mathematical references will exist. Thus, the next level for the budding origami artist lies beyond technical design: it lies in creating an emotional connection to the natural subject via intangible means and folding "by eye." Bernie Peyton has made that connection in his designs, and I hope that, by folding these works, you too may experience that emotional connection.

Robert J. Lang
langorigami.com

Préface

Parce qu'aujourd'hui le monde de l'origami s'interconnecte grâce aux livres, aux conférences et à l'Internet, les artistes de l'origami peuvent voir évoluer d'autres artistes. Nous découvrons ainsi leurs premiers plis, souvent des modifications mineures de l'œuvre d'autrui. Peu à peu, ils acquièrent de nouvelles connaissances et exposent leurs propres créations. Et puis, au fil du temps, leurs modèles se définissent et montrent une personnalité et un style propre qui les caractérisent. Nous avons généralement la chance d'observer l'évolution de ces jeunes artistes sur plusieurs années.

Et parfois apparaît un Bernie Peyton qui amène sur la scène de l'origami une vision artistique unique. C'est ce qui s'est passé dans la communauté origamista américaine en 1998, lors d'une convention d'origami : un grand bonhomme inconnu arriva et exposa un arrangement de ses propres créations de sujets naturels étonnants de vie et d'élégance, et qui étaient vraiment différents de ce qui prévalait à l'époque. Ses modèles étaient en effet irréguliers, non-géométriques et incroyablement réalistes. Ils étaient comme une réprimande presque exploitée aux techniciens de l'origami : ce qui était important dans les travaux de Bernie n'était pas le nombre de pointes ou l'agencement des volets, mais la personnalité et la vie, transmises par un creux, une courbe, une ondulation. Rien n'était plat, rien n'était régulier, mais chacune de ses formes naturelles exprimait leur sujet plus en profondeur que n'importe quel artiste l'avait fait à ce jour.

En faisant plus connaissance avec ce mystérieux plieur, nous avons compris que c'était en partie fait que Bernie connaissait son sujet bien mieux que tout autre artiste de l'origami proposant de faire la nature. C'est, en effet, un biologiste de terrain qui a passé des milliers d'heures à observer dans la nature, et ce, des hauts plateaux du Pérou (où l'on peut trouver d'ailleurs sa fleur éponyme, *peytonii*), jusqu'aux régions sauvages de l'Alaska. Bernie comprend mieux que quiconque ce que l'habitat et le comportement influencent le sujet et comment il est possible de traduire cela en origami, pourquoi ses créations sont vraiment différentes de celles de tout autre origamista. Ce livre offre un aperçu unique de l'esprit d'un grand maître du pliage et nous donne la possibilité de le suivre pas à pas.

Ses modèles ne sont pas faciles à plier - même si d'ailleurs les plis ne sont pas si nombreux. Habituellement les diagrammes se doivent d'utiliser des références précises pour chaque pli : amener le pli à l'intersection B, superposer C à D, et ainsi de suite. Bernie a réussi à diagrammer ses sculptures de cette manière, avec des étapes vraiment claires et précises. Mais la nature se refuse d'être précise (ou même cohérente) lors de la création de ses sujets : quand nous essayons de la retranscrire avec nos œuvres d'origami, il n'y a aucune raison de s'attendre à trouver des références mathématiques dans la nature. C'est pourquoi, le prochain niveau d'évolution de l'artiste en herbe se trouve au-delà de la conception technique : il réside dans la création d'un lien affectif avec le sujet. Bernie Peyton a fait cela avec ses plis, et j'espère qu'en pliant ses œuvres, vous pourrez vous aussi l'expé-

Robert
langorigami.com

Introduction

My inspiration for designing origami animals and their habitat comes from my earlier career as a wildlife biologist. I studied spectacled bears, woolly tapirs, and other rarely seen animals in the Andes Mountains from Ecuador to Bolivia. In my home country I studied kangaroo rats, burrowing owls, and kit foxes, as well as bears. Most of my field work focused on the habitat needs of these animals. Consequently, you will encounter some diagrams to make plants and landscapes in these pages.

Although I had folded occasionally when I started studying bears in 1977, I didn't design my own models until 1998. The years I spent observing animals provided lots of ideas for creating origami. In this book, you will be challenged not just to make an animal, but also to have it do something, to have an expression. I want you to twist, crimp, and shove as much expression out of these instructions as you can to breathe life into your models. Tell your story. Mine is to preserve our natural world. Paper is a perfect medium for expressing how fragile and temporary that world is. This is one reason why I wanted to do an origami book.

The second reason is what is best about the human world. Sharing. The models in this book are challenging. For most of us, including me, the first several attempts to fold a model do not look nearly as good as later attempts. Save your best paper for when you are confident of the result. I have chosen these models mostly because I find them fun to fold. Almost all of them have a color change, some have locking mechanisms, and they are three-dimensional. I have arranged them not by complexity, but by biome (e.g., desert, coastal forest, arctic, etc.). As a child, I was captivated by the dioramas at the American Natural History Museum in New York. By grouping the models in a similar way I encourage you to create your own dioramas, your own stories.

There are some features in this book that are not found in most origami books. The diagrams capture the three-dimensional aspect of models. Even after just a few folds, paper has a third dimension. There is a slight curve to paper edges after a fold. I have tried to reproduce these aspects accurately. Why? Because I get upset with comparing my result at each step with what is obviously more crumpled! I want to depict what the paper can look like, not its theoretical appearance.

I do not design many models from recognized bases. Most of the models in this book require preliminary folds to locate the ends of ears or legs on the square, but do not add anything more to the final product. I thank Robert Lang for providing me the tool "reference finder" to allow me to re-engineer my designs for teaching. Almost all of these creases are made on paper edges, thus avoiding unnecessary creases that cross the middle of the model.

My favorite features are curved surfaces and edges. It is hard to make these features from a flat model at the end of the folding process. Therefore, some of the models in this book become three-dimensional early in the folding process. Limb movement is also restricted by delaying their expression until the last few steps of the model. The polar bear in this book is a good example of this approach. You will enjoy putting the asymmetry and third dimension of movement in the limbs and neck in the first few folds. If you want to add some life to your creations, create some asymmetry!

Some of you may become upset with steps in this book that require you to estimate where a fold goes. I have done my best to provide guidelines and even diagrammed intermediate steps to help you. There are some folds that require you to use your best judgment. Do not be discouraged if your first attempt didn't turn out "perfectly". None of mine do. View your first several attempts to fold a model as a learning experience. I also encourage you to improve these designs with your own folds.

Many of the models in this book are under tension. In the past I thought this was a consequence of poor design. Some of that surely was. Now I purposely use it to create the look I desire, and to use paper efficiently. My favorite fold to create tension is the crimp. A lot of these folds come under the heading of "shaping". Spend considerable time with shaping steps. I spend a quarter to half my time on shaping. Some of these instructions advise you to wet and bind a feature, and then let it dry before continuing the folding process. Sometimes I show you how to use tools such as wooden dowels or tweezers to do a step as an alternative to using your fingers. There are folders in the origami community who disapprove of using any tools or anything other than a single uncut square. There is nothing in this book that can't be achieved by hand alone. I get better results using a few tools, so I pass these techniques along. I advise you to read through the instructions of a model fully before starting. That way you can anticipate the time it will take and what you tools you may want to use.

Origami is evolving from being a craft to a recognized art form. As an art, origami will be critiqued by criteria that all art is judged on. One of these is that the choice of medium best expresses the image regardless of its process. In my view, many origami creations represent "look what I can do with paper" rather than "look what paper can do for this subject, this idea". The DVD associated with this book includes techniques not associated with traditional origami such as coating paper with paint and plastic resin, and display techniques that use wire, wood glue, and magnets. Perhaps some of you will want to experiment with some of these ideas because your image will demand it. Although I do not make cuts to paper if I did, it would be because the result would justify it, as work of art. It would still be origami in my view if the object was mostly made from folding.

Lastly have fun with these projects and share the folding and results with others. This in my view is what origami is mostly about.

Bernie Peyton

Introduction

Mon inspiration pour le pliage d'animaux en origami et de leur habitat provient de ma précédente carrière de biologiste de la faune. J'ai étudié les ours à lunettes, les tapirs laineux et bien d'autres animaux rares des montagnes des Andes en Bolivie. Dans mon pays d'origine, j'ai aussi étudié les rats kangourous, les chouettes des téniers, et encore des ours. La plupart de mes travaux sur le terrain ont été axés sur les besoins en habitat de ces animaux. Par conséquent, vous trouverez dans ce livre des instructions pour réaliser des plantes et des paysages pour y inclure.

En 1977, j'ai étudié les ours et j'ai commencé à plier, mais ceci restait occasionnel. C'est en 1998 que j'ai créé Les années que j'ai passées à observer les animaux m'ont procuré beaucoup d'idées pour la création d'origami. Dans ce livre, vous serez mis au défi non seulement de réaliser un animal, mais aussi de le plier lorsqu'il fait quelque chose. Je vous prie de plier votre feuille au-delà des instructions fournies dans ce livre pour que vous donniez à votre modèle le mouvement que vous lui apportiez vraiment un souffle de vie. Racontez votre histoire. La mienne est de préserver notre monde est un support idéal pour exprimer combien le monde est fragile et temporaire. C'est une des raisons pour le livre d'origami.

La deuxième raison concerne le meilleur de l'humanité : le partage. Les modèles de ce livre sont cependant d'entre nous, moi compris, il faudra de nombreuses tentatives avant de plier un modèle avec un résultat satisfaisant. Je vous conseille de garder vos plus beaux papiers lorsque vous serez sûr de votre résultat. J'ai choisi ces modèles parce que j'y trouve du plaisir à les plier. La quasi-totalité d'entre eux ont un changement de couleur, certain de verrouillage, et ils sont tous en trois dimensions. Je les ai classés non pas par niveau de complexité, mais par biome (par exemple le désert, la forêt tropicale, la zone arctique, etc.). Comme un enfant, j'ai été captivé par les dioramas naturels américains à New York. En regroupant les modèles de la même façon, je vous encourage à créer votre propre diorama pour raconter vos propres histoires.

Ce livre possède des caractéristiques que vous ne retrouverez pas dans la plupart des livres d'origami. Par exemple, les diagrammes capturent l'aspect tridimensionnel des modèles. Même après quelques plis, le papier a déjà pris une certaine courbure. J'ai essayé de reproduire ces aspects avec exactitude. J'aime pas comparer l'étape parfaitement dessinée d'un diagramme avec mon propre pliage, évidemment ; j'ai représenté ce que le papier ressemble vraiment, non pas ce à quoi il doit ressembler théoriquement. Je n'utilise pas les bases traditionnelles de l'origami pour concevoir mes modèles. La plupart des plisages quelques plis préliminaires pour localiser les extrémités des oreilles ou des pattes sur la feuille, mais rien de plus. Le "reference finder" de Robert Lang m'a permis de re-engineer mes créations. Presque tous ces plis préliminaires. La quasi-totalité des plis obtenus par cet outil sont effectués sur les bords du papier, évitant ainsi des plis non essentiels qui traversent le milieu du modèle.

Les parties que je préfère dans mes modèles sont les surfaces courbes décrivant par exemple un mouvement ou d'une position quelconque (courir, marcher, s'élever, etc.) peut s'avérer limitée si vous ne faites que plier le papier après un simple pli. J'ai essayé de reproduire ces aspects avec exactitude. J'aime pas comparer l'étape parfaitement dessinée d'un diagramme avec mon propre pliage, évidemment ; j'ai représenté ce que le papier ressemble vraiment, non pas ce à quoi il doit ressembler théoriquement. Je n'utilise pas les bases traditionnelles de l'origami pour concevoir mes modèles. La plupart des plisages quelques plis préliminaires pour localiser les extrémités des oreilles ou des pattes sur la feuille, mais rien de plus. Le "reference finder" de Robert Lang m'a permis de re-engineer mes créations. Presque tous ces plis préliminaires. La quasi-totalité des plis obtenus par cet outil sont effectués sur les bords du papier, évitant ainsi des plis non essentiels qui traversent le milieu du modèle.

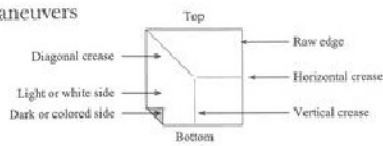
La plupart des modèles de ce livre ont leur papier mis sous tension. Dans le passé, j'ai pensé que c'était la conséquence d'un mauvais design. Certains de ceux-ci étaient sûrement dus à une mauvaise conception. Maintenant, j'utilise volontairement la tension du papier pour créer le résultat que je désire et utiliser le papier plus efficacement. Mon pli favori pour amener un pli appelé "Crimp". Un grand nombre de ces plis peuvent en fait se regrouper sous le terme de "modèles" considérable à cette mise en forme, presque un quart du temps total pour réaliser un modèle. Certaines fois, mouler et de fixer un pli, puis de le laisser sécher avant de continuer le processus de pliage. Parfois, je vais utiliser des outils tels que des chevilles en bois ou des pinces pour réaliser une étape sans l'aide de vos doigts. Il y a rien dans ce livre qui ne peut pas être réalisé à la main seulement. J'obtiens cependant de bien meilleurs résultats avec quelques outils, alors autant vous donner ces techniques. Je vous conseille de lire les instructions d'un modèle avant de commencer. De cette façon, vous pourrez anticiper le temps qu'il vous faudra et les outils nécessaires.

L'origami est en train d'évoluer, passant d'un simple hobby à une forme d'Art reconnu. En tant qu'Art, l'origami sera critiqué par les autres arts. Un de ces critères est le choix du support qui exprime au mieux le sujet, le processus de création. À mon avis, beaucoup de créations d'origami sont plutôt dans le "regardez ce que je peux faire" plutôt que "regardez ce que ce papier peut faire avec ce sujet ou cette idée". Le DVD associé à ce livre présente quelques techniques d'exposition utilisant des fils, du bois, de la colle, et des aimants. Peut-être certains d'entre eux vous intéressent parce que le résultat final vaut la peine. De la même façon, bien que je ne procède à aucune coupe dans le papier, il y a rien dans ce livre qui ne peut pas être réalisé à la main seulement. J'obtiens cependant de bien meilleurs résultats avec quelques outils, alors autant vous donner ces techniques. Je vous conseille de lire les instructions d'un modèle avant de commencer. De cette façon, vous pourrez anticiper le temps qu'il vous faudra et les outils nécessaires.

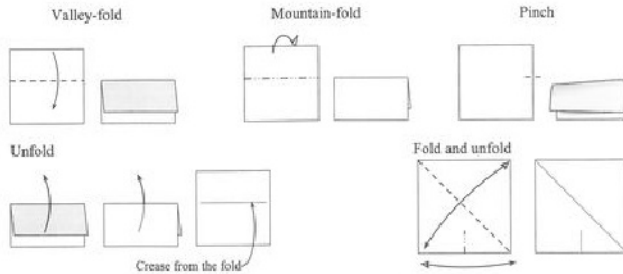
Enfin amusez-vous avec ces modèles et partagez vos plisages et les résultats avec les autres. C'est, à mon avis, ce que l'origami est vraiment.

Folding Symbols and Maneuvers

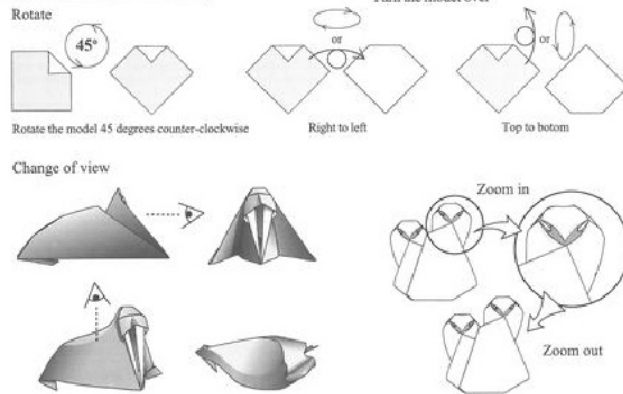
The symbols used in this book to describe folding maneuvers follow accepted international standards of origami with a few additional symbols of my own. If you are not familiar with them, I suggest you look at these pages.



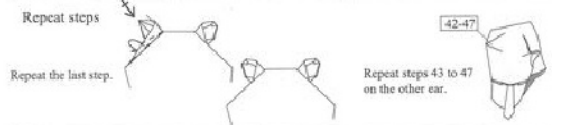
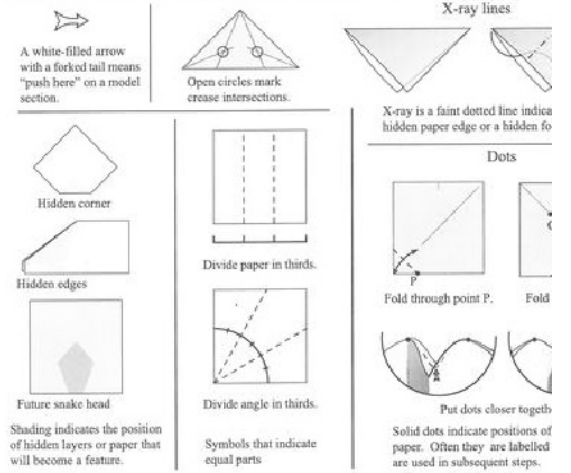
Basic Folds



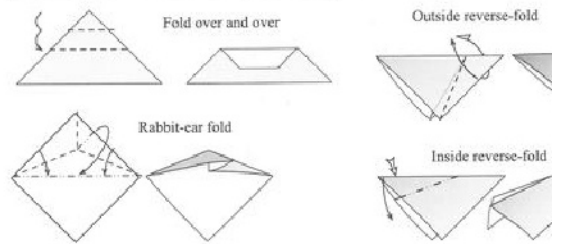
Paper Positions and Viewing

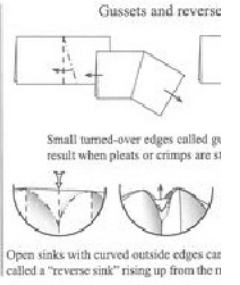
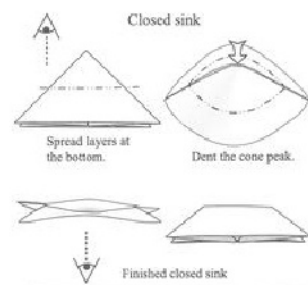
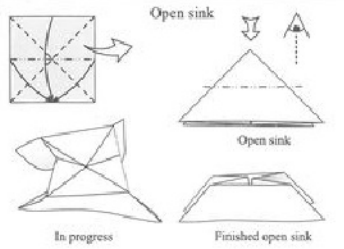
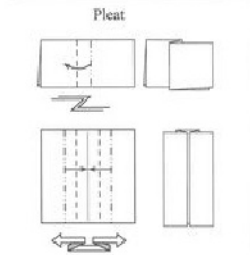
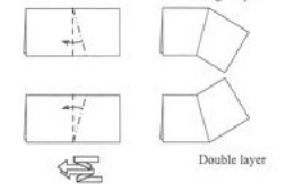
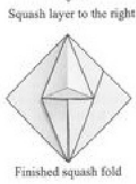
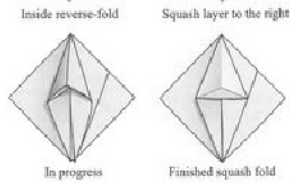
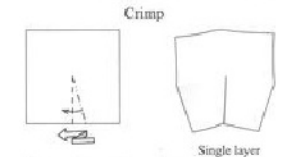
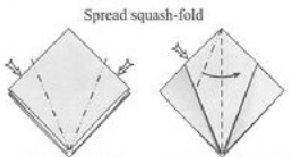
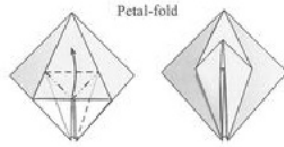
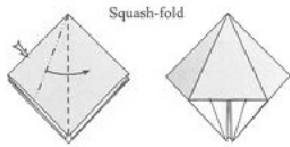
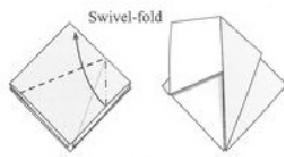
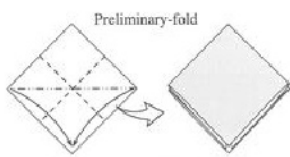


Symbols that describe how to do folds or explain their results

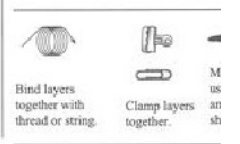
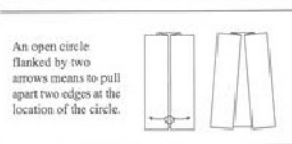
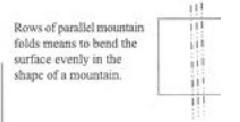
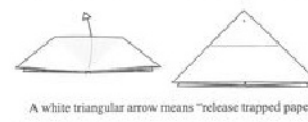


Two or more folds done at the same time

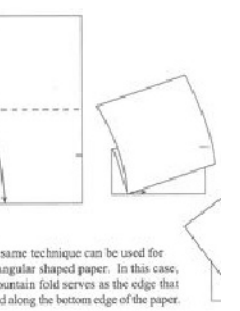
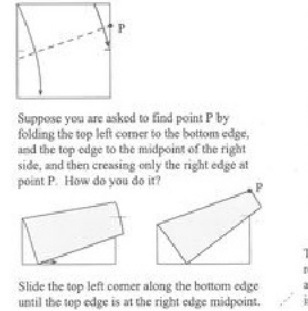




Symbols used for changing layers, releasing trapped paper, or shape

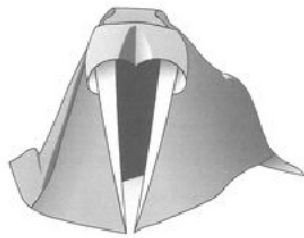
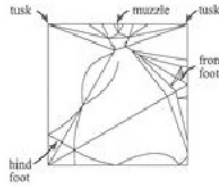


Technique for finding reference points



Walrus I

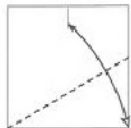
Created / 2009
 Difficulty / Simple
 Time to fold / 10 minutes
 Dimension / R=0.66



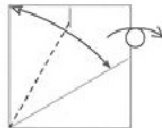
Author's advice: Use a 15 cm square of paper or larger, white on one side and red brown on the other. Wet folding works particularly well.



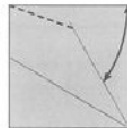
1. Crease the midline partway.



2. Valley-fold and unfold the bottom right corner to the midline crease.



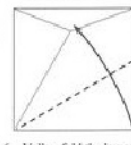
3. Fold and unfold the left edge to the last crease and turn the paper over.



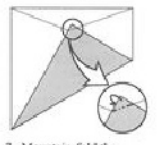
4. Valley-crease by placing the top right corner on the last crease.



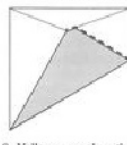
5. Crease as shown and turn the model over.



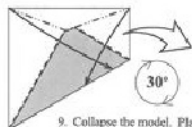
6. Valley-fold the lower right corner as in step 2.



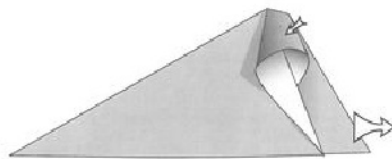
7. Mountain-fold the corner to match the crease underneath.



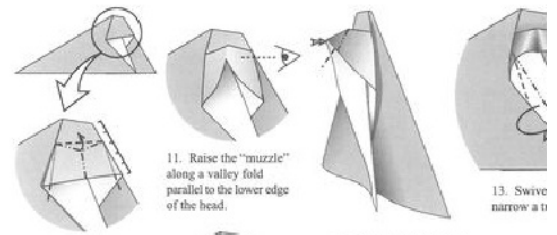
8. Valley-crease along the raw paper edges.



9. Collapse the model. Place the top left corner over the top right corner.

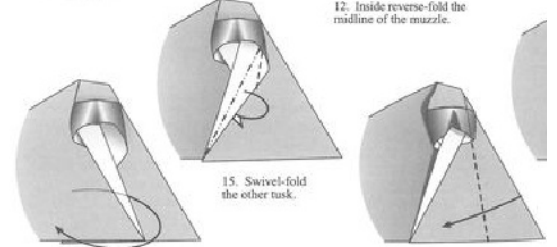


10. Squash the "head" by aligning its right edge with the model's right edge.



11. Raise the "muzzle" along a valley fold parallel to the lower edge of the head.

13. Swivel narrow a tusk.

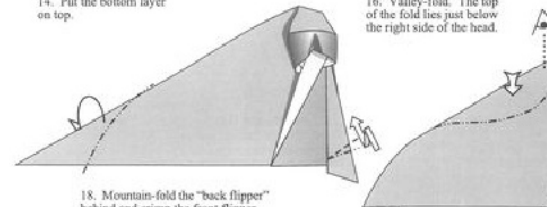


12. Inside reverse-fold the midline of the muzzle.

15. Swivel-fold the other tusk.

14. Put the bottom layer on top.

16. Valley-fold. The top of the fold lies just below the right side of the head.



18. Mountain-fold the "back flipper" behind and crimp the front flipper.

19. Swing tusks out until their tips touch. Shape the top of the head and back. Fold up the back flipper degrees.

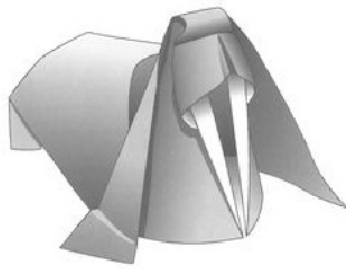
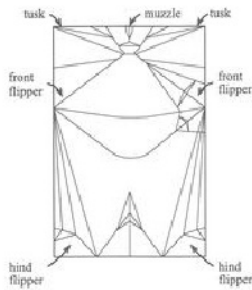


Hey! Where is everyone going?

20. Depress and shape "eyes".

Walrus II

Created / 2009
 Difficulty / Intermediate
 Time to fold / 30 minutes
 Dimension / R=0.64

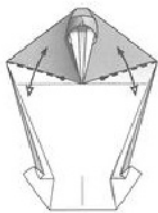


Author's advice: Use a rectangle of paper with the short side 2/3 the length of the long side (1 to 1.5 ratio). If you can, use paper that is white on one side and red brown on the other. Wet folding is also recommended for this walrus.

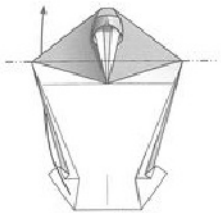
1. Valley-crease the top 1/3 of the indicated downward diagonal.
2. Place the bottom right corner on the top left corner and crease the left edge at point Q.
3. Place point Q on the downward diagonal and the bottom left corner on the top edge. Crease the left edge at point R.
4. Valley-fold and unfold through point R to define Line A.
5. Crease the midline only where shown and define point S.
6. Place the top left corner on point S and valley-crease as shown.
7. Repeat step 6 on the other side.
8. Turn the model over.

9. Place the top right corner on line A and valley-crease as shown.
10. Repeat step 9 on the other side.
11. Turn the model over.
12. Collapse it by placing the corners on point S.
13. Raise the "muzzle" along a valley fold parallel to the lower edge of the head.
14. Inside reverse-fold the midline of the muzzle.
15. Swivel-fold to narrow tucks.
16. Valley-fold the bottom right corner a little bit past the midline.
17. Valley-fold. See the next diagram for the result.
18. Swivel-fold edge to create a back flipper.
19. Swivel-fold. The long edges line up.
20. Repeat step 19 on the other side.

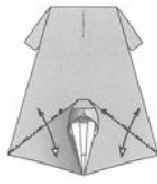




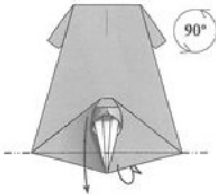
21. Valley-crease. Do not crease between the dots.



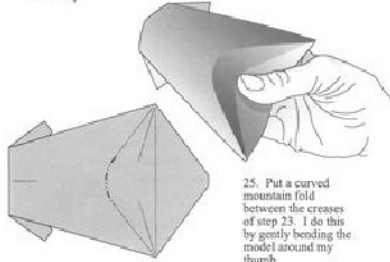
22. Mountain-fold the bottom part of the model up.



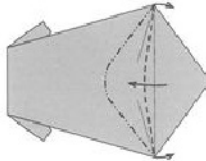
23. Mountain crease. Do not crease between the dots.



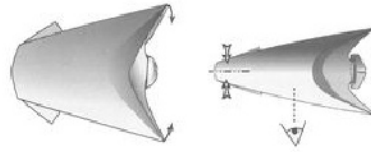
24. Swivel the top part of the model down and rotate it 90 degrees counter-clockwise.



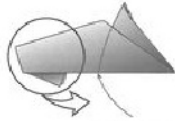
25. Put a curved mountain fold between the creases of step 23. I do this by gently bending the model around my thumb.



26. Crimp the model. The valley fold lies between the creases of steps 21 and 22.



27. Bevel the back flippers together with a small mountain fold.



Tip of the tasks.



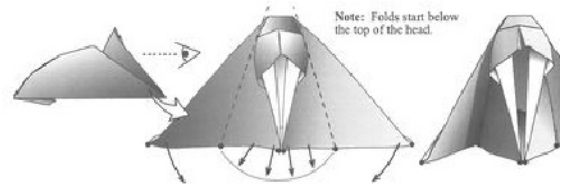
28. Fold and unfold.



29. Inside reverse-fold.

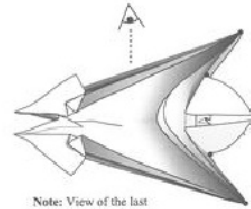


30. Close-sink to round the rump. Fold the back flippers up.

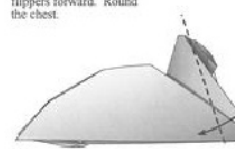


Note: Folds start below the top of the head.

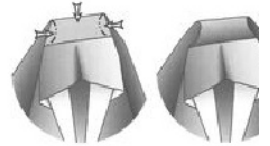
31. Valley-fold front flippers forward. Round the chest.



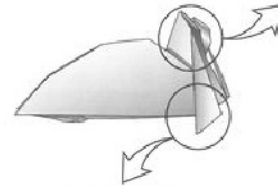
Note: View of the last step from underneath.



32. Valley-fold one or both flippers back.



33. Depress the top of head and shape edges to create small round eyes.



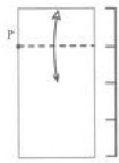
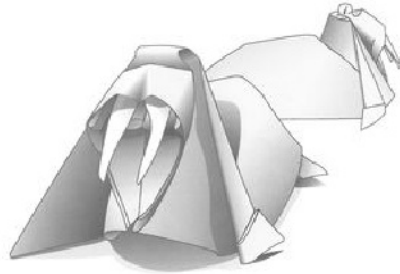
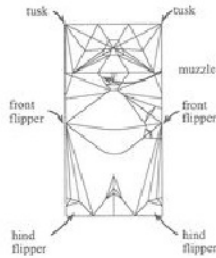
34. Crimp front flipper.



Walrus III

Created / 2009
 Difficulty / Intermediate
 Time to fold / 45 minutes
 Dimension / R=0.50

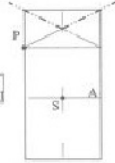
Author's advice: Use a rectangle of paper twice as long as wide, white on one side and red brown on the other. Wet folding is also recommended for this walrus.



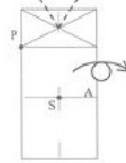
1. Valley-crease 1/4 of the way down from the top edge through point P.



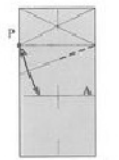
2. Do steps 1-5 of Walrus II from point P to the bottom.



3. Make mountain creases.



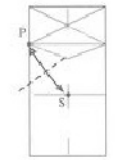
4. Valley-crease angle bisectors and turn the paper over.



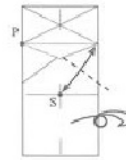
5. Place point P on line A. Valley-crease the right side.



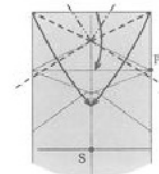
6. Repeat the last step on the left side and turn the paper over.



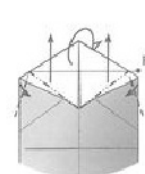
7. Valley-fold and unfold by placing point P on point S.



8. Repeat the last step on the right side and turn the paper over.



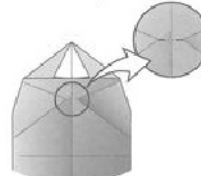
9. Bring the corners to the midline using creases from steps 7-8.



10. Swivel the two corner flaps up on the crease through point P.



11. Wrap the other side.



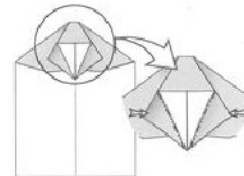
12. Mountain-crease through all layers.



13. Turn the model over.



14. Collapse the creases (steps 5 mountain folds) underneath then



15. Inside reverse-fold to narrow tusk flaps.



16. Lift one flap up.



17. Pull out the



18. Valley-fold the tusk flap down.

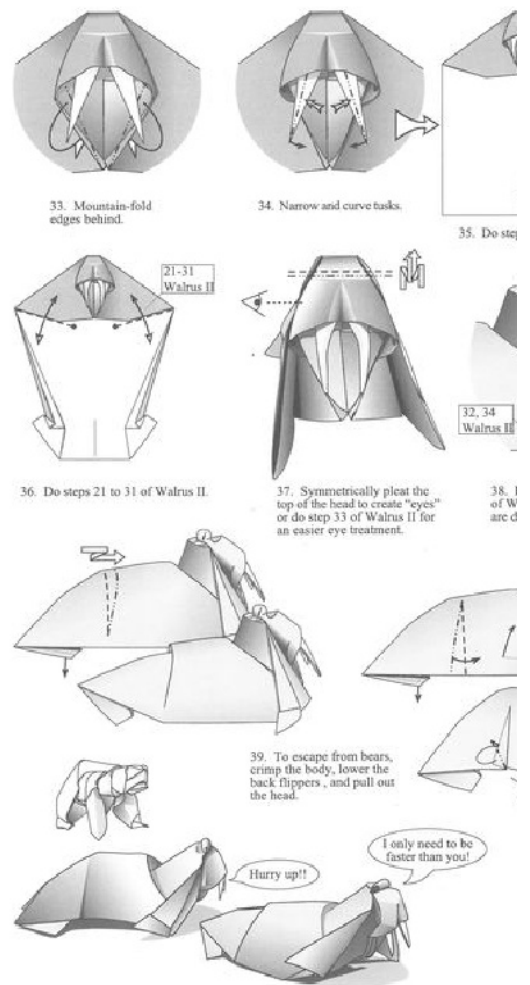
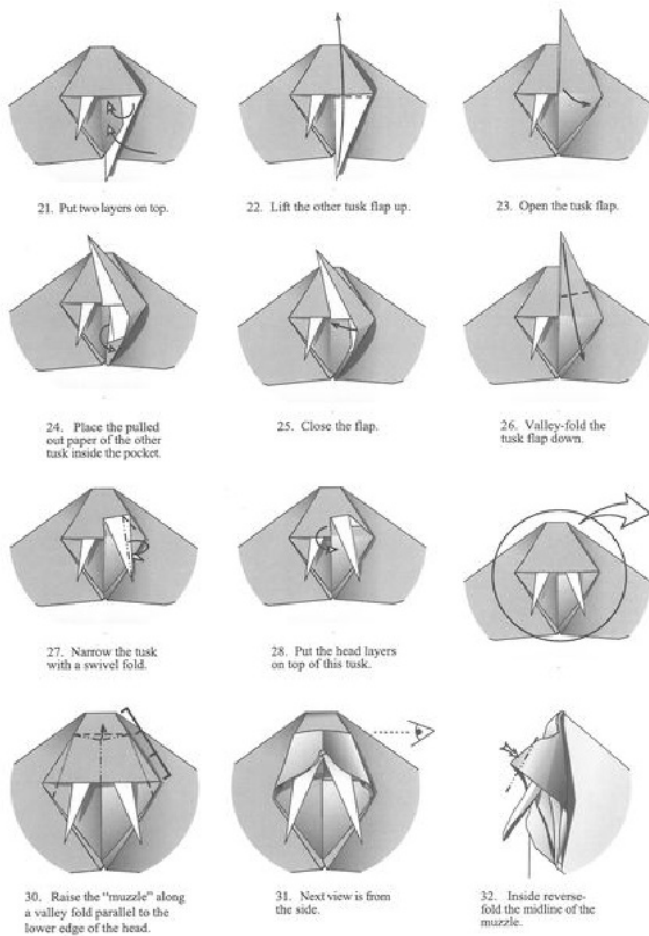


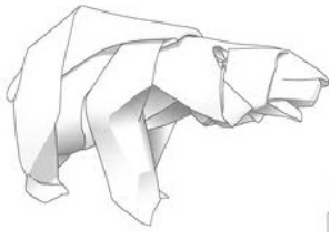
19. Narrow the tusk with swivel folds.



20. Tuck under the



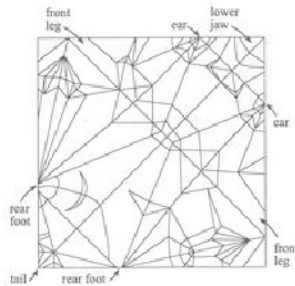




Polar Bear

Created / 2000
 Difficulty / High intermediate
 Time to fold / 45 minutes
 Dimension / R=0.68

Author's advice: Use a 23 cm (nine inch) square of paper or larger, white on both sides for best results. These diagrams are in two colors to indicate the paper's reverse side. Wet folding gives the best results, but very satisfactory bears can be made with kami. The shaping folds are important to achieve a natural appearance of this asymmetric model. Spend time on them! These diagrams introduce a base I make many bear models from.



1. Crease a midpoint and part of the downward diagonal on the reverse side of the paper.

2. Bring the top right corner to the midline, and crease the top edge at point Q.

3. Bisect the distance from point Q to the raw corner with a crease.

4. Valley-fold the top left corner to the downward diagonal through the crease of step 3.

5. Valley-fold corners.

6. Divide the indicated edge in thirds with creases. Crease the bottom edge.

7. Unfold.

8. Mountain-crease.



9. Valley-fold the top left corner down.

10. Bisect angle with a valley crease.

11. Repeat the last step on the other corner.

12. Valley-crease made.

13. Mountain-crease through both layers on existing creases.

14. Unfold.

15. Change the mountain creases of step 13 to valley creases.

16. Mountain-crease made.

17. Mark a midpoint with a crease.

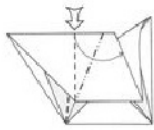
18. Valley-crease.

19. Valley-fold over and over. Rotate the model 45 degrees clockwise.

20. Collapse on existing creases.

21. Tuck the bottom underneath the top flap. Allow this edge to bulge.

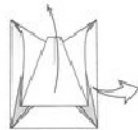
Note: The shadow indicates the position of layers underneath the top flap.



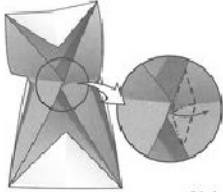
22. Open the model slightly and repeat step 20 on the left side to make my "bear base".



Note position of inside layers.



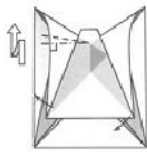
23. Open the top flap.



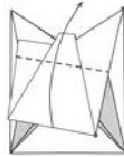
24. Inside reverse-fold the right edges. Place the left edges on top of these.



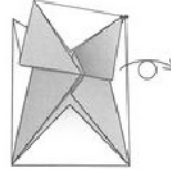
25. Valley-fold the top of the model down.



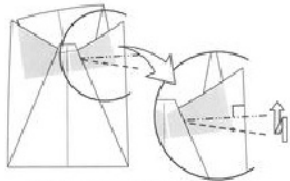
26. Swivel the top flap to the left as far as it will go. Take up the excess paper on the left side with a crimp. The model is now flat.



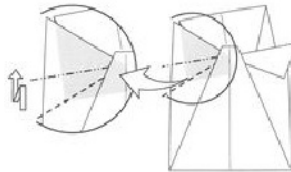
27. Lift the top flap so that its right corner almost touches the tip of the right front leg flap (dots).



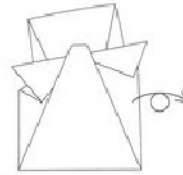
28. Turn the model over.



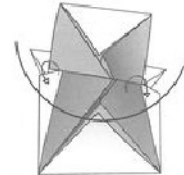
29. Crimp both layers of the "right front leg". The shadow shows the head and neck layers underneath.



30. Crimp both layers of the left front leg. More than twice as much paper is crimped on this side.



31. Turn the model over. Note: Front leg edges are in a line with each other and parallel to the front of the head flap.



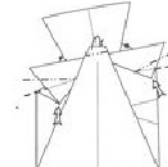
32. Bring a leg layer on top.



33. Swivel-fold. Use sm as needed to neaten this st



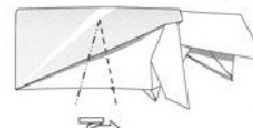
34. Turn the model over. Note: Paper edges marked with dots should be visible from the other side.



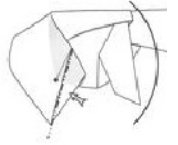
35. Inside reverse-fold front legs. Mountain-fold the top of the body flap underneath.



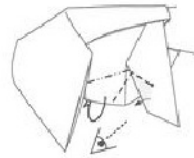
36. Bend the model in half to rotate it. Do not crease sh



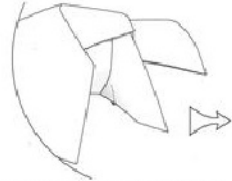
37. Crimp the right back leg using underlying layers (shadows) as guides. I hold the model up to a light to see the inside layers. Do not do this on the other side.



38. Inside reverse-fold leg along a fo. The mountain fold shown above is to the previous valley fold (marked by a



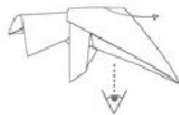
39. Mountain-fold "belly" flap underneath. This is a 90 degree fold. Do not crease sharply. The reverse fold from step 35 (shadow and dot) will be partially undone.



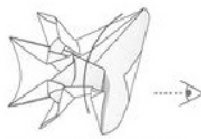
40. Rotate model end t



41. Mountain-fold "belly" underneath 90 degrees. The reverse fold from step 35 will be partially undone on this side.



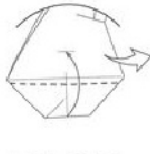
42. Pull out the tail flap.



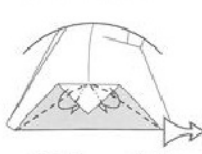
View from underneath the model of the leg and belly folds.



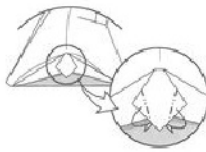
43. Mountain-fold behind through a crease from step 6.



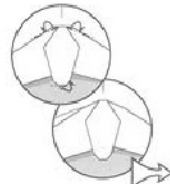
44. Valley-fold the flap up to the crease of step 17.



45. Inside reverse-fold edges. The folds do not meet at the center.



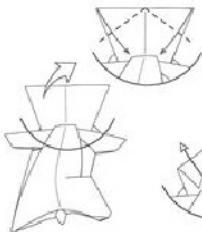
46. Shape the tail with mountain folds.



Optional: Round the top and bottom edges of the tail with small mountain folds.



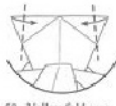
47. Mountain-fold. **Note:** The fold intersects the bottom edge at different positions (dots).



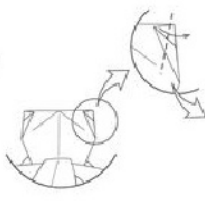
48. Valley-fold points of the "ears" to the sides of the body.



49. Unfold.



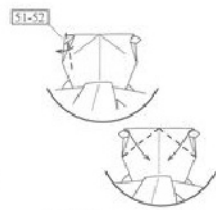
50. Valley-fold ears.



51. Valley-fold.



52. Inside reverse-folds to narrow the ear.



53. Repeat steps 51-52 and fold the "head flaps" down.



54. Bend the body. Do not crease sharp.



55. Pull out the hidden flap to create a lower jaw.



56. Crimp muzzle symmetrically.



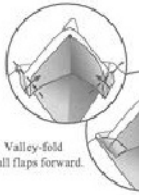
57. Inside-rever flap. Curve the flap to the right of the head.



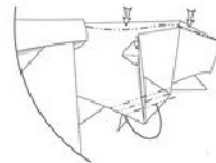
58. Pull the jaw tip (dot) out slightly beyond the muzzle.



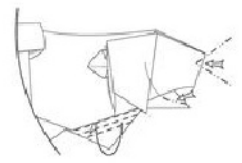
Next view is from under the head.



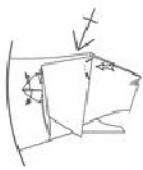
59. Valley-fold small flaps forward.



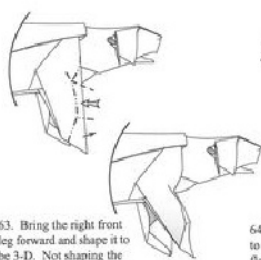
60. Slightly flatten the top of the neck and head. Maintain the downward slope of the muzzle. Bend the neck's underside 90 degrees.



61. Pinch the nose, shape the inside of the lower jaw, and bend the other side of the neck.



62. Open sides of the ear and shape an edge to form an eye. Repeat behind.



63. Bring the right front leg forward and shape it to be 3-D. Not shaping the paw will extend the stride of the bear. Your choice.



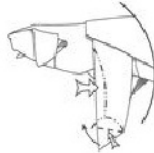
64. Wrap layers covering the ankle to the other side. I pull down the tail flap and reverse folds to do this.



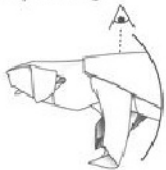
65. Twist the foot forward and shape the back leg.



66. Turn the model over end to end.



67. Inside reverse-fold the foot and shape the left front leg to make it 3-D.



Next view is from above.



68. Shape a curve in the edge between the dots to create a back foot. Push in at the site of the big white arrow and bring the two sides of the body and back legs closer together.

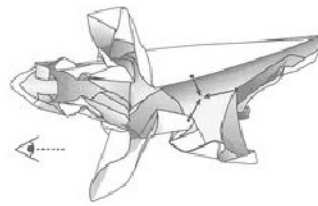
Next view is from behind.



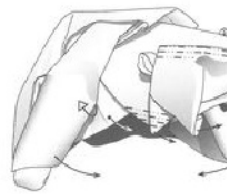
69. Swivel-fold an edge. The folds meet to the right of tail tip (dot).



The next shaping steps will make your bear come alive. Spend some time with them. Next view is from underneath the model. The right front paw is not shaped in the next two diagrams.



70. If you used thick paper like Canson, carefully dampen surfaces except the top surface of the head, neck, and back. Bring the three edges of the belly (at the dots) together. I bind these areas together with thread until the model dries.

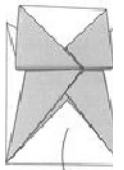


71. Bring the front legs closer together from under the front legs to partially cover and sack (dot). Curve the edge between the ears, and the edge of the neck points below the lower jaw closer together features in place with thread to dry.

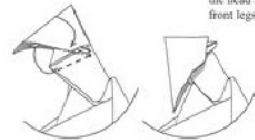


Finished polar bear.

Shaping alternative



To make the standing bear shown be the head and neck flap beyond the front legs (step 27). Unfold the bot



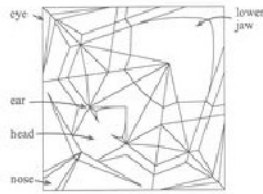
Crimp the head down and then do steps 56-59.



Make wide crimps for the front legs and narrow ones for the back legs.

Polar Swim

Created / 2007
 Difficulty / Complex
 Time to fold / 1 hour
 Dimension / R=0.52 for length



Author's advice: Among the most serious threats to polar bear populations is the melting of the polar sea ice. Polar bears will not be able to hunt seals without this feature. I designed this polar bear head in honor of their ability to swim and survive. Use bicolored paper for this model, preferably white on one side and black on the other. Wet folding works well.



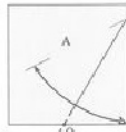
1. Valley-crease diagonals on the dark side of the paper.



2. Crease the midpoint of the bottom edge at point P.



3. Place the top left corner on point P and lightly valley-crease parts of line A.



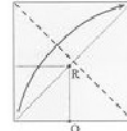
4. Place the right edge on line A and crease the bottom edge at point Q.



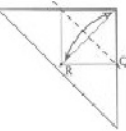
5. Fold and unfold the bottom edge on to itself through point Q to the upward diagonal at point R.



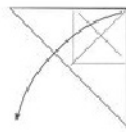
6. Valley-crease from point R to the left edge.



7. Valley-fold the model in half.



8. Fold and unfold both corners to point R.



9. Unfold the model. The next two steps mark the edges for folds in step 39.



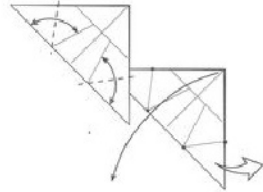
10. Bisect distances with pinches on the raw edges.



11. Define valley where indicated.



12. Valley-fold the model in half.



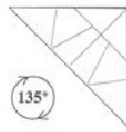
13. Bisect the indicated angles with valley creases and unfold the model.



14. Extend creases of the upward diagonal at point U.



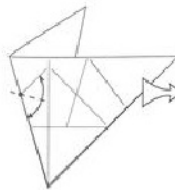
15. Fold the model in half again.



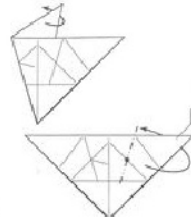
16. Rotate the model. 135°



17. Mountain-fold the left flap on a crease from step 11. This is the tip of an ear.



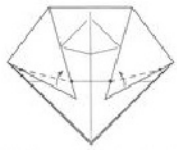
18. Fold and unfold the left edge to the crease of step 5 (defines an ear).



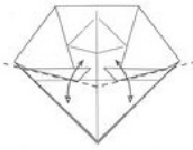
19. Unfold the left side and Repeat steps 17-18 on the right.



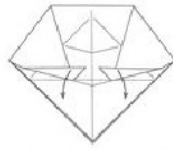
20. Valley-fold the left and right down on the creases of step 13 of the flaps become the polar bear's legs.



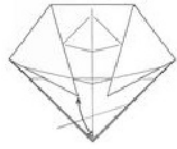
21. Valley-fold the eye flaps through the black dots. The center dots lie on the crease of step 8. The raw edge of these flaps becomes horizontal as seen in the next diagram.



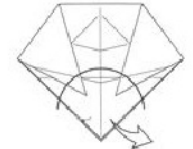
22. Valley-crease the top layer of the "head" along the folded edges of the eye flaps. The folds meet on the model's midline.



23. Fold the ends of the eye flaps down.



24. Put the raw corner of the top layer on the tip of the eye flap and crease the left edge.



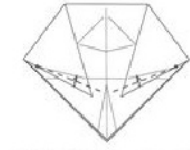
25. Bisect the distance along the left edge with a pinch.



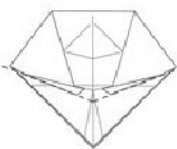
26. Place the corner on the midline and crease the right side in line with the last pinch.



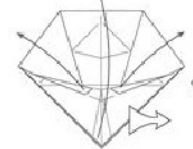
27. Mountain crease the "bridge of the nose" through the last two pinch marks.



28. Valley-fold the raw edges of the eye flaps to the creases of step 21.



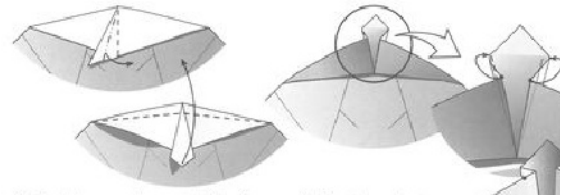
29. Valley-crease the top layer along the folded edges of the last step.



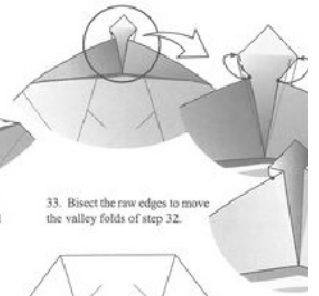
30. Unfold the model completely. I know this step is hard to accept. Bear with me!



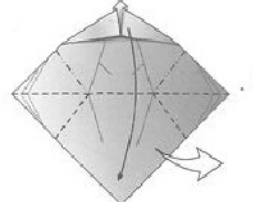
31. Rabbit-ear the top corner on folds from step 27.



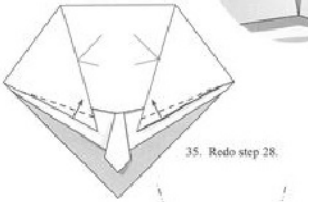
32. Squash the nose on the mountain folds of step 27 (inner folds slightly overlap). Then fold the assembly up on the creases of step 29.



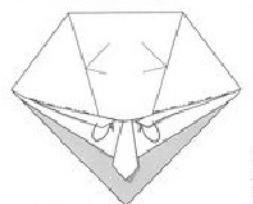
33. Bisect the raw edges to move the valley folds of step 32.



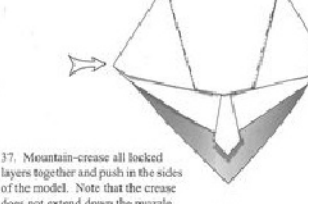
34. Return the model to step 21.



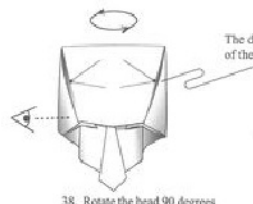
35. Redo step 28.



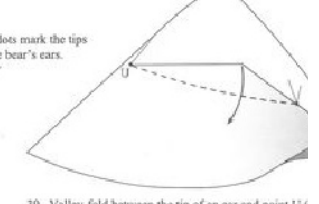
36. Tuck eye flaps into the crimped pocket.



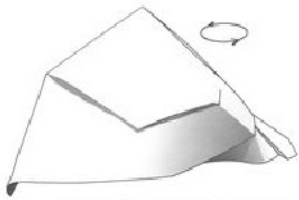
37. Mountain-crease all locked layers together and push in the sides of the model. Note that the crease does not extend down the muzzle.



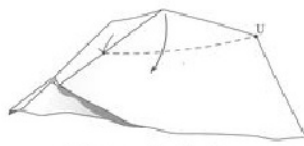
38. Rotate the head 90 degrees to the right.



39. Valley-fold between the tip of an ear and point U. The model will be under more 3-D tension.



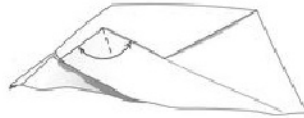
40. Rotate the model to view the other side.



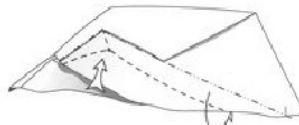
41. Repeat step 39 on this side.



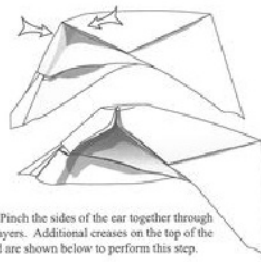
42. Mountain-crease a line from the tip of an ear to the marked edge from step 10.



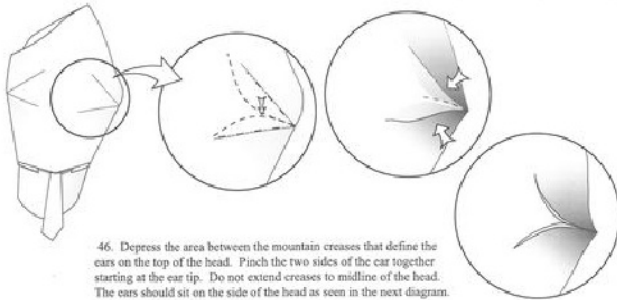
43. Valley-crease an angle bisector from the ear tip.



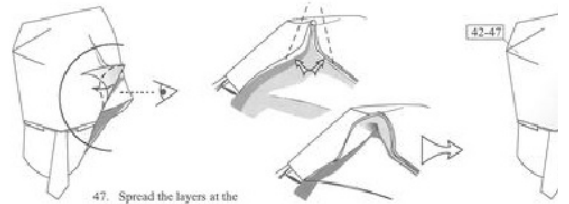
44. Create valley creases below the mountain crease. Push in at the black dot, and angle the head down. Pleat, putting paper inside the model.



45. Pinch the sides of the ear together through all layers. Additional creases on the top of the head are shown below to perform this step.

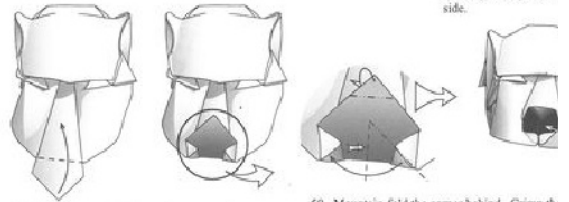


46. Depress the area between the mountain creases that define the ears on the top of the head. Pinch the two sides of the ear together starting at the ear tip. Do not extend creases to midline of the head. The ears should sit on the side of the head as seen in the next diagram.



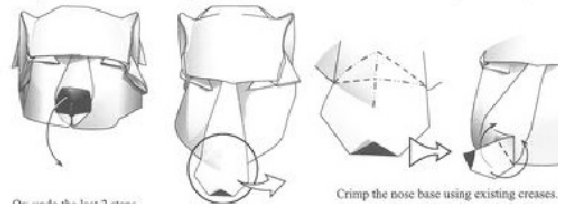
47. Spread the layers at the top of the ear to round it.

48. Repeat steps 42-47 side.



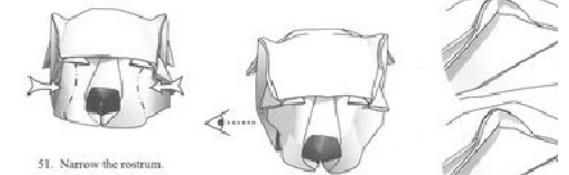
49. Wet the top and bottom of the nose with methyl cellulose or water and valley-fold it up.

50. Mountain-fold the corner behind. Crimp the bottom. Place the crimped wedge to one side of midline. Secure it with a clip and let it dry.



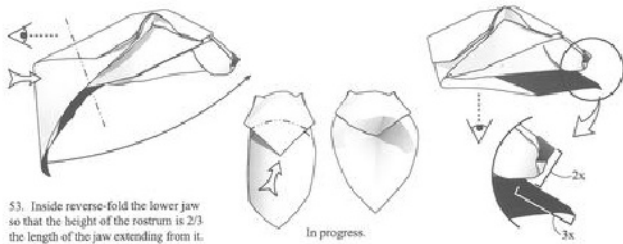
Or: undo the last 2 steps.

Crimp the nose base using existing creases. The nose end over the crimp to lock the rim.

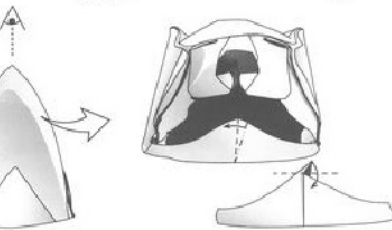


51. Narrow the rostrum.

52. Crimp the rostrum down on both sides. Round the bottom edges with mountain folds.



53. Inside reverse-fold the lower jaw so that the height of the rostrum is 2/3 the length of the jaw extending from it.



54. Curve mountain-fold the underside of the lower jaw.

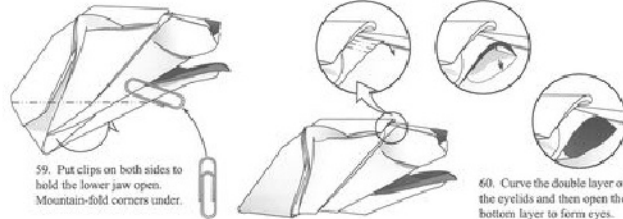
55. Crimp the lower jaw and valley-fold the tip down.



56. Valley-fold.

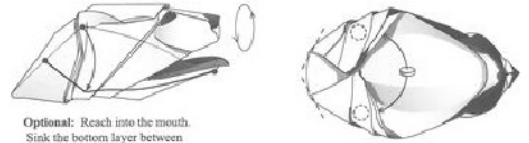
57. Roll the lip forward so that it extends beyond the muzzle (see below).

58. Put the lower jaw inside the upper jaw.



59. Put clips on both sides to hold the lower jaw open. Mountain-fold corners under.

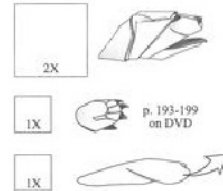
60. Curve the double layer of the eyelids and then open the bottom layer to form eyes.



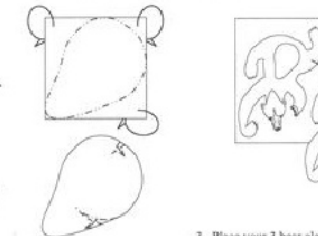
Optional: Reach into the mouth. Sink the bottom layer between the dots to the level of the solid line to enlarge the mouth cavity.

61. Round the back of the neck with two tiny valley folds.

Optional: Make an artistic display of your polar bear origami. Here is how.



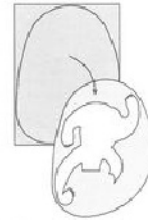
p. 193-199 on DVD



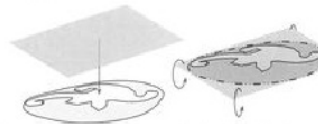
1. Prepare three squares with sizes as indicated. The body square does not need to be bicolored.

2. Mountain-fold edges under a body shape and crimp it to make it slightly 3-D.

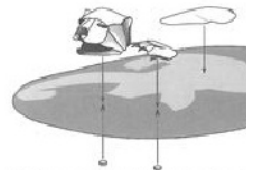
3. Place your 3 bear c/s same white paper you u them. Draw a swimming above and cut it out.



4. Cut out an interesting "water" shape from blue cover board and spray glue your cut out bear on it.



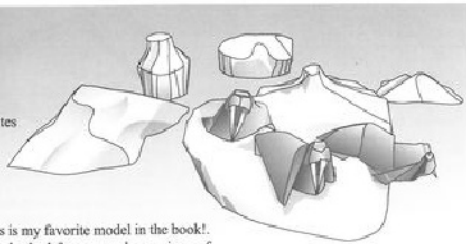
5. Spray glue blue tissue on the cover board and wrap the edges on



6. Glue or place your origami bear parts on it and secure them with magnets placed under

Iceberg

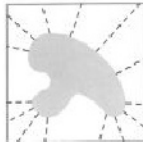
Created / 2012
 Difficulty / Simple
 Time to fold / 15 minutes



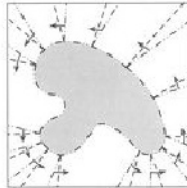
Author's advice: This is my favorite model in the book! Very good results can be had from any shape piece of paper. Icebergs can be white to shades of green and blue. Experiment! Try these techniques and create your own.



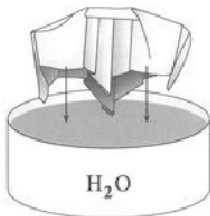
1. Mountain-crease a shape (shaded) for the top surface of an iceberg.



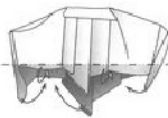
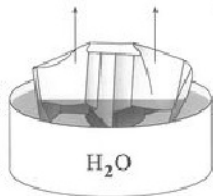
2. Make valley creases extending from all or some of the curved edges.



3. Add mountain creases and crimp the sides of the iceberg.



4. Dip the iceberg in water for a few seconds. Make sure the water intersects the iceberg at only one level (don't jiggle).



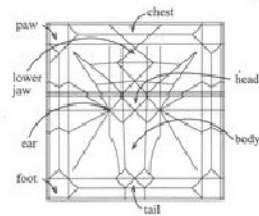
5. Mountain-fold wet edges of the iceberg inside.

Finished iceberg. Well this is just a drawing. I leave it to you to make a real one.

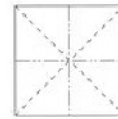


Lying Bear

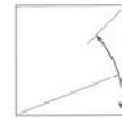
Created / 2000
 Difficulty / Complex
 Time to fold / 3+ hours.
 Dimension / R=0.5 for length



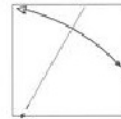
Author's advice: Use a 10 inch (25cm) square or larger, light side up for a bear's claws. I like to use an 80 cm square of el backed with black or blue paper. Half the making this model is shaping folds. The give the bear a relaxed posture. Spend time My design inspiration came from Inuit so the few brown bears I saw in the Cana



1. Crease diagonals and book folds on the side of the color of the bear.



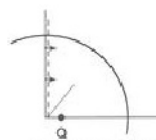
2. Fold the bottom corner to the diagonal. Crease only the right edge to find point "P".



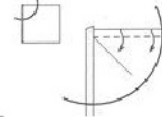
3. Fold the top left corner to point P and pinch the bottom edge to identify point "Q".



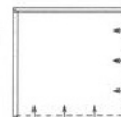
4. Fold the point Q, which top left corner edge. Crease bottom edge.



5. Valley-fold parallel to the left edge through the previous pinched mark.



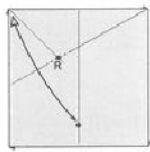
6. Valley-fold a similar width along the top edge.



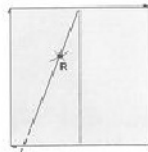
7. Valley-fold a similar width on the remaining two edges, starting with the right edge.



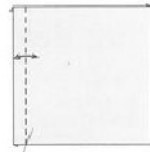
8. You now have change for the the model over



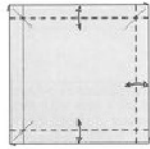
9. Place the top left corner on the midline. Crease the diagonal on point "R".



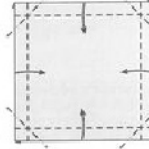
10. Crease the bottom edge on the line that connects the center of the top edge and point R.



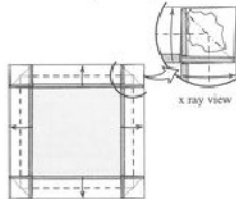
11. Valley-fold and unfold the left side through the crease of the previous step.



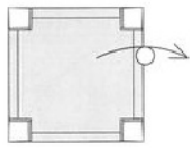
12. Valley-fold and unfold the same widths of paper on the remaining 3 sides of the square.



13. Preliminary-fold the corners to create paws.



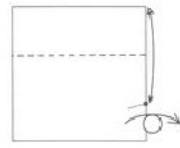
14. Valley-fold inner edges to the outer edges of the model. Valley and hidden mountain folds meet at the center of the 4 corner squares.



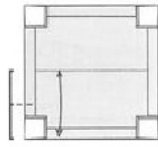
15. Turn the model over. The next steps define where the head, body, and legs are located.



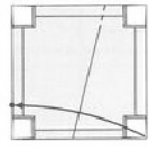
16. Place the bottom right corner on the horizontal midline and pinch the right edge, and unfold.



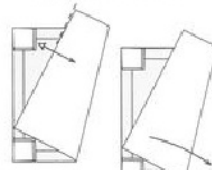
17. Valley-fold and unfold the top edge to the crease of the previous step to define the bear's brow. Turn the model over.



18. Crease the left edge halfway between the bottom edge and the midline.

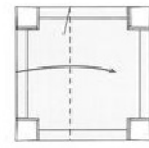


19. Place the bottom right corner onto the left edge on the crease made in the last step.

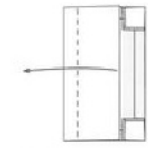


20. Crease the top edge where the right side intersects it.

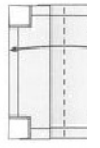
21. Unfold.



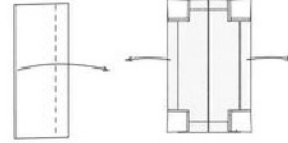
22. Valley-fold the left side of the model to the right, through the crease made in step 20.



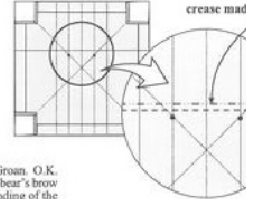
23. Valley-fold the same edge to the left along the hidden midline.



24. Valley-fold edge to the left

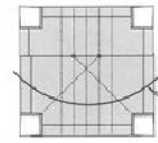


25. Valley-fold this same edge to the right along the hidden midline.

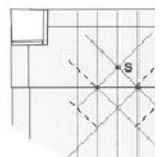


26. Unfold the model. Groom. O.K. The next step creates the bear's brow and results in some rounding of the two front limbs. Do it carefully.

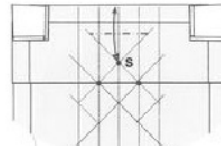
27. Valley-fold halfway between intersections marked by the B) the crease made in step 17. P) along these two parallel crease



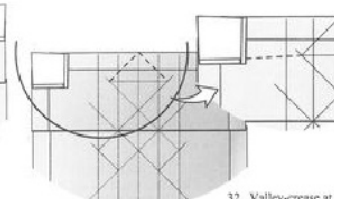
28. While keeping the pleat closed, fold and unfold the pleat's edge to the creases made in steps 22 and 24. The resulting angle bisectors intersect at point "S".



29. Valley-crease as sho

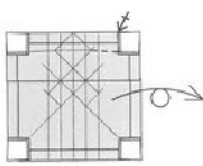


30. Mountain-fold and unfold the top edge to point "S". This step creates the lower jaw hinge.

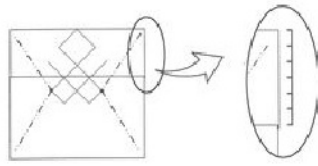


31. Valley-crease.

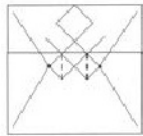
32. Valley-crease at top of the claw hem.



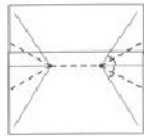
33. Repeat step 32 on the right side and turn the model over side to side.



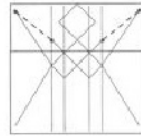
34. Mountain-crease lightly from the ears (dots) toward the model corners. The guide at the right indicates how much paper to leave increased at each corner.



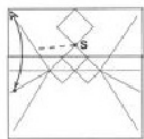
35. Valley-crease.



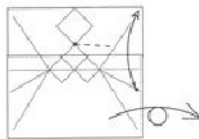
36. Valley-crease angle bisectors. Make sure the pleat does not open at the edges during this step.



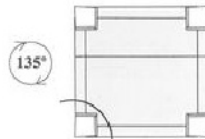
37. Connect the indicated intersections with valley creases.



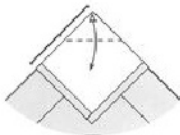
38. Valley-crease from point "S" to halfway to the model's edge by placing the top left corner on the crease made in step 36.



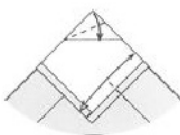
39. Repeat step 38 on the right. These folds help collapse the model later on. Turn the model over.



40. Rotate the model and point the indicated corner straight up. The next steps create digits on the paws.



41. Valley-fold and unfold the corner to the middle of the paw.

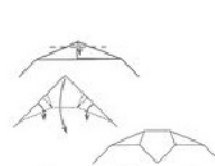


42. Valley-fold the left edge to the previous crease. Mark the midpoint of the paw's lower right side.

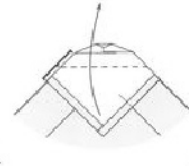


43. Fold down the right edge. This step and the next one round the front end of each paw.

44



44. If you are using thin paper such as foil, fold the tip down. For thick paper, fold the tip down, then open the corner, and refold it with small crimps.



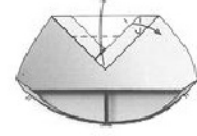
45. Valley-fold the flap up. Now we are ready to make some digits.



creases made in step 14
46. Locate the two points on the previous crease that the creases made in step 48 will be made in step 49. Valley-crease to the tip of the flap.



47. Fold the flap down through the midpoint crease from step 42.



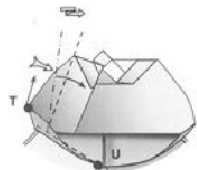
48. Open the right hem as you swivel-fold the flap up.



49. Fold the right border. Adjust the valley crease from step 48 if the result does not look like this.



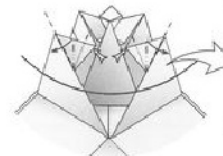
50. Crimp a toe. The valley fold was made in step 46.



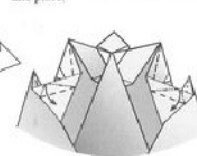
51. Crimp the next toe. The valley fold is parallel to the mountain-fold from step 50. Swivel point "T" up and to the right as you make the crimp. A gusset may appear at point "U" as this toe is stretched into place.



52. Repeat step on the right.



53. Symmetrically squish the flaps between the two outer toes.

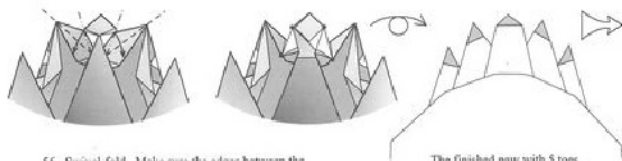


54. Petal-fold the squashed layers to create space between adjacent claws.



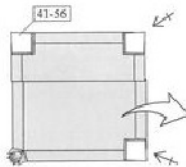
55. Wrap the top layer claws on top of the pet claws.

45

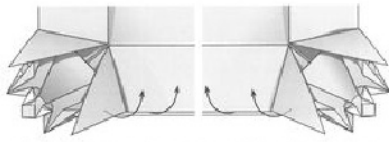


56. Swivel-fold. Make sure the edges between the dots (right image) aligns with the layer underneath.

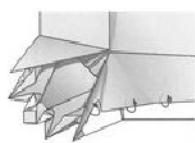
The finished paw with 5 toes as viewed from the other side.



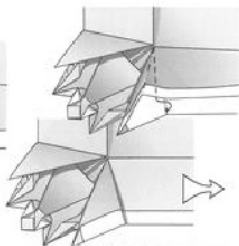
57. Repeat steps 41 to 56 on the other 3 corners.



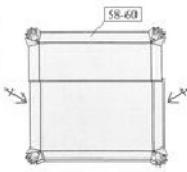
58. Lift up the top layer between two paws. Perform the next two steps on both paws and the paper between them. Only the left paw is illustrated for the next steps.



59. Wrap the hidden hem to the top. Be careful not to rip the hem that is tucked under the toes.



60. Tuck the top layer under the layer beneath it.



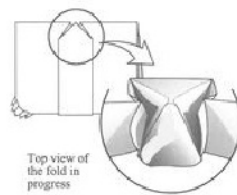
61. Repeat steps 58 to 60 on the three remaining sides. Temporarily open the pleats made in step 27 to do this.



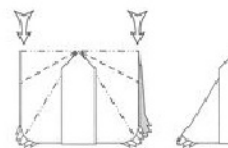
62. Turn the model over. Fold the top half of the model behind along the midline crease made in step 1.



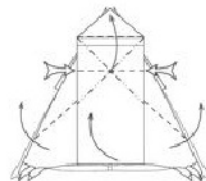
63. Open sink the edges under the white arrows while pleating the sides along the creases made in steps 22-25.



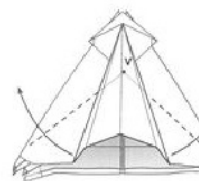
Top view of the fold in progress



64. Reverse-fold both sides of the model along the creases steps 34 and 36. DO NOT CREASE SHARPLY. Turn over side to side.



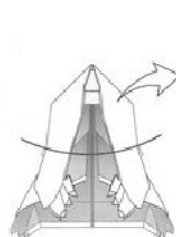
65. Fold the point marked by the dot up while pushing in the sides on the valley folds made in steps 38 to 39. Let the bottom edge swing upwards.



The valley folds will meet at hidden point midline. Swing the bottom edge up along folds made in step 37.



66. Petal-fold the middle of the top edge up along folds of steps 30 to 31 and fold the sides toward the center.



67. Squash the top flap together reduce its height 15% with new folds (x-ray line small tip will be in the front of this)

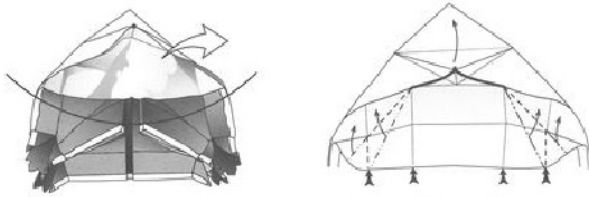


68. Open the flap. The dot marks the tip of the lower jaw in the next 4 diagrams.

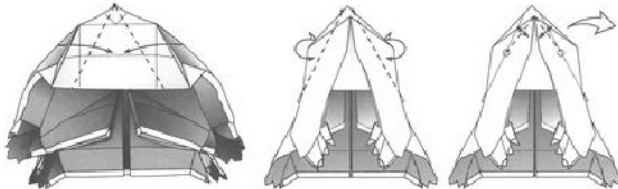


69. Pull the inner layer down from the top as far as it will go to create the bear's chest.





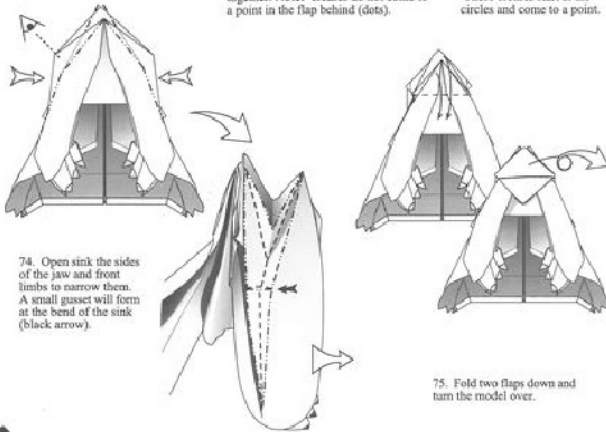
70. The dark arrows indicate where the creases made in steps 22-25 meet the bottom edge of the opened flap. Use these references to flatten the sides of the front flap. The thick dark line in the right diagram is a mountain fold made in step 67.



71. Valley-fold sides of the chest.

72. Valley-fold and unfold top layers together. Notes: creases do not come to a point in the flap behind (dots).

73. Valley-crease the top layer. These creases start at the circles and come to a point.



74. Open sink the sides of the jaw and front limbs to narrow them. A small gusset will form at the bend of the sink (black arrow).

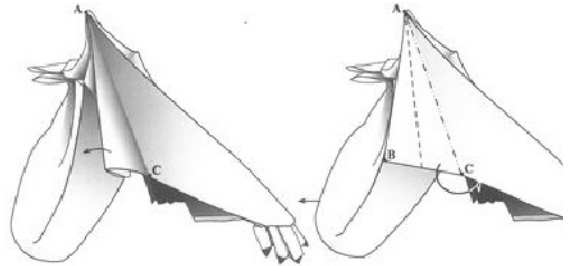
75. Fold two flaps down and turn the model over.

48



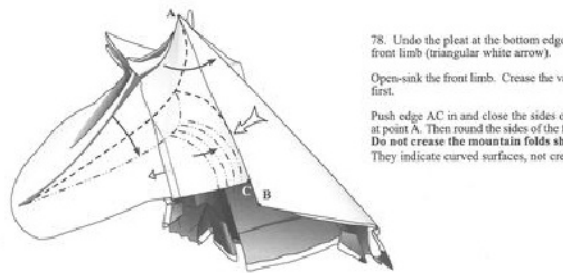
76. This step makes the ears longer. Reposition the creases made in steps 22 and 24 one quarter of the distance to the midline. The inner layers will cross. Adjust the valley folds at the top of the model as illustrated above.

Next steps: left view.



77. Extend the middle flap to the right.

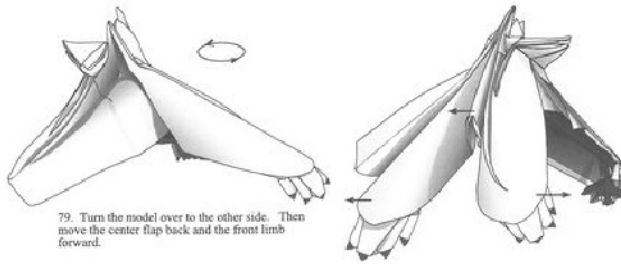
Change crease AC to mountain. Then crimp half the folding edge AC on AB. Open the model on the left e



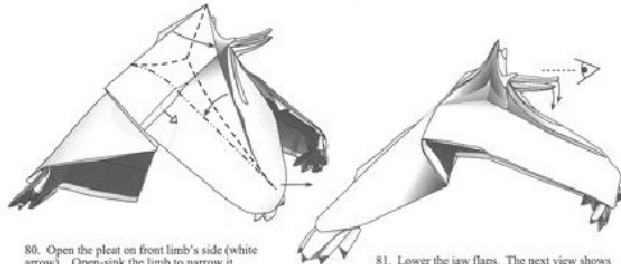
78. Undo the pleat at the bottom edge from limb (triangular white arrow). Open-sink the front limb. Crease the v first.

Push edge AC in and close the sides e at point A. Then round the sides of the Do not crease the mountain folds at They indicate curved surfaces, not cre

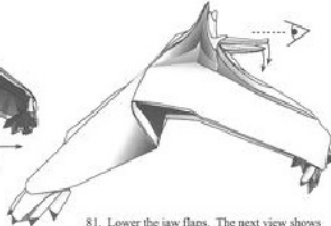
49



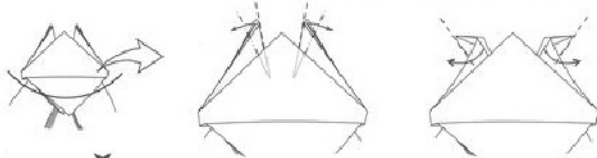
79. Turn the model over to the other side. Then move the center flap back and the front limb forward.



80. Open the pleat on front limb's side (white arrow). Open-sink the limb to narrow it.

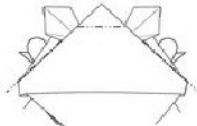


81. Lower the jaw flaps. The next view shows the ears viewed from the front of the head.

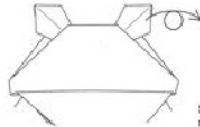


82. Inside reverse-fold the ears.

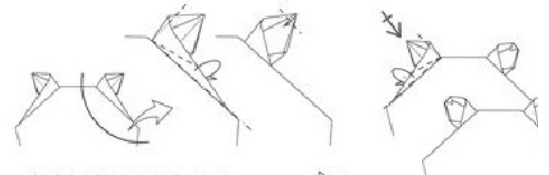
83. Valley-fold the double layer to open the ears.



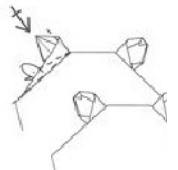
84. Close-sink the top of the head between the ears. Hide two layers beside the ears with swivel folds.



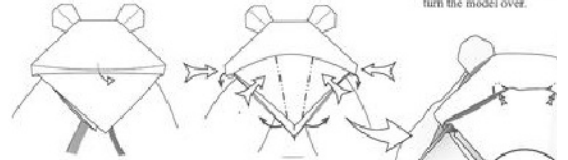
85. Turn the model over.



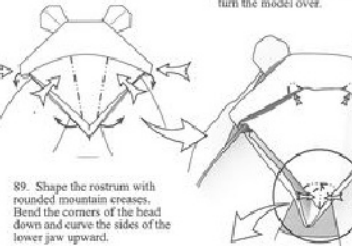
86. Swivel-fold the double layer inside. Fold down or sink the ear tip.



87. Repeat step 86 on the turn the model over.



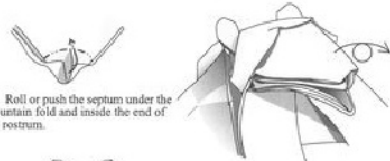
88. Pull paper out of the brow pleat to round the head.



89. Shape the rostrum with rounded mountain creases. Bend the corners of the head down and curve the sides of the lower jaw upward.



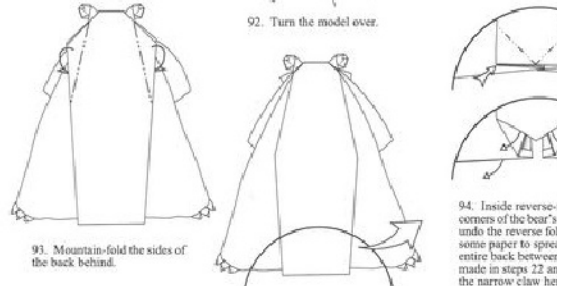
90. Push up the edge to form eyes. Pinch the nose tip together nose division (the s



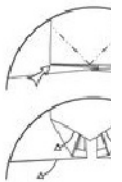
91. Roll or push the septum under the mountain fold and inside the end of the rostrum.



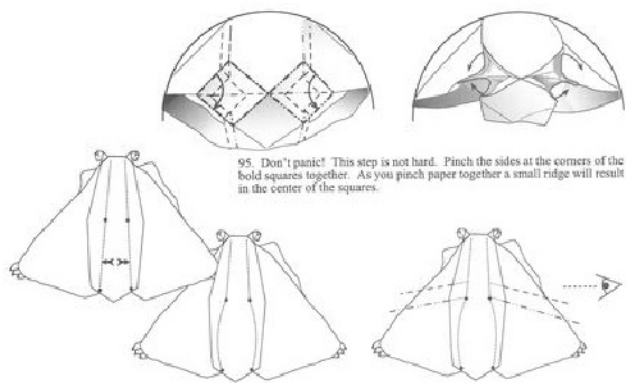
92. Turn the model over.



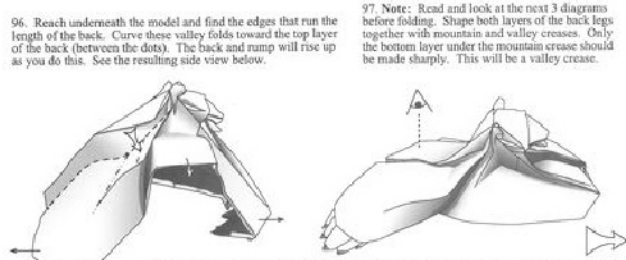
93. Mountain-fold the sides of the back behind.



94. Inside reverse-fold corners of the bear's back. Undo the reverse fold some paper to spine entire back between made in steps 22 at the narrow claw he

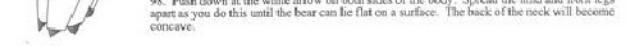


95. Don't panic! This step is not hard. Pinch the sides at the corners of the bold squares together. As you pinch paper together a small ridge will result in the center of the squares.

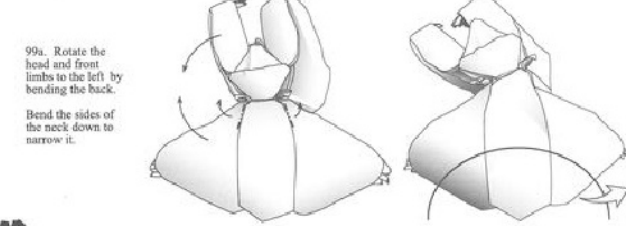


96. Reach underneath the model and find the edges that run the length of the back. Curve these valley folds toward the top layer of the back (between the dots). The back and rump will rise up as you do this. See the resulting side view below.

97. Note: Read and look at the next 3 diagrams before folding. Shape both layers of the back legs together with mountain and valley creases. Only the bottom layer under the mountain crease should be made sharply. This will be a valley crease.

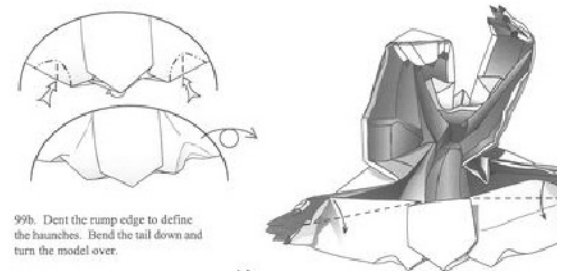


98. Push down at the white arrow on both sides of the body. Spread the hind and front legs apart as you do this until the bear can lie flat on a surface. The back of the neck will become concave.

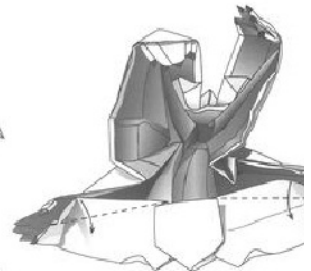


99a. Rotate the head and front limbs to the left by bending the back.

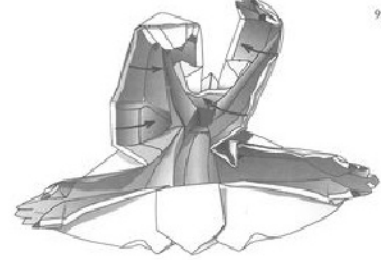
Bend the sides of the neck down to narrow it.



99b. Dent the rump edge to define the haunches. Bend the tail down and turn the model over.



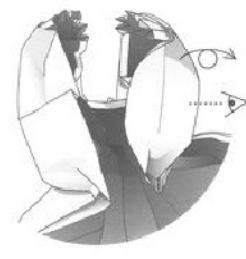
99c. Valley-fold edges down.



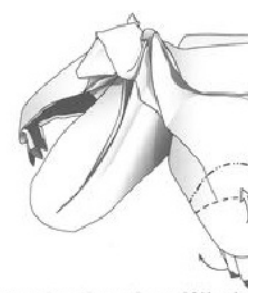
99d. Release the trapped paper on the sides of the front limbs to make them more 3-D.



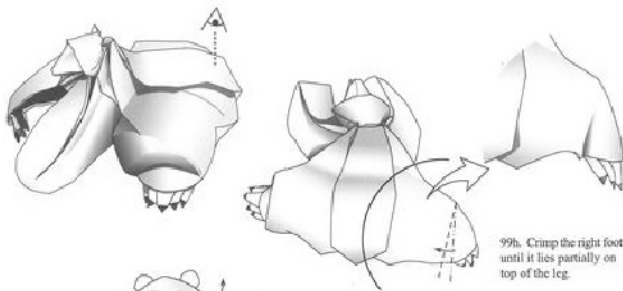
99e. Crimp to curve a limb.



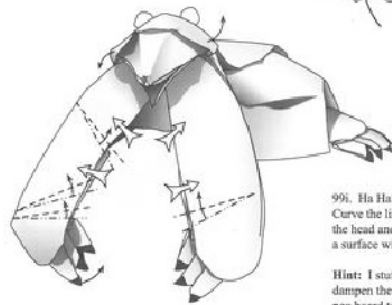
99f. Turn the model over.



99g. Depress the area between the curved folds and swivel the foot to the left. Only the valley fold is sharp.

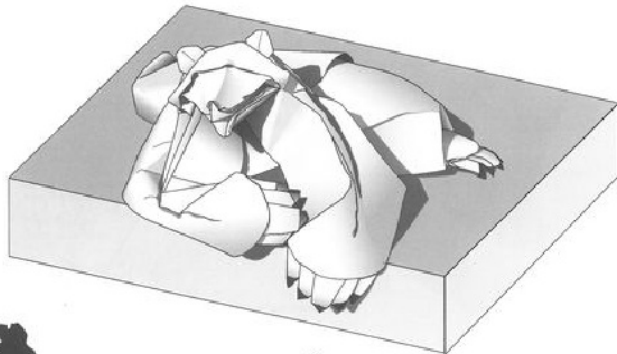


99b. Crimp the right foot until it lies partially on top of the leg.



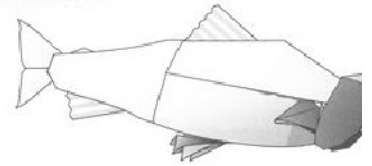
99c. Ha Ha! Crimp the top layers of the front limbs. Curve the limbs both laterally and under the chin. Lower the head and rotate it slightly. All four limbs should touch a surface with one paw hanging over the edge.

Hint: I stuff the body cavity with bubble wrap. Then I dampen the model with water and tie it in position on a peg board to dry.

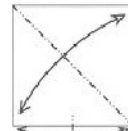
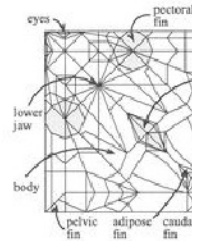


Sockeye Salmon

Created / 1999
 Difficulty / Complex
 Time to fold / 70 min.
 Dimension / R=0.62



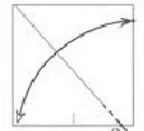
Author's advice: Start with paper that is bright red on one side and medium to dark green on the other. If you do not wish to backcoat paper, you can purchase packages of kami with this color combination. The light shades in these diagrams represents the red color. My inspiration for designing this model came from Issei Yoshino's salmon he published in "Super Complex Origami" circa 1996. I wanted the color reversal in the head and less folds in the body for my model. The color-reversed eyes were a nice design accident.



1. Mountain-crease the diagonal and midpoint of the bottom edge (red side).



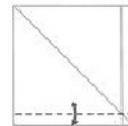
2. Place the top left corner on this midpoint and crease the right edge at point P.



3. Place the bottom left corner on point P and crease the bottom edge at point Q.



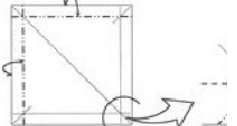
4. Valley unfold through



5. Similarly crease the bottom edge through the intersection of the last fold and the diagonal.



6. Bisect the corners with valley creases.



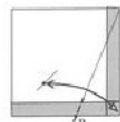
7. Mountain-fold and unfold as shown above.



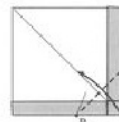
8. Prelim bottom rim



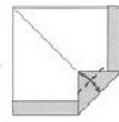
9. Crease part of the upward diagonal as shown above.



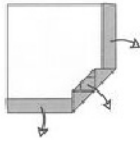
10. Place the right edge on this last crease and pinch the bottom edge at point R.



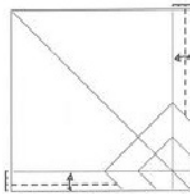
11. Valley-fold the bottom right corner through point R to the diagonal.



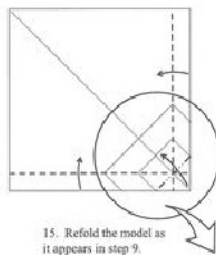
12. Valley-fold the corner back to the edge of the last fold.



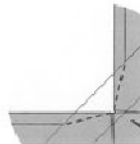
13. Unfold the model completely.



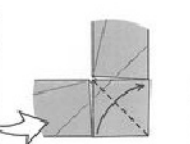
14. Valley-crease 1/3 the distance from two raw edges to the creases of steps 4 and 5.



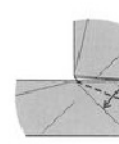
15. Refold the model as it appears in step 9.



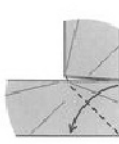
16. Make valley creases on the top layer.



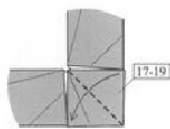
17. Fold a flap up. We are starting to make the eyes.



18. Bisect an angle with a valley crease.



19. Fold the flap back down.



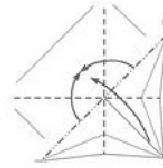
20. Repeat steps 17 to 19 on the other flap.



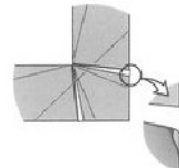
21. Unfold the model completely. NOT AGAIN!!



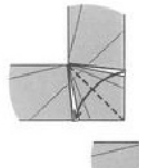
22. Mountain-fold the corner edges behind. The corner will not lie flat.



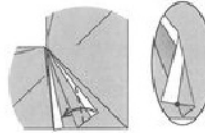
23. Redo the preliminary fold. To prevent ripped edges see the next diagram.



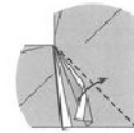
24. Fold the edge that lies under the "red" paper over to take up the strain.



25. Fold the flap down then up on existing cr



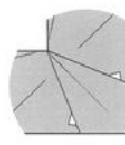
26. Valley-fold eye flap so that the raw edge lies on the previous fold line (dot).



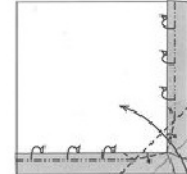
27. Fold the flap back up to the right.



28. Repeat steps 26-27 on the other head flap



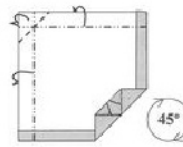
Finished head with eyes.



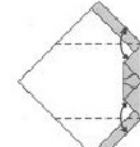
29. Simultaneously refold steps 11, 14, and 16. The model remains flat.



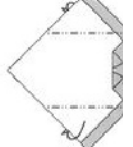
30. Fold the model into an existing crease.



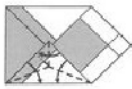
31. Preliminary-fold the top left corner behind. Rotate the model.



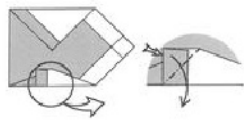
32. Valley-crease by lining up edges.



33. Reverse the previous mountain-fold the bottom corner. Turn the model.



34. Rabbit ear-fold the bottom corner through all layers to make a pelvic fin flap.



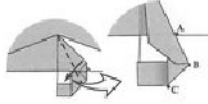
35. Open the flap and fold it down.



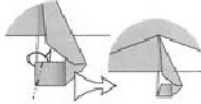
36. Valley-fold the flap to the right.



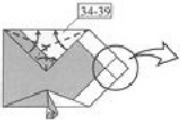
37. Fold a corner of the flap to the left.



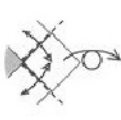
38. Narrow the flap so that distance AB is the same as BC.



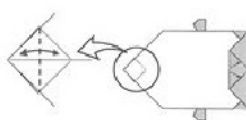
39. Mountain-fold the raw edge under.



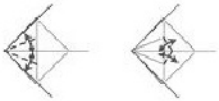
40. Repeat steps 34 to 39 on the top corner.



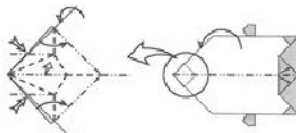
41. Valley-crease the "caudal fin" through all layers. Use the raw paper edges as a guide. Turn the model over.



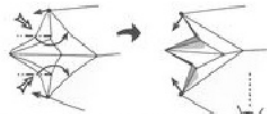
42. Valley-crease the top layer.



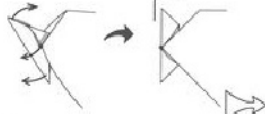
43. Valley-crease the top layer to create a kite shape. Estimate the folds in the right drawing above. Adjust them later if necessary.



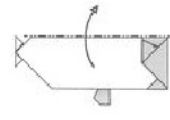
44. Mountain-fold the model in half while incorporating the caudal fin folds 41 to 43. See the fold in progress below.



Top view: Fold the sides of the collapsed fin back (dots). View from the side is next.



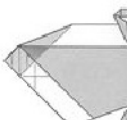
Swing the top of the caudal fin up perpendicular to the salmon's back as you move the middle of tail back (dot).



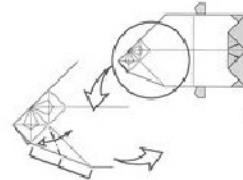
45. Undo the caudal fin folds and fold up the near side of the model.



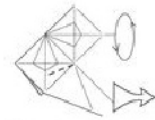
46. Pull out trapped paper to create an anal fin.



47. The shaded part is not lie flat. Turn the model over.



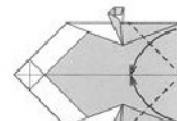
48. Mountain-crease through both layers.



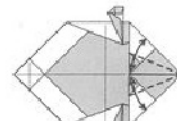
49. Bisect an angle on the top layer with a valley crease and turn the model over.



50. Refold the model as shown in step 46.



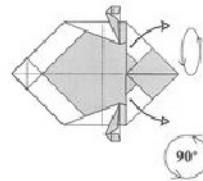
51. Valley-fold the "pectoral fin" flaps to the midline.



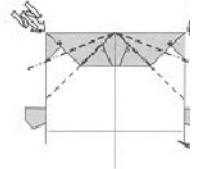
52. Bisect angles with valley creases.



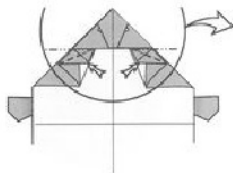
53. Place the right corner of the caudal fin, valley-crease. This defines where the dorsal fin will be.



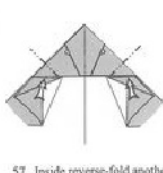
54. Unfold the pectoral fin flaps. Turn the model over and rotate it 90 degrees.



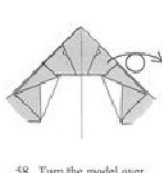
55. Crimp pectoral fin flaps symmetrically by together at the dots, and shoving them between layers. Parts of folds 51 to 52 will be reversed.



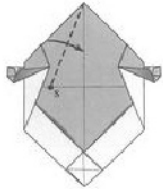
56. Inside reverse-fold a pair of flaps.



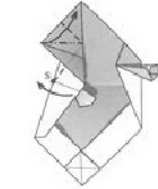
57. Inside reverse-fold another pair of flaps.



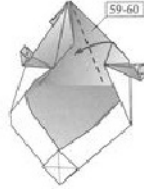
58. Turn the model over.



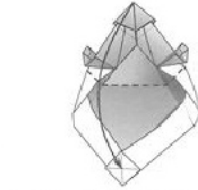
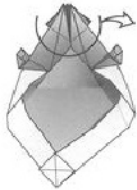
59. Valley-fold the left side to the midline. End the fold on the crease of step 53 at point S.



60. Swivel-fold through point S. The model will not lie flat.



61. Repeat steps 59 to 60 on the right.



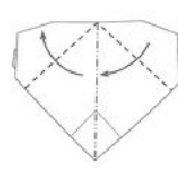
64. Rotate the fins down and away from the head.

65. Mountain-fold fin edges under while rotating the fins back toward the midline.

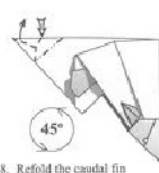
66. Turn the model over.

62. Inside reverse-fold the pectoral fins. Note that the fold is not positioned directly over the hidden edges (x-ray lines).

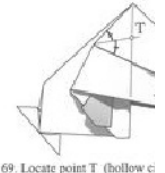
63. Fold the model in half on the crease of step 53. Ahhh. The model is flat once more.



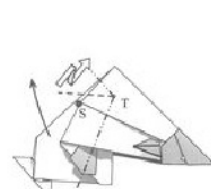
67. Collapse the model.



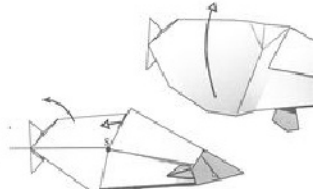
68. Refold the caudal fin (step 44) and rotate the model.



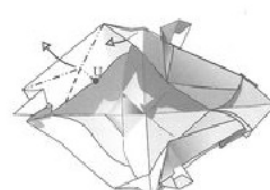
69. Locate point T (hollow c intersection of a hidden edge at



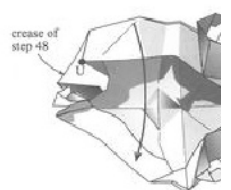
70. Crimp the middle layer and rotate this "tail" up from point T.



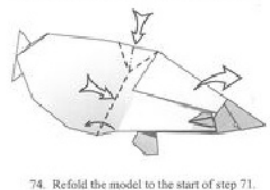
71. Unfold the last step to the left. Open up the model and turn it over.



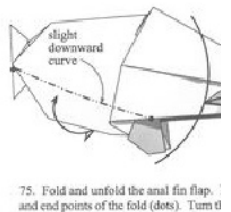
72. Pull out trapped paper and refold the anal fin (steps 46 to 48). Next diagram: note that point U on the raw edge is close to (but not on) the crease of step 48.



73. Fold down the top half



74. Refold the model to the start of step 71.



75. Fold and unfold the anal fin flap, and end points of the fold (dots). Turn it



76. Valley-fold. Note: I have darkened the green color of the drawings on this page.

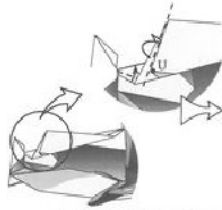
77. Unfold if you wish to sink this flap, otherwise go to step 79.

78. Close-sink the anal fin flap. Some sunk paper may be visible below the raw edge.

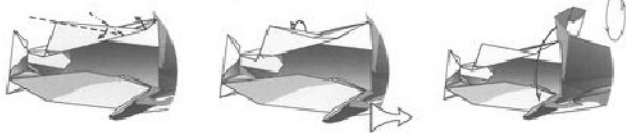


79. Valley-fold the anal fin down on the crease of step 75.

80. Fold the anal fin back up on a crease parallel to the edge.



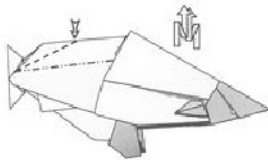
81. Tuck excess paper under the top layer with a swivel fold.



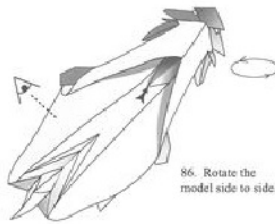
82. Swivel-fold the right anal fin edge.

83. **Optional:** Tuck the folded over edge between the layers underneath it.

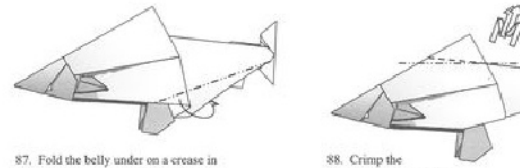
84. Fold the model in half and rotate it.



85. Crimp the back symmetrically. The initial crimp in the back that allowed the tail to rotate upward (step 70) is extended (next view). Push its bottom edge toward the head to take up slack paper (dark arrow).

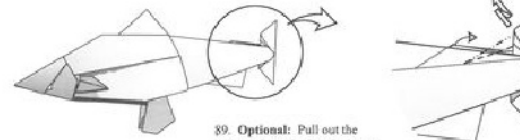


86. Rotate the model side to side.

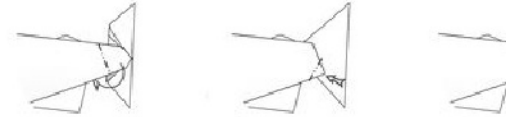


87. Fold the belly under on a crease in line with that of step 75 on the other side.

88. Crimp the dorsal fin symmetrically.



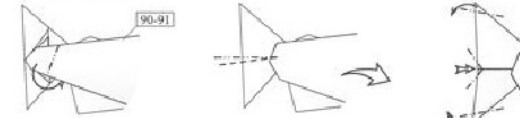
89. **Optional:** Pull out the adipose fin and crimp its layers next to the tail.



90. Inside reverse-fold the indicated flap.

91. Inside reverse-fold the corner.

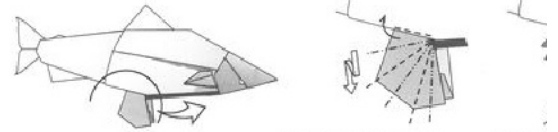
92. Turn the



93. Repeat steps 90 to 91 on this side.

94. Crimp the tail symmetrically.

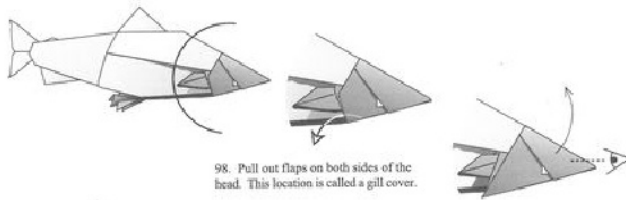
95. Inside reverse-fold it and bend the tips toward



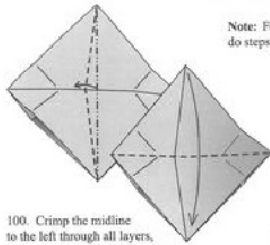
96. Crimp and then raise the pelvic fin.

97. Rep the other

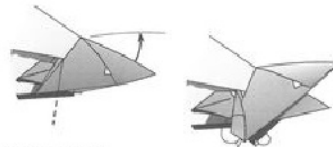




98. Pull out flaps on both sides of the head. This location is called a gill cover.



100. Crimp the midline to the left through all layers, and then fold the head flap down. See step 109 for a top view.



101. Raise the head flap up and pinch new valley folds on the gill covers.

99. Lift up the head flap. The next view is the open flap viewed from the front.

102. Wrap the indicated layer to the other side. Repeat on the other gill cover. Lift the head flap up further to do this.



103. Outside reverse-fold edges of the lower and upper jaws. Round the gill covers with mountain folds.



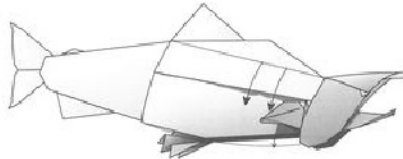
104. Fold the upper jaw tip down and shape it into a book.



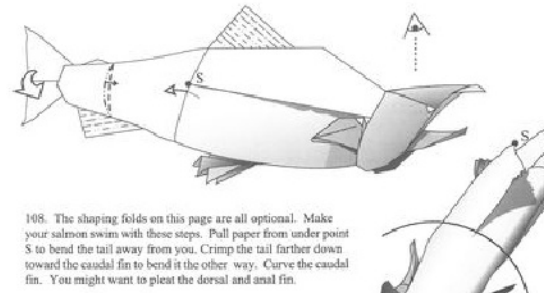
105. Curve the edges of the upper jaw on both sides of the model.



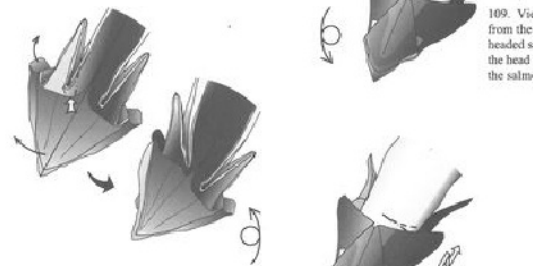
106. Mountain-fold the inside of the lower jaw to narrow it.



107. Pull paper out of the back to round the body cavity. Push laterally (top and bottom) to shape the tail.



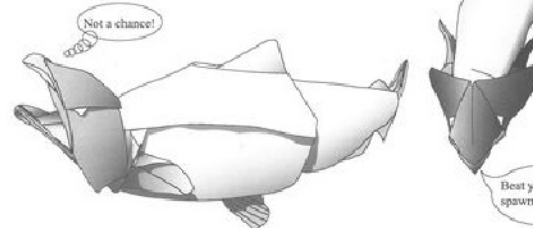
108. The shaping folds on this page are all optional. Make your salmon swim with these steps. Pull paper from under point S to bend the tail away from you. Crimp the tail farther down toward the caudal fin to bend it the other way. Curve the caudal fin. You might want to pleat the dorsal and anal fin.



109. Move the ridge made in step 62 (at the white arrow) to the right while turning the head to the left. Turn the salmon over.

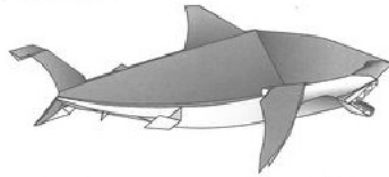


110. Crimp the head on the right side as close to the color-changed paper as possible.



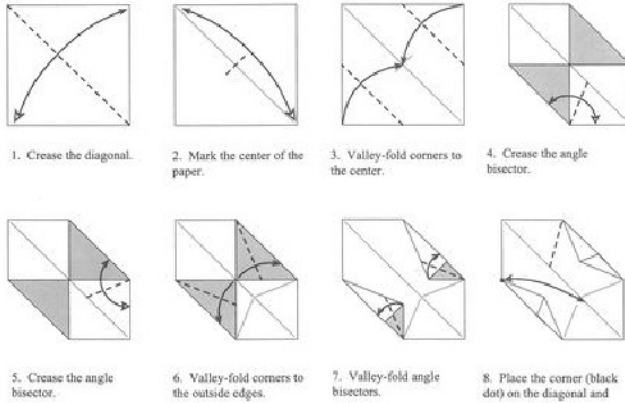
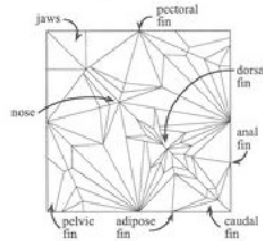
Great White Shark

Created / 2008
 Difficulty / Complex
 Time to fold / 70 minutes
 Dimension / R=0.6

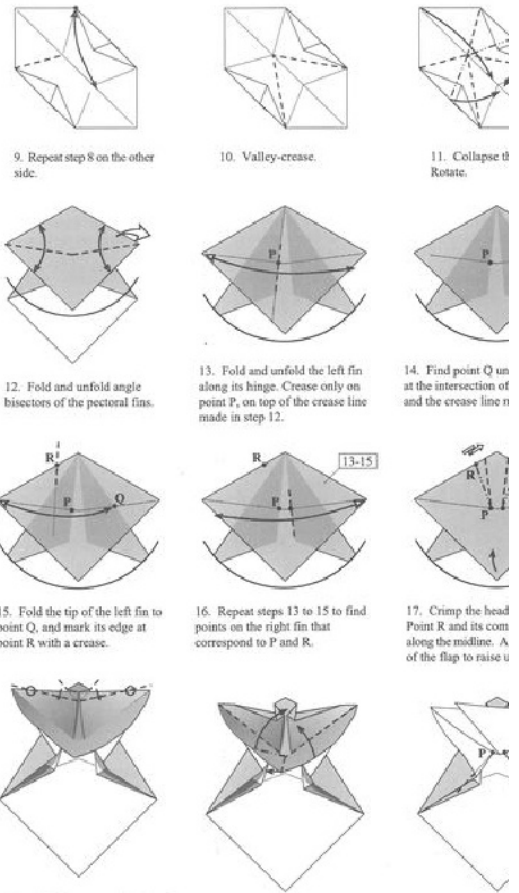


Author's advice: Start with a square at least 25 cm x 25 cm, white on one side, black or dark blue on the other. Foil works well for relatively small sharks. I prefer to wet-fold a backcoated thicker paper for larger sharks. It has what Eric Joisel called "real 3-D". This model is a killer! So treat it with a little care...

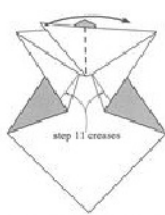
The challenge was to create a white belly and the correct pelvic fin position. Many sharks went to swim in the recycle bin before I came up with this version. Jeremy Shafer's models gave me the idea to pleat the teeth.



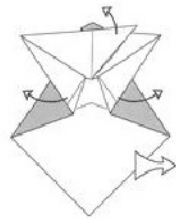
1. Crease the diagonal.
2. Mark the center of the paper.
3. Valley-fold corners to the center.
4. Crease the angle bisector.
5. Crease the angle bisector.
6. Valley-fold corners to the outside edges.
7. Valley-fold angle bisectors.
8. Place the corner (black dot) on the diagonal and valley-crease.



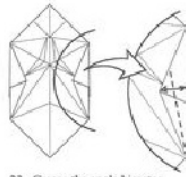
9. Repeat step 8 on the other side.
10. Valley-crease.
11. Collapse the Rotaric.
12. Fold and unfold angle bisectors of the pectoral fins.
13. Fold and unfold the left fin along its hinge. Crease only on point P, on top of the crease line made in step 12.
14. Find point Q on the intersection of the crease line r
15. Fold the tip of the left fin to point Q, and mark its edge at point R with a crease.
16. Repeat steps 13 to 15 to find points on the right fin that correspond to P and R.
17. Crimp the head Point R and its corner along the midline. A of the flap to raise u
18. Swivel-fold to narrow the edge of pectoral fins. The long valley folds end at the open circles.
19. Rabbit-ear fold the jaw flap. Keep the corner on the left side.
20. Change folds from dots to allow the mod



21. Fold the jaw flap to the right.



22. Unfold the model to step 11.



23. Crease the angle bisector, only through the top layer.



24. Unfold.



25. Inside reverse-fold.



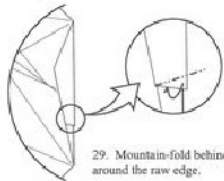
26. Inside reverse-fold again.



27. Open the flap up and to the left.



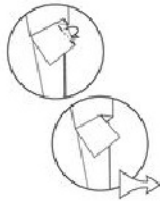
28. Rabbit-ear fold the pelvic fin.



29. Mountain-fold behind around the raw edge.



30. Crisp the fin. The valley fold is parallel to the fin's bottom edge.



31. Inside reverse-fold the fin's outside edge.



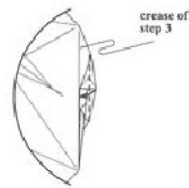
32. Fold the fin assembly to the right.



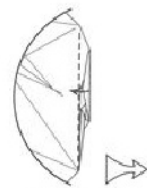
33. Valley-fold the top layer. Spread-sink the top of this narrow flap.



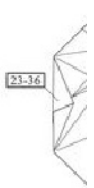
34. Fold the small flap to the right. Make sure some of its white color is visible on the model's reverse side.



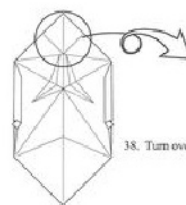
35. Valley-fold the fin assembly parallel to a crease from step 3.



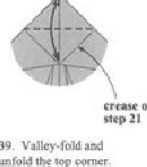
36. Fold the fin assembly to the left.



37. Repeat steps 25 to



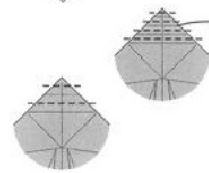
38. Turn over.



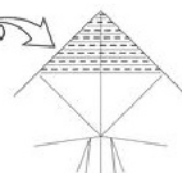
39. Valley-fold and unfold the top corner.



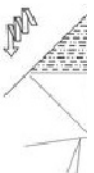
40. Bisect the fin fold to the another valley



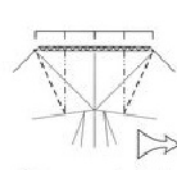
41. Fold between the creases.



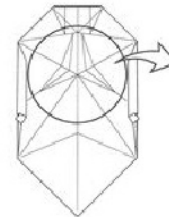
42. Fold between the creases once more.



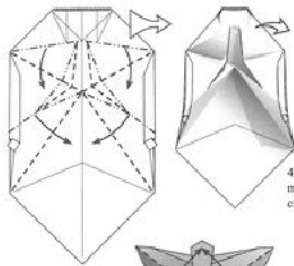
43. Pleat the top corner resulting in a row of 12. Do not fold the crease



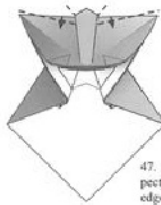
44. Create mountain and valley creases. The black dots indicate the end of the valley creases.



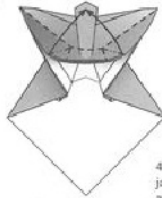
45. Reverse these creases.



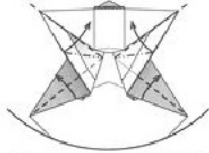
46. Collapse the model on existing creases.



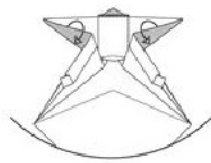
47. Swivel-fold pectoral fin edges down.



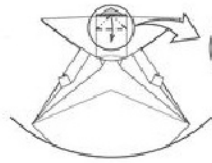
48. Crimp the sides of the jaw on creases of step 44, and fold the jaw up.



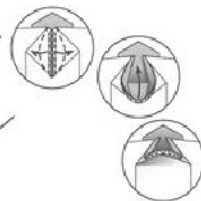
49. Swivel-fold the model's sides.



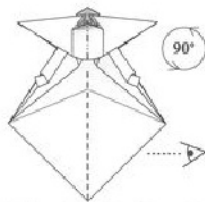
50. Put a layer on top.



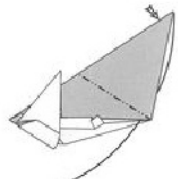
51. Petal-fold the jaw down.



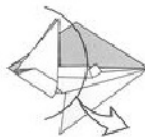
52. Valley-fold the sides of the jaw outward and close the jaw.



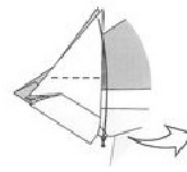
53. Mountain-fold the top layers and valley-fold the bottom layer in half. Rotate the model counter-clockwise.



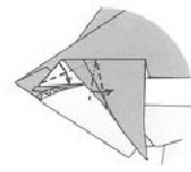
54. Inside reverse-fold the shark's tail on the creases of steps 4 to 5.



The following steps make the shark's pectoral fins.



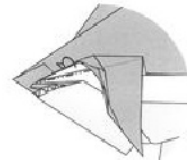
55. Fold the fin flap down to the black dot.



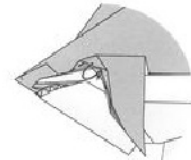
56. Swivel-fold.



57. Swivel-fold one the right side of this fin layer.



58. Mountain-fold the narrow white flap behind. To do this you may need to open the layer that partially covers it.



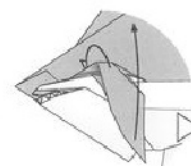
59. Tuck the swivel-folded paper under the top layer.



60. Inside reverse-fold narrow it.



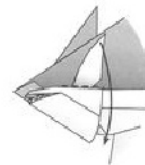
61. Inside reverse-fold the fin base once more. Tuck the small triangle on the fin's edge under the top layer.



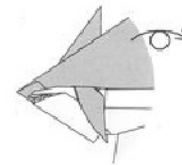
62. Fold the pectoral fin up. Put the base of the fin inside the pocket.



63. Move the layer to reverse folds made in



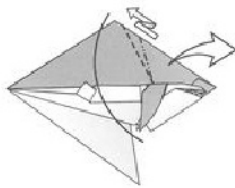
64. Fold the fin down.



65. Turn the model over side to side.



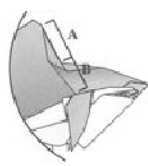
66. Repeat steps 5 other fin flap. Also make the dorsal fin



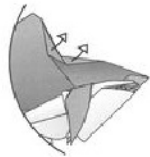
67. Crimp through both layers. The model will assume a shallow bowl shape.



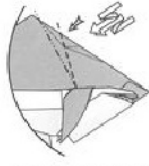
68. Swivel-fold. The top valley fold is an angle bisector.



Distance "A" should be greater than distance "B". If not, adjust the folds of the last two steps.



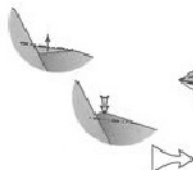
69. Undo these folds.



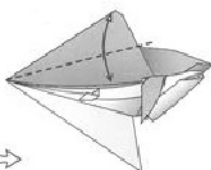
70. Crimp symmetrically. The sides of the body will spread apart.



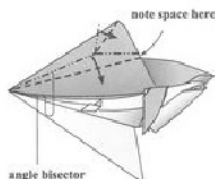
71. Redo the swivel fold of step 68.



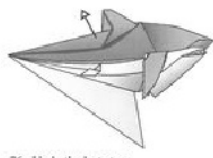
72. Fold the bottom of the swivel fold up and close-sink it into the body.



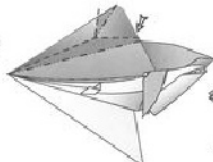
74. Valley-fold and unfold.



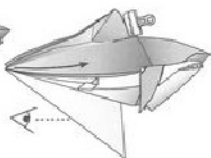
75. Swivel-fold the dorsal fin.



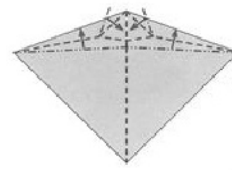
76. Undo the last step.



77. Reverse the direction of the folds on this side of the dorsal fin. Then start at the fin's leading edge to open-sink the fin symmetrically into the body.



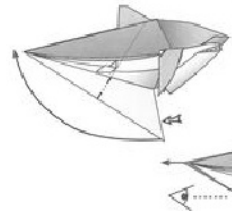
78. Clamp the front edge of the fin to the body. Open the sides of the body to reveal the tail flap.



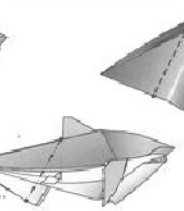
79. Collapse the tail flap upwards and then close the body flap.



80. Collapse the remaining parts on the body flaps and...



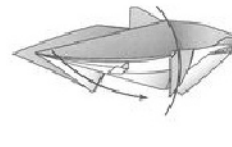
81. Inside reverse-fold the tail flap so that its tip is horizontally in line with the tips of the body flaps.



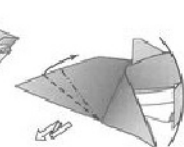
82. Pull the tail flap out and create new mountain creases. Next view shows these creases from inside the tail flap.



83. Open-sink the tip of inside the dorsal fin. Do reverse direction as the result is in the lower d...



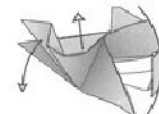
84. Open the top body flap.



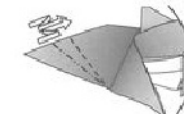
85. Crimp the caudal fin upwards. Note the asymmetry of the crimp.



86. Swivel-fold the tail top edge is below the body and its front edge is aligned with the fin. If not, adjust the la...



87. Undo the last two steps.

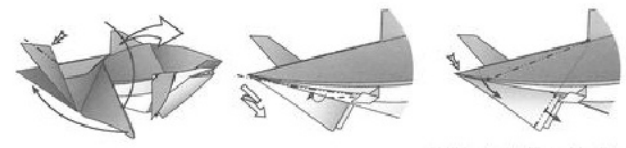


88. Crimp the tail symmetrically.



89. Redo the swivel...

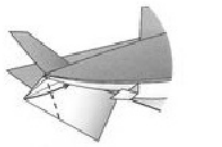




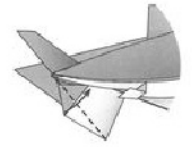
90. Close-sink the top edge of the caudal fin and close the body flap.

91. Crimp the white belly to narrow it. Repeat on the other side. This will create 3-D tension.

92. Mountain-fold the top edge of the top body flap (between the dots). Use the extra paper to move the crease made in step 82 forward.



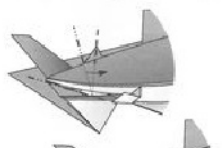
93. Tuck the thick edge under the body.



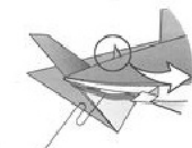
94. Valley-fold.



95. Inside reverse-fold the flap to make a second dorsal fin.

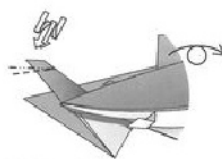
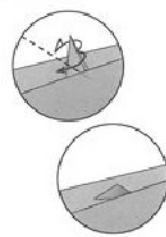


96. Swivel-fold the double layer to narrow it. See lower picture for the view from inside.



97. Outside reverse-fold the adipose fin.

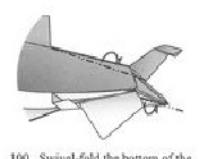
Note: The bottom of this fin flap should be hidden after the swivel fold. If not, adjust steps 95 to 96 as needed.



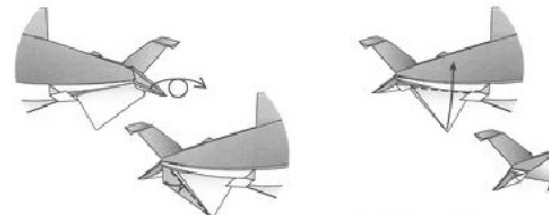
98. Crimp the tip of the caudal fin symmetrically. Turn the model over.



99. Crimp the lower half of the caudal fin down.



100. Swivel-fold the bottom of the caudal fin behind. Mountain-fold the top edge behind ONLY if it extends above the tail flap.

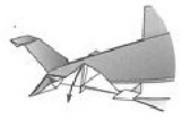


101. Turn the model over. Tuck the colored triangle inside the "anal fin" flap.

102. Fold the anal fin flap up close to lower edge. Fold the anal fin back down so that it is toward the caudal fin.



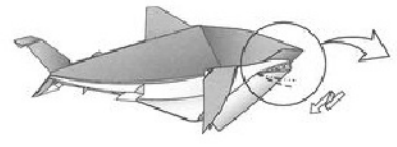
103. Swivel-fold the anal fin to narrow it.



104. Fold the flap down.



105. Tuck the anal fin inside the pocket flap to lock the tail.



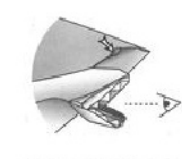
106. Crimp the lower jaw if you want it open.



107. Bend the eye flaps down on head. Fold down the upper tooth rows of the head.



108. Crimp the dark triangles at the jaw hinge to place the upper jaw inside the lower jaw.



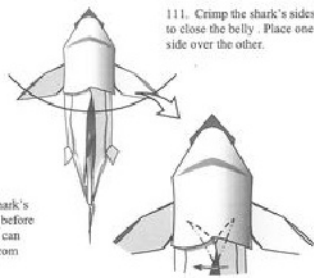
109. Separate two of the three layers with tweezers or a blunt object to create the eyes.



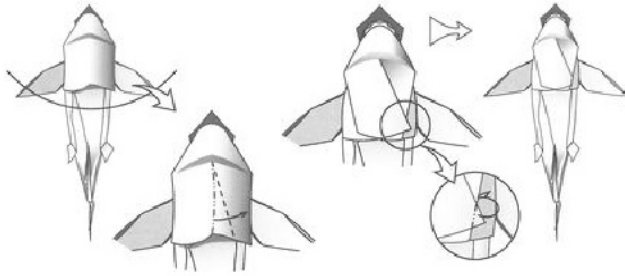
110. Curve the rows as displayed above.



Note: I stuff the shark's cavity with cotton before these last steps. It can prevent the head from squashing.

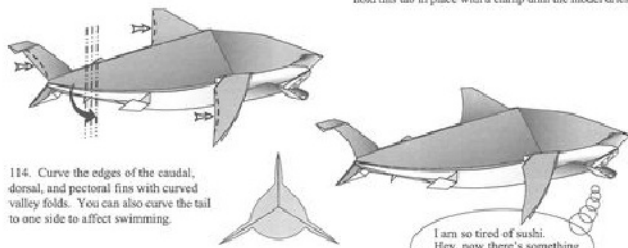


111. Crimp the shark's sides to close the belly. Place one side over the other.



112. Crimp the chest.

113. Fold the corner under the edge of the chest flap to lock the crimp. I dampen the chest, crimp it, and hold this tab in place with a clamp until the model dries.



114. Curve the edges of the caudal, dorsal, and pectoral fins with curved valley folds. You can also curve the tail to one side to affect swimming.

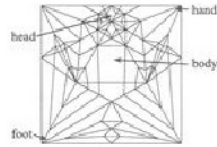
Cross section showing position of pectoral fins relative to the dorsal fin.

I am so tired of sushi. Hey, now there's something interesting...

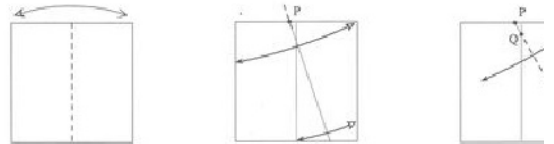


Surfer

Created / 2008
 Difficulty / Intermediate
 Time to fold / 1 hour
 Dimension / R= 0.5 for height



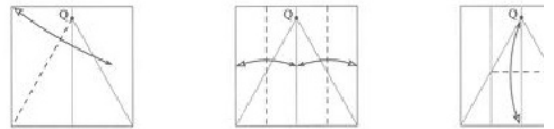
Author's advice: You can fold the suit at play. Use paper color on one side: suit color on (black, gray).



1. Valley-crease the midline.

2. Put the top right corner on the left edge and the right edge on the middle of the bottom edge. Crease the top edge only at point P.

3. Valley-fold and unfold right corner to point P. Crease the top edge of this fold with the midline.



4. Valley-fold and unfold from point Q to the bottom left corner.

5. Valley-fold and unfold the sides to the midline.

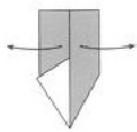
6. Valley-fold and unfold an edge to point Q. Crease the right side of the fold.



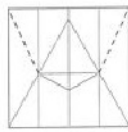
7. Bring the bottom and top corners to the midline and stretch the paper at the dot up as far as it will go. The model will not lie flat.

8. Bring the bottom edge to the left while valley-folding through point R.

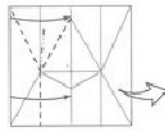
9. Valley-fold the bottom edge.



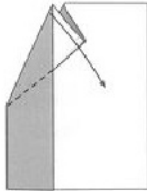
10. Unfold the model.



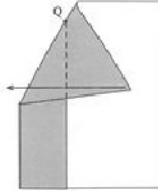
11. Valley-crease.



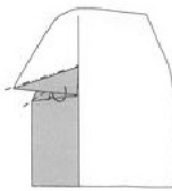
12. Inside reverse-fold the top of the model so that the left side lies along the midline.



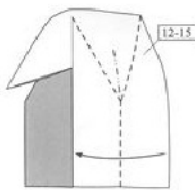
13. Valley-fold the flap down.



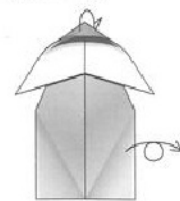
14. Valley-fold the flap to the left. The fold lies along the midline.



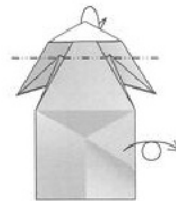
15. Inside reverse-fold.



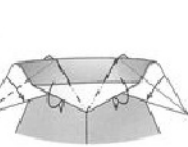
16. Repeat steps 12 to 15 on the right side.



17. Wrap the top edge to the other side. Turn the model over.

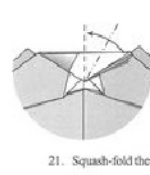


18. Mountain-fold the head down. Turn the model over.

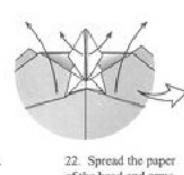


20. Rabbit-ear fold the head.

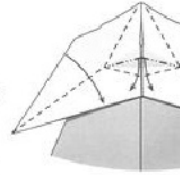
19. Swivel-fold.



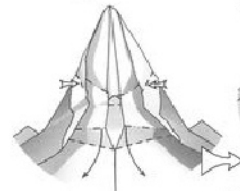
21. Squash-fold the head.



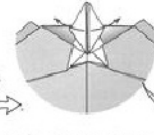
22. Spread the paper of the head and arms.



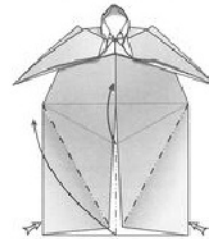
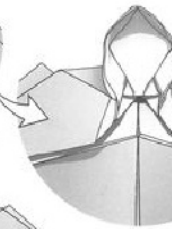
23. Redo steps 20 to 21 with crimps in the top layer in the folds are angle bisectors of θ



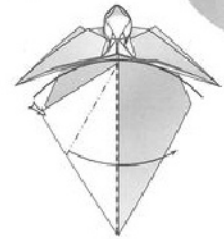
Step 23 in progress.



24. Spread apart two layers on each side of the head.



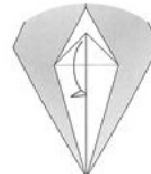
25. Redo steps 7 and 8 on the bottom half.



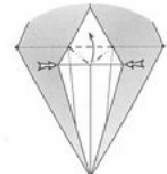
26. Squash-fold.



27. Put the peak inside.



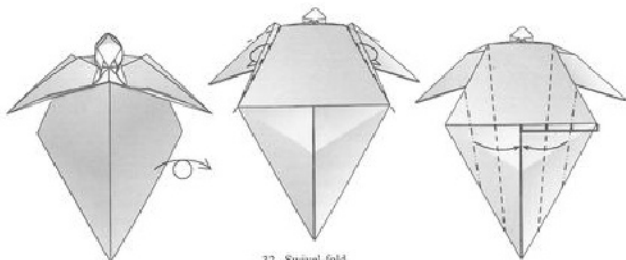
28. Put the peak inside.



29. Narrow with a squash-petal-fold. The horizontal valley fold is in line with the corners marked by dots.



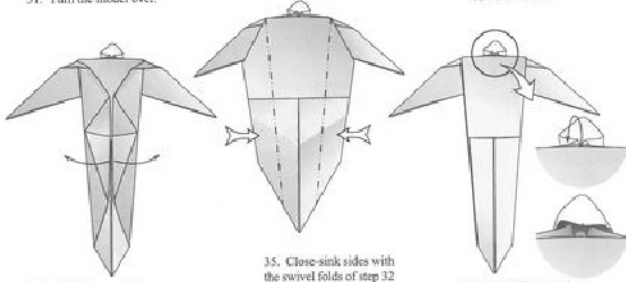
30. Put a...



31. Turn the model over.

32. Swivel-fold.

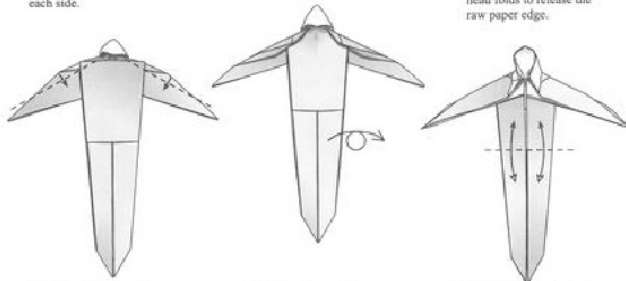
33. Pleat sides.



34. Unfold one pleat on each side.

35. Close-sink sides with the swivel folds of step 32 in place.

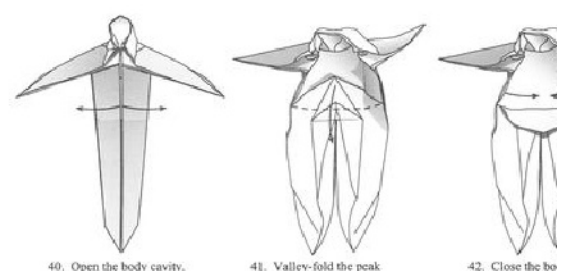
36. Partially open the head folds to release the raw paper edge.



37. Valley-fold shoulders and arms.

38. Turn the model over.

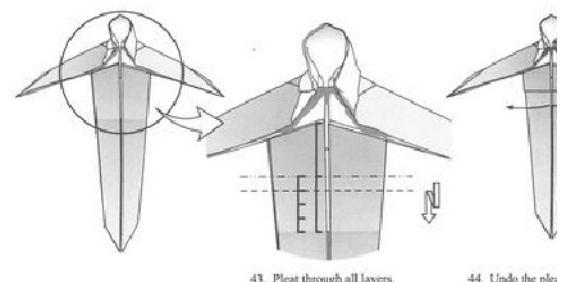
39. Lift the legs up and down where they join the body.



40. Open the body cavity.

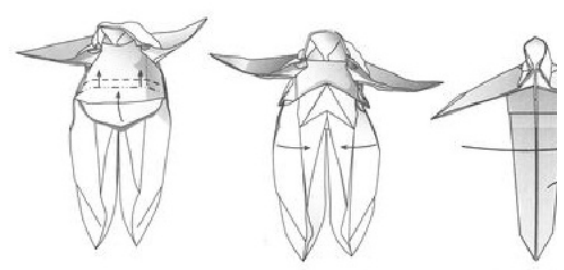
41. Valley-fold the peak down.

42. Close the body cavity.



43. Pleat through all layers.

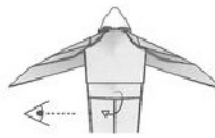
44. Undo the pleats in the body cavity.



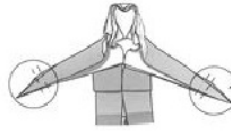
45. Pleat the body symmetrically and then fold the peak back up.

46. Close the body.

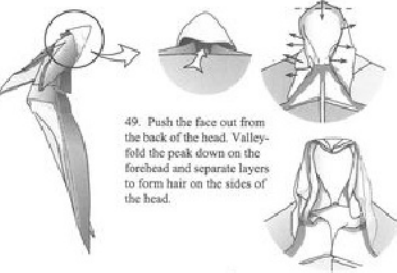
47. Turn the model over.



48. Push out some paper to round the rear. This will bend the waist and add more 3-D to your surfer.



49. Push the face out from the back of the head. Valley-fold the peak down on the forehead and separate layers to form hair on the sides of the head.



50. Lift up two layers and pleat symmetrically.



51. Swivel-fold the top layer up.

Do the following steps on both hands.



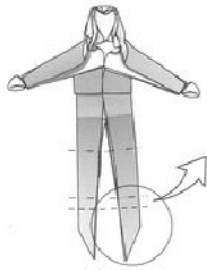
52. Turn the model over.



53. Pull down the top layer to form a cup.



54. Crease. Do the following folds on both feet.



55. Pleat symmetrically.



56. Swivel-fold the top layer (it will not lie flat).



57. Make the foot convex.

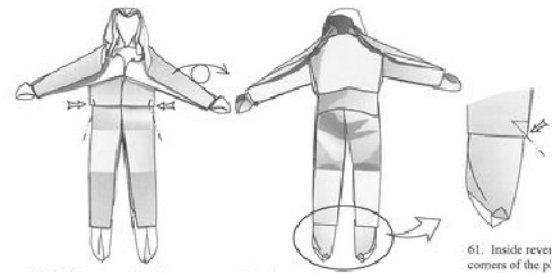


58. Mountain-fold the edge under.



59. Mountain-fold the toe tip under.

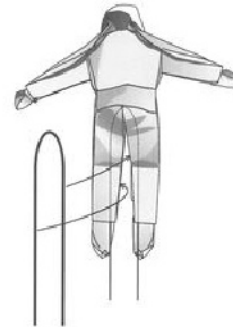
Finished foot.



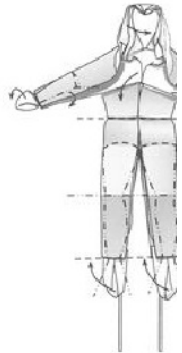
60. Inside reverse-fold edges to narrow the waist and shape the hips. Turn the model over.



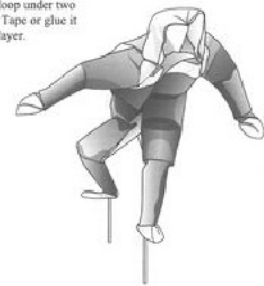
61. Inside reverse-fold corners of the top layer under the top layer.



62. Insert a wire loop under two layers of the legs. Tape or glue it to an inner white layer.

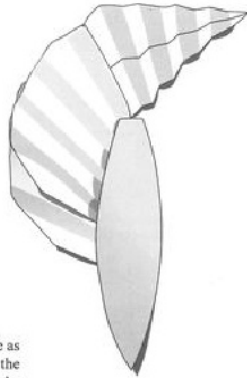
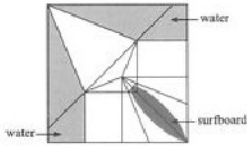


63. Shape the body. Turn the head, low crimp near the shoulders and arms, turn waist and legs. Use limbs with cotton, a strong paper, for body and limbs, a surfer in the final.



Surfboard (and wake)

Created / 2008
 Difficulty / Intermediate
 Time to fold / 30 minutes
 Dimension / R=0.55 for board length

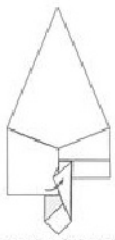


Author's advice: Use a bi-colored square the same size as the surfer for a "short board". Choose one color for the surfboard and the reverse side color for the wake. The wake is water sprayed by the surfer cutting across the wave.

1. Valley-crease the diagonal and the midpoint of the right side on the surfboard side of the paper.
2. Fold the bottom edge to point P and the bottom left corner on the top edge. Crease the left side to identify point Q.
3. Fold the bottom right corner to point Q and crease the top edge to identify point R.
4. Valley-fold the top left corner to the diagonal through point R.
5. Mountain-fold the bottom layer from the dots to the paper edges. Use the edge of the top layer as a guide.
6. Unfold.
7. Valley-fold and unfold angle bisectors.
8. Valley and mountain-crease.



9. Valley-crease angle bisectors.
10. Valley-crease.
11. Valley-crease angle bisectors.
12. Mo between
13. Collapse.
14. Squash-fold the surfboard on top of the water.
15. Valley-fold and unfold.
16. Inside reverse-fold edge.
17. Repeat steps 15 other side. Place th beneath the previous
18. Turn the model over.
19. Put the indicated layer through the gap.
20. Swivel-fold horizontal valley crease made in s



21. Move the layer to the top.



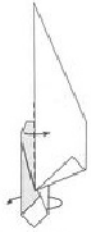
22. Mountain and valley-fold corners on lines parallel to edges above them.



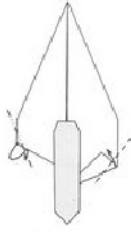
23. Valley-fold to the right.



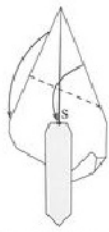
24. Mountain-fold part of a flap underneath.



25. Swivel the surfboard to the right and let the hidden half of the water flap swing to the left.



26. Mountain and valley-fold corners to round the wake.



27. Valley-fold the top flap down. Line up the left edge. Place the right edge on point S.



28. Unfold.



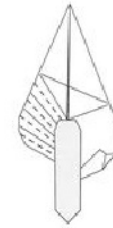
29. Connect point S and the ends of the last fold with mountain creases.



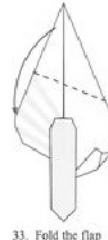
30. Bisect distance with a mountain crease.



31. Bisect distances once more with mountain creases.



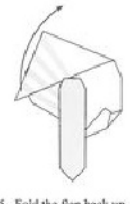
32. Bisect distances with valley creases.



33. Fold the flap back down.

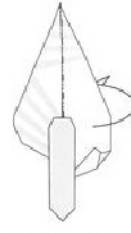


34. Redo creases through all layers.



35. Fold the flap back up.

Identify as the crease



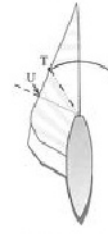
36. Mountain-fold the right side of the wake behind. Redo creases through all layers. Continue the pattern on the bottom layer by adding two creases (at the dots).



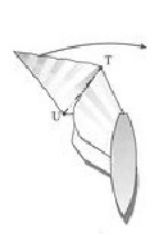
37. Cut out a surfboard from thick paper or cover stock. Make it as wide and long as the one in your model. Insert it in the pocket. This will be needed to mount your surfer.



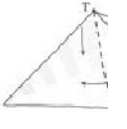
38. Mountain behind. Then fold along the your insert. A bow will rise | section on the



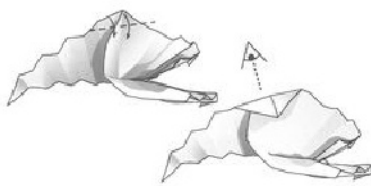
39. While holding point U on a flat surface, swing point T to the right. The model will become increasingly 3-D.



40. Mountain-fold the flap to the right through points T and U.



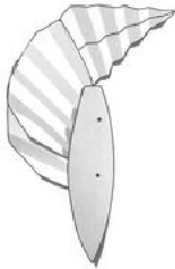
41. Bend of edge TT



42. Valley-fold the corner down to lock the banded edge in place and to round the wake.



43. Reverse the direction of folds in the tail of the wake.



Assemble the surfer by making two holes through all layers of the surfboard (including the stiff insert).



Insert the wire through the holes and turn the assembled unit over.

Create loops at the ends of the wires on the bottom of the surfboard.

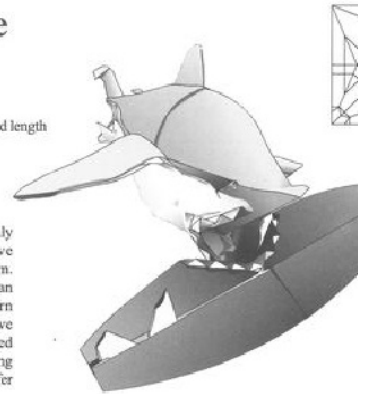


Turn the assembly back over and adjust as needed.

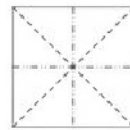


Shark Bite

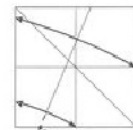
Created / 2008
 Difficulty / Intermediate
 Time to fold / 45 minutes
 Dimension / R= 0.82 for board length



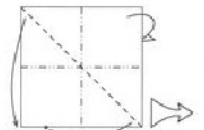
Author's advice: This is only the second model I have designed from the basic form. I did so the day after I had an operation to repair a torn shoulder. Foil or kami give good results. Use a bicolored square with a side 60% as long as the square to make the surfer for a "short board".



1. Surfboard color in these diagrams is white. Mountain-crease back folds and valley-crease diagonals on a bi-colored square.

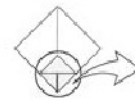


2. Place the left edge where book folds end at the bottom and right edges. Crease the bottom edge at point P.



3. Bring the 4 corners together (Preliminary Fold).

4. V. layer through

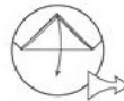


5. Bisect corner.

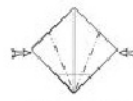


6. Bisect distances once more.

7. V.



8. Unfold flaps.

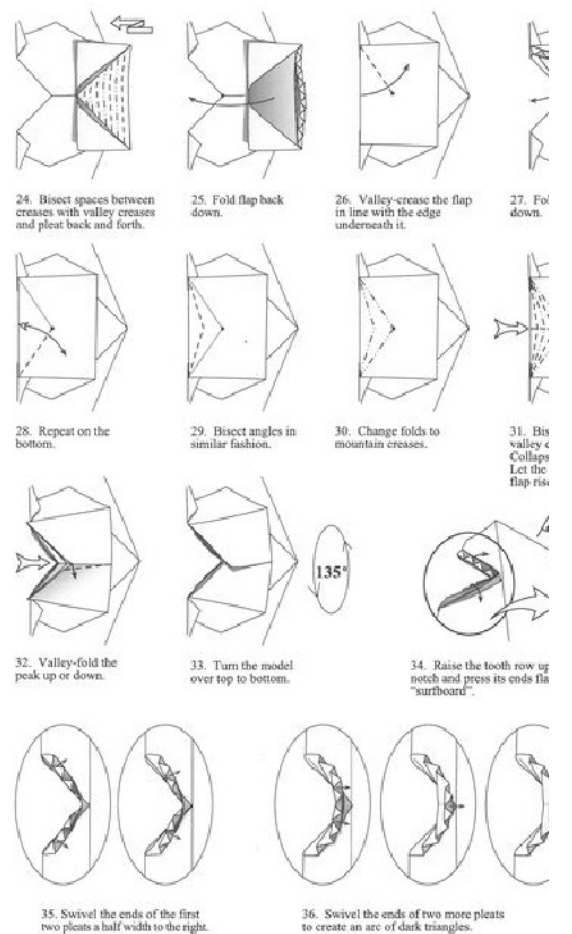
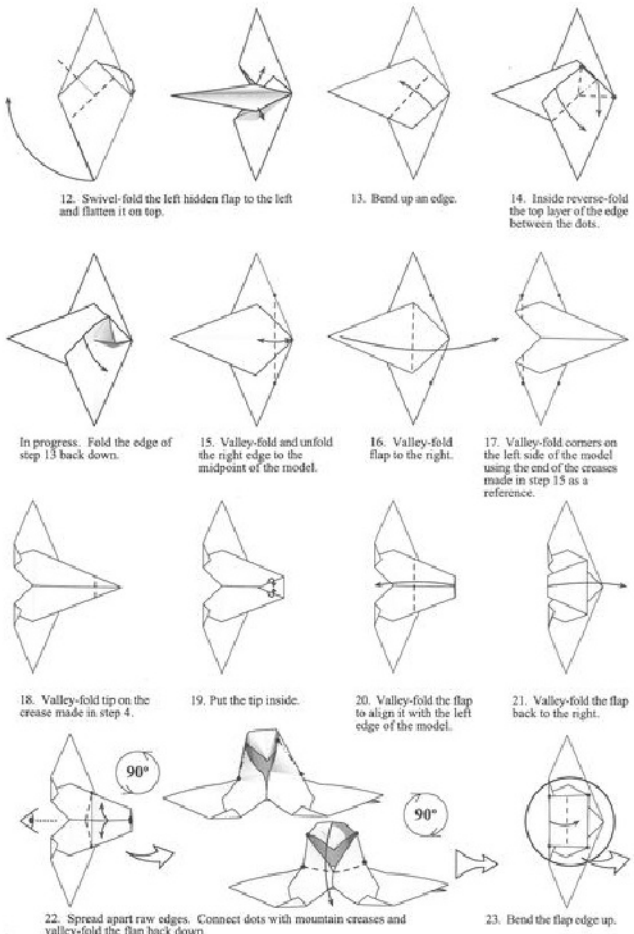


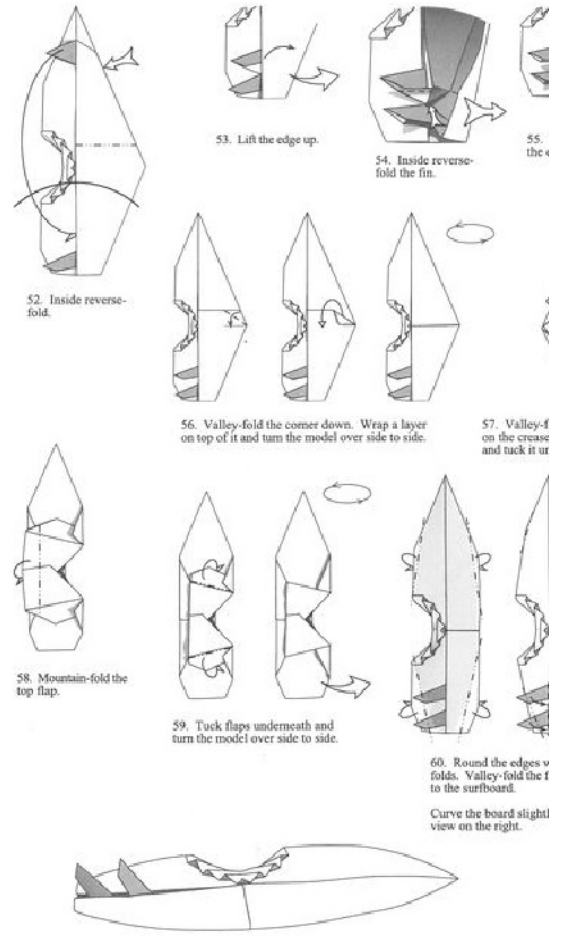
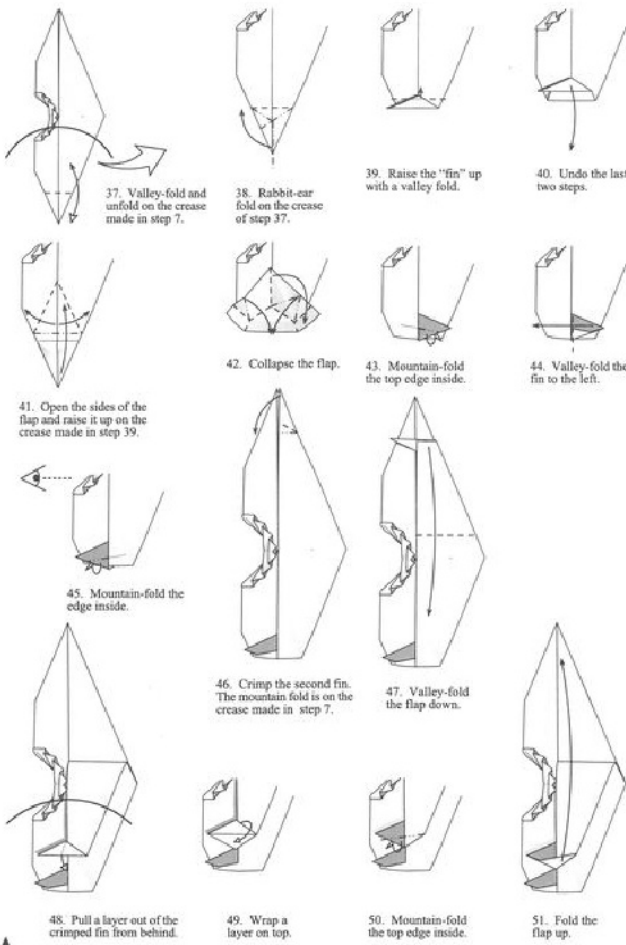
9. Inside reverse-fold edges.



10. Valley-fold and unfold through all layers.

11. A betto

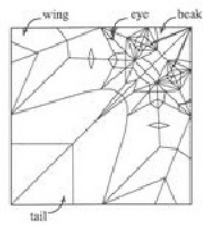




Standing Puffin

Created / 2011
 Difficulty / High intermediate
 Time to fold / 30 minutes
 Dimension / R=0.63 for length

Author's advice: Use a bi-colored square. Wet folding works very well for this model, but great results can be achieved with kami.



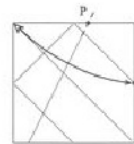
1. Create a diagonal and its midpoint on the dark side of the square.



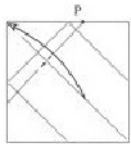
2. Fold and unfold corners to the center of the square.



3. Turn the model over top to bottom.



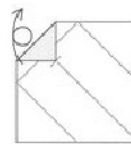
4. Place the top left corner on the midpoint of the right side and crease the top edge at point P.



5. Crease the diagonal on a line through point P.



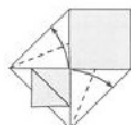
6. Valley-fold the top left corner to the crease of the last step.



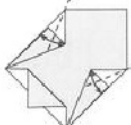
7. Turn the model over top to bottom.



8. Redo step 2.



9. Valley-fold angle bisectors.



10. Fold and unfold angle bisectors.



11. Inside reverse-fold edges.



12. Rotate the model 135 degrees clockwise.



13. Valley-fold angle bisectors.



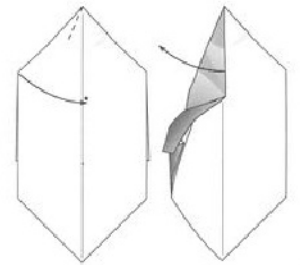
14. Mountain-crease through all layers.



15. Lift (dots) at underne



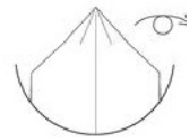
16. Unfold the corner. Turn the model over side to side.



17. Place a corner past the midline and valley-crease the beak.



18. Repeat step 17.



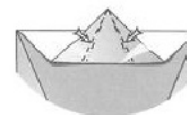
19. Turn the model over side to side.



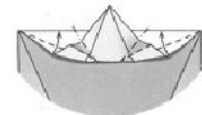
20. Place corners shy of the midline and valley-fold and unfold the beak.



21. Pleat existing crease.



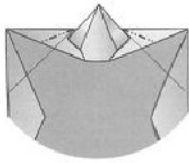
22. Crimp the beak on existing creases. The beak's edges will buckle under the tension.



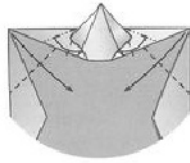
23. Inside reverse-fold once more with crimps in place.



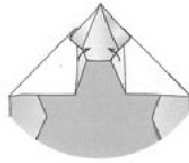
24. Valley-unfold corner.



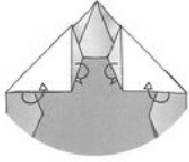
25. Mountain-fold angle bisectors in the top double layer.



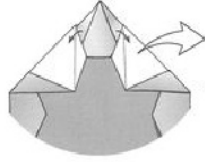
26. Valley-fold corners again and tuck the edge of the mountain fold under the sides of the beak.



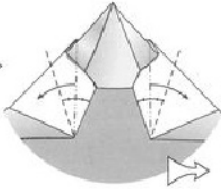
27. Put corners on top of the beak.



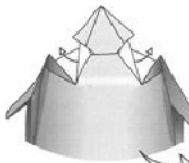
28. Wrap layers to the other side.



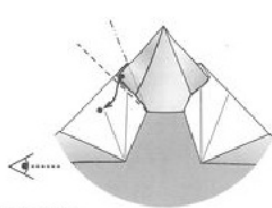
29. Put the beak layers on top.



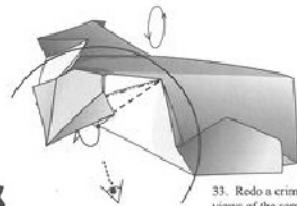
30. Crimp the beak downward. The model will become 3-D.



31. Undo crimps.



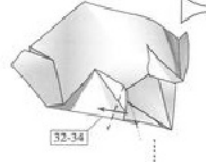
32. Crimp the beak. The valley fold follows the edge above it. The model will be 3-D.



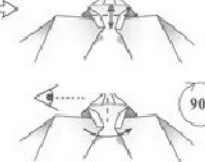
33. Redo a crimp from step 30 on the left side of the beak. Here are two views of the same fold. Turn the model over to complete this crimp.



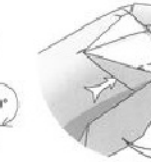
34. Push paper into the curved pocket and fold down the edge to lock the crimp.



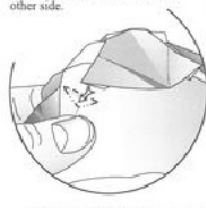
35. Repeat steps 32 to 34 on the other side.



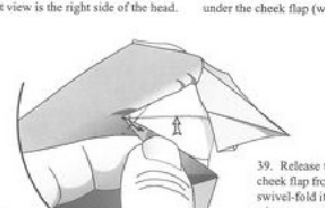
36. Valley-fold and unfold a short flap. Place the layers of the beak together. Next view is the right side of the head.



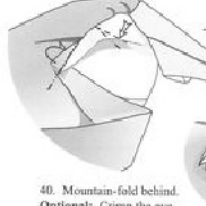
37. Crimp and uncrimp bottom of the beak. The crimp is under the cheek flap (w).



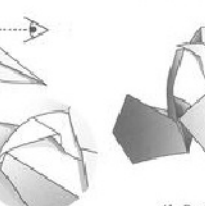
38. Sink the crimp to lock it. Press the two layers of the cheek flap together.



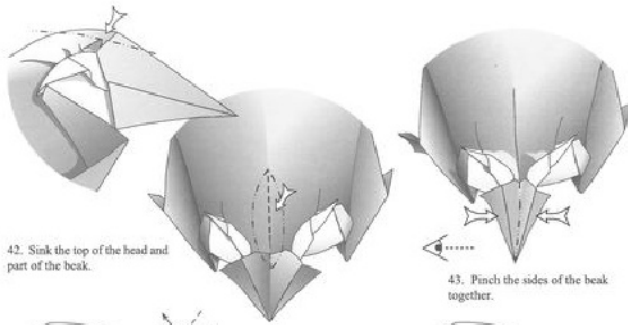
39. Release cheek flap from swivel-fold it edge outward the white arrow.



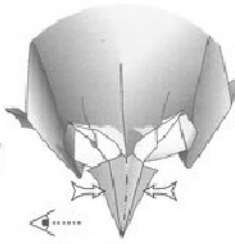
40. Mountain-fold behind. Optional: Crimp the eye.



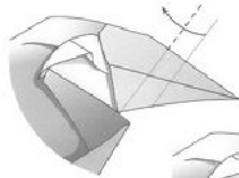
41. Repeat steps 37 to 40 on the right.



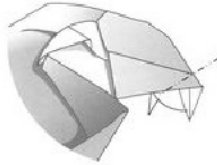
42. Sink the top of the head and part of the beak.



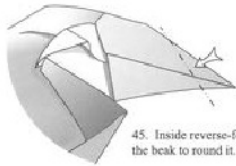
43. Pinch the sides of the beak together.



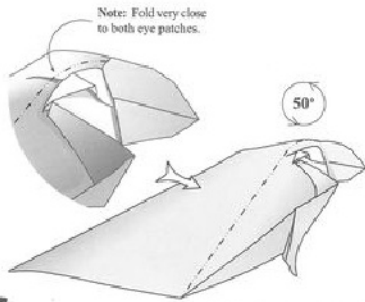
44. Valley-fold the short flap of step 36 to the side inside the beak to lock it. This flap is fairly thick.



46. Tuck the tip inside with mountain folds on both sides of the beak.



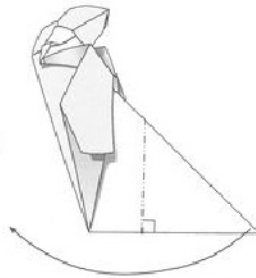
45. Inside reverse-fold the beak to round it.



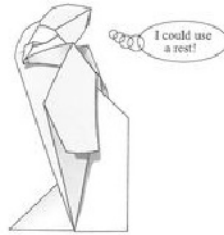
Note: Fold very close to both eye patches.

50°

47. Inside reverse-fold body.

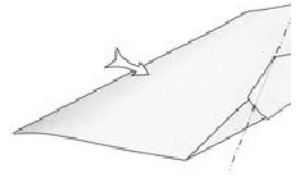


48. Inside reverse-fold tail.

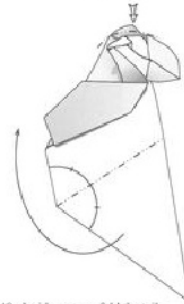


Finished standing puffin.

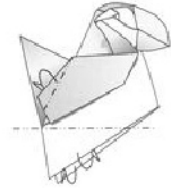
Sitting Puffin



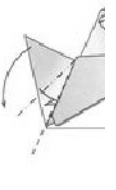
47. Inside reverse-fold body through the bend in the wing (dot).



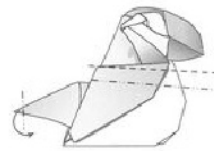
48. Inside reverse-fold the tail and the top of the head.



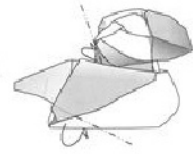
49. Shape wings with mountain folds. Mountain-fold bottom flaps inside.



50. Crimp the tail down. Insert crimp body layers. Flatten.



51. Pleat the neck symmetrically through all layers. Fold the tail tip under.



52. Swivel-fold the neck symmetrically to narrow it. Mountain-fold bottom flaps underneath.

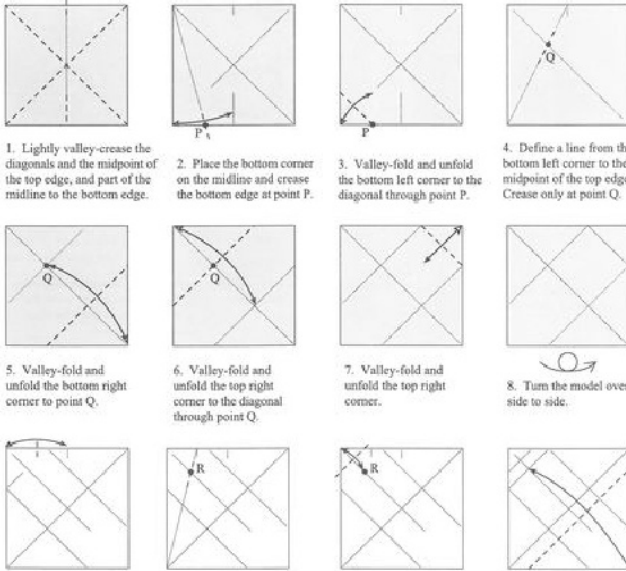
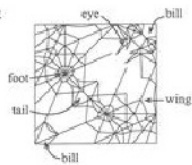


Finished sitting puffin.

Puffin Chick

Created / 2011
 Difficulty / Intermediate
 Time to fold / 30 minutes
 Dimension / R=0.46 for height

Author's advice: Use a bi-colored square. Wet folding works well and good results can be achieved with kami.



1. Lightly valley-crease the diagonals and the midpoint of the top edge, and part of the midline to the bottom edge.

2. Place the bottom corner on the midline and crease the bottom edge at point P.

3. Valley-fold and unfold the bottom left corner to the diagonal through point P.

4. Define a line from the bottom left corner to the midpoint of the top edge. Crease only at point Q.



5. Valley-fold and unfold the bottom right corner to point Q.



6. Valley-fold and unfold the top right corner to the diagonal through point Q.



7. Valley-fold and unfold the top right corner.



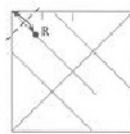
8. Turn the model over side to side.



9. Bisect a distance on the top edge.



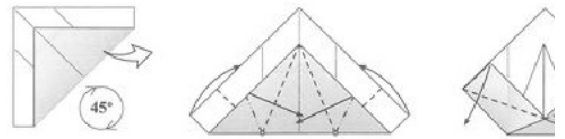
10. Define a line from the bottom left corner to the last crease. Crease the line at point R on the diagonal.



11. Valley-fold and unfold the top left corner to point R.

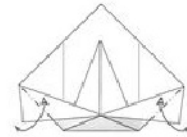


12. Valley-fold the bottom right corner to the crease of step 7.

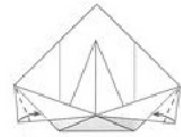


13. Rotate the model clockwise and swivel-fold edges. The open circles are where creases of steps 5 and 6 meet the bottom edge. Raw edges overlap the diagonal.

14. Valley down.



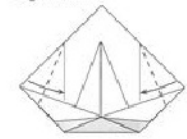
15. Mountain-crease corners along edges behind.



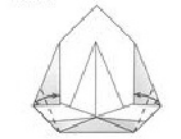
16. Valley-fold corners to the last creases.



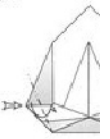
17. Mountain-fold the layer.



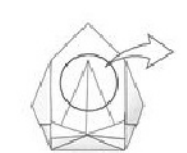
18. Valley-fold "wings".



19. Valley-fold and unfold.



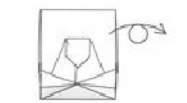
20. Inside reverse-fold.



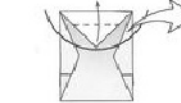
21. Valley-fold the "lower bill" down on the crease of step 3 while spreading apart the edges so that the mountain folds are parallel.



22. Mountain-fold the bill behind.



23. Turn over side to side.



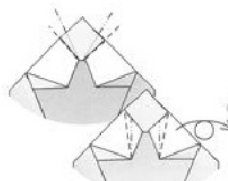
24. Valley-fold corner up on the crease of step 11.



25. Repeat steps 13 to standing puffin.



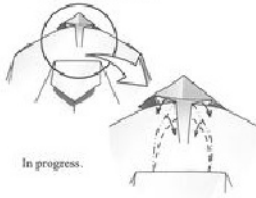
26. Repeat steps 24 to 29 of the standing puffin.



27. Crimp and uncrimp.



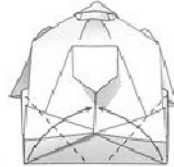
28. Repeat the process of crimping the upper bill of the standing puffin.



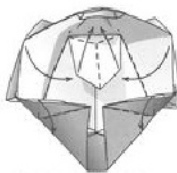
In progress.



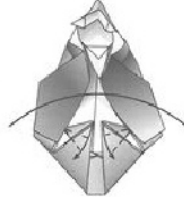
29. Valley-fold thick layer down.



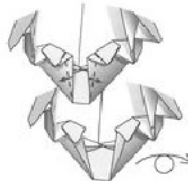
30. Valley-fold the corners of the model toward the center.



31. Bring the sides of the lower bill closer together. Swivel-fold the sides.



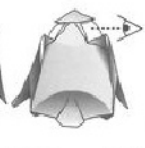
32. Crimp the top thick layer of the feet and point the tips down.



33. Narrow feet with inside reverse folds. Turn the model over.



34. Crimp the tail. Make the body 3-D.



39-40 of standing puffin

35. Shape the eyes and the front edges of the wings.



Stuff your hungry chick's body with cotton "fish".



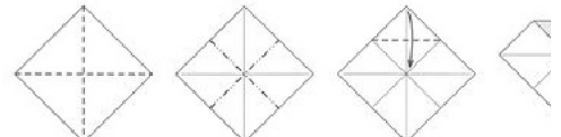
Bluebird Chick

Created / 2006
 Difficulty / Intermediate
 Time to fold / 15 minutes
 Dimension / R=0.3

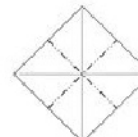


Author's advice: The design of this chick was influenced by the Colombian sculptor Fernando Botero. The chick can be made with any square paper (kami, foil, etc.). My preference is to make a duo paper from a thick paper like Canson and a thin sheet of mulberry. I then make my square 20-25 cm to a side and dampen the thick paper side for wet folding.

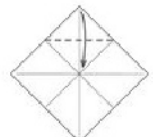
These diagrams contain several optional folds. I suggest making one or two versions of the model before making a chick with these options. This chick makes a great gift to brighten someone's day.



1. Valley-crease the diagonals.



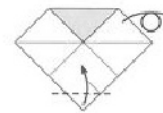
2. Mountain-crease the book folds.



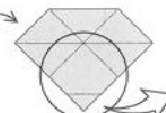
3. Valley-fold the top corner to the paper center.



4. Mark between center and right edge.



5. Fold and unfold the bottom corner through this mark and turn the paper over.



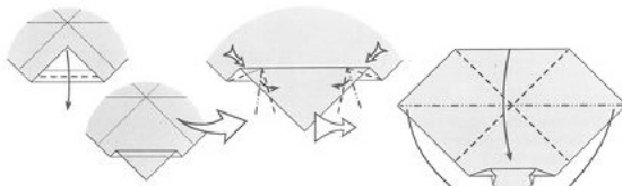
Enlarged view of the bottom corner to the right.



6. Bisect the indicated distance with a crease.



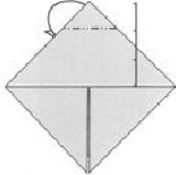
7. Valley corner up mark.



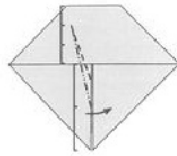
8. Valley-fold the corner down to make a tail.

9. Narrow the tail sides with swivel folds.

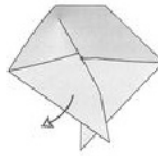
10. Preliminary-fold the model.



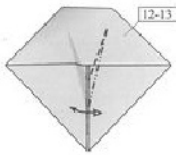
11. Mountain-fold all layers of the top corner (bird's head) behind.



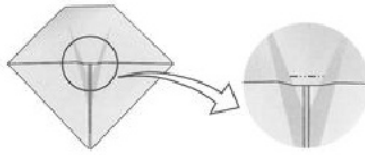
12. Crimp the left wing through all layers except the bottom layer.



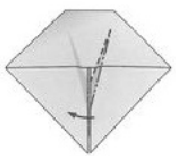
13. The head is now 3-D. The edge of the wing should touch the model midline (dot). Unfold the crimp.



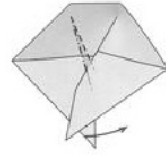
14. Repeat steps 12 to 13 on the right wing.



15. Mountain-crease the top layer near its edge. This will help lock crimped wings in place.



16. Crimp the right wing to the left or vice versa. Your choice.

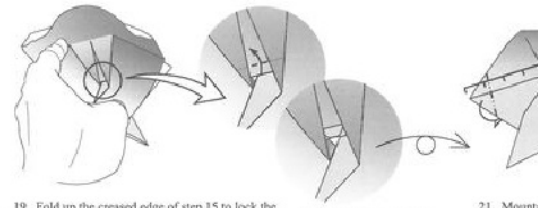


17. Crimp the left wing under the right wing. The folds meet tightly in the center.



18. Hold the wings together at the location of the circle and turn the model over.

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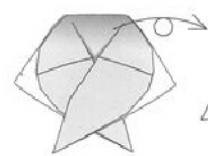
19. Fold up the creased edge of step 15 to lock the wings in their crossed position. Temporarily open the two flaps covering this tab to do this fold.

20. Turn the model over.

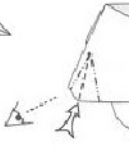
21. Mount underneath.



22. Round the wings with small mountain folds.



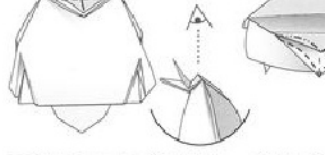
23. Turn the model over.



24. Inside reverse-fold halfway from the tail of the head.



25. Reverse-fold feet once more on both sides.



26. Valley-fold both layers of the bill up. Note the relative position of these two flaps in the side view of the head.



27. Shape bill.



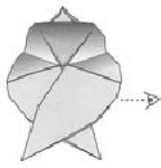
28. Lift up the top layer and sink a circular area centered on the pointed edge to create an eye.



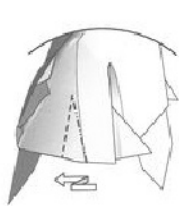
29. Repeat step 28 on the other side and turn the model over.

30. **Optional:** C head, but not the

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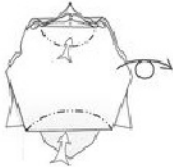
Finished head folds.



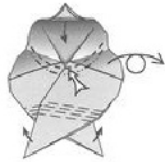
31. Crimp a leg to round the body. Repeat on the other side.



32. Fold a corner inside to lock the crimp in place. Repeat on the other side and rotate the model.



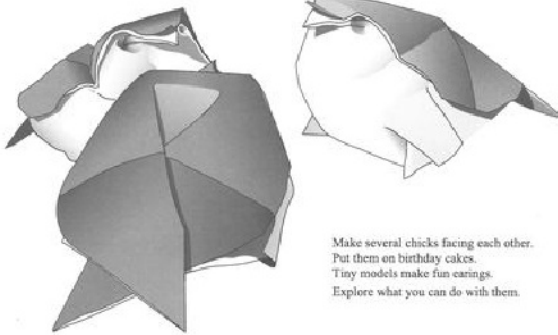
33. Push the tail under the body along a curved mountain fold. Lightly depress the area under the bill.



34. **Optional:** Curl the wing tips up. The head can also be pushed into the body where the wings cross.



Finished chick. Try moving the tail pleat down (step 7 to 8) to create a tall chick.

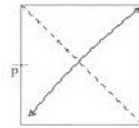
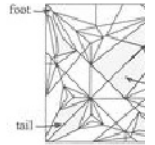
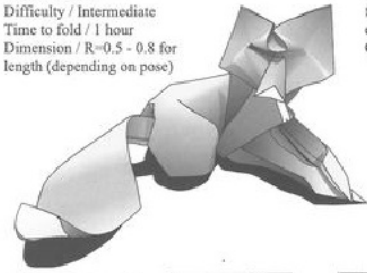


Make several chicks facing each other. Put them on birthday cakes. Tiny models make fun earrings. Explore what you can do with them.

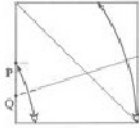
Kit Fox

Created / 2007
 Difficulty / Intermediate
 Time to fold / 1 hour
 Dimension / R=0.5 - 0.8 for length (depending on pose)

Author's advice: A good model can be made from many materials (e.g., kami, foil, wet fold etc.). My inspiration for it from spending years in the endangered San Joaquin Central Valley of California.



1. Crease the diagonal and the midpoint of the left edge at point P.

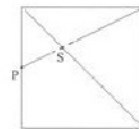


2. Place the bottom right corner on the top edge and the bottom edge on point P. Crease the left edge at point Q.

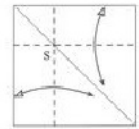


3. Place the top right corner on point Q and crease the bottom edge at point R.

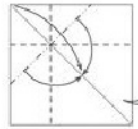
4. Fold bottom point I.



5. Mark the diagonal at point S.

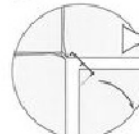


6. Valley-fold and unfold sides through point S.

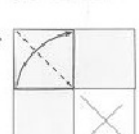


7. Preliminary-fold the top left corner.

8. Put the next step the next diagonal.



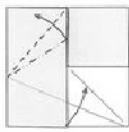
9. Unfold corner.



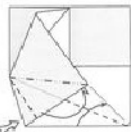
10. Fold one flap up.



11. Fold and unfold the model over. The end of the fold is at point R.



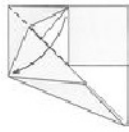
12. Swivel-fold the raw corner to the diagonal.



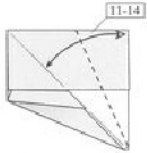
13. Inside reverse-fold using the crease of step 11.



14. Swivel-fold the raw edge.



15. Valley-fold one flap down.



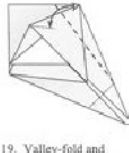
16. Repeat steps 11 to 14 on the right side.



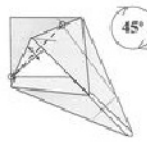
17. Valley-fold and unfold the lower flap through the crease of step 8.



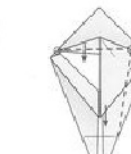
18. Open the flap as far as it will go and bring it back down to make a crease.



19. Valley-fold and unfold the right top corner to the last crease.



20. Valley-fold and unfold between open circles and rotate the model 45 degrees.



21. Pull the leg flap down while valley-folding step 19 up 90 degrees. Fold the shallow peak (between the open circles) down.



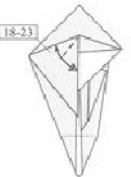
22. Squash the leg flap. Note: the valley crease does not end at the point of the flap.



23. Close-sink the right side on the crease of step 19.



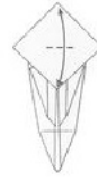
24. Valley-fold two flaps to the right.



25. Repeat steps 18 to 23 on the left side.



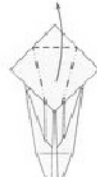
26. Valley-fold one flap to the left.



27. Crease the middle of the tail flap.



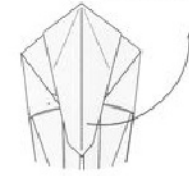
28. Valley-fold and unfold.



29. Petal-fold the tail flap. Mountain folds do not meet at the raw corner.



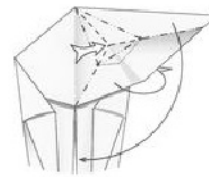
30. Valley-fold and unfold.



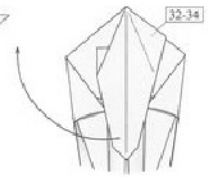
31. Valley-fold and unfold.



32. Open the tail flap and swing it to the right.



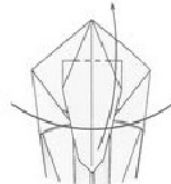
33. Sink the triangular area while refolding the tail.



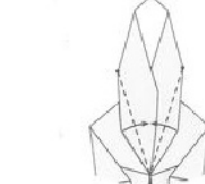
34. Repeat steps 32 to 34 on the right.



35. Valley-fold.



36. Fold the tail up.

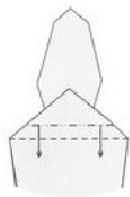


37. Narrow the tail with valley folds starting from corners (dots).

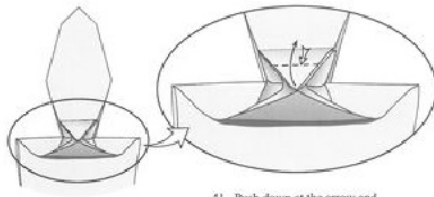


38. Turn.

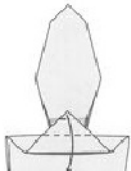




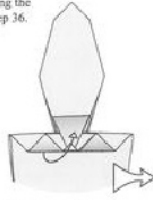
40. Pleat the triangular flap without moving the tail. The mountain fold is the crease of step 36.



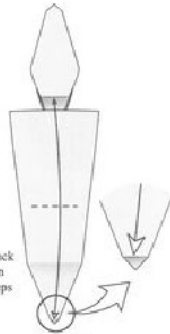
41. Push down at the arrow and fold the triangular flap back up.



42. Pleat the triangular flap down.



43. Put a layer on top.
Note: This is the same as close-sinking the pleated paper into the body.



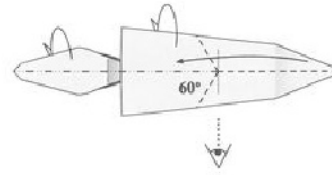
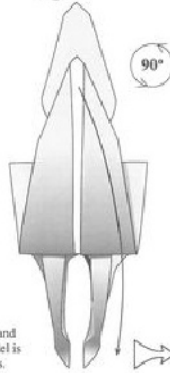
44. Crease the back mid way between the creases of steps 4 and 36.



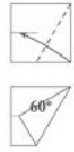
45. Bend the "head" up to the tail to expose the front feet flaps.



46. Shape legs with mountain creases and fold the head flap back down. The model is three-dimensional. Rotate it 90 degrees.



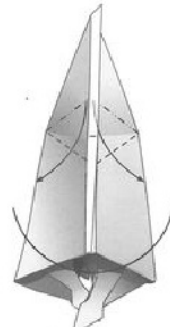
47. Reverse-fold the head flap from the step 44 crease. Fold the model in half. Do not crease the body or tail sharply. Estimate the 60 degree angles of the reverse fold or use a template.



Note: To make template, roll of a square to



48. Crimp head and neck.



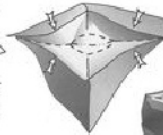
49. Without undoing the crimp, fold the head down on the crease of step 8. The mountain creases lie along the edges at the ends of arrows.



50. Fold and unfold through all layers lift the head flap a polygon between these creases.



51. Press at the site of the arrow to open the crimp in the middle of the ear polygon.



52. Sink the paper between the ears by pinching the ends of the ear layers together. The sink may reverse direction in the middle of the ear polygon.





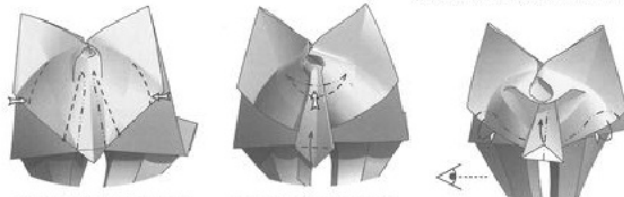
53. Valley-fold a small flap to the left.

54. Put a layer on top of the flap (sink it) and turn the model over.



55. Repeat steps 53 to 54 on the forehead.

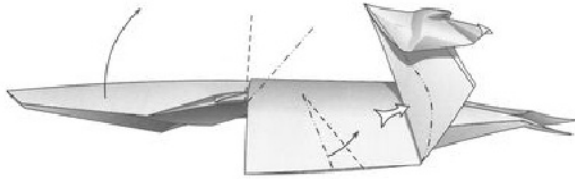
56. Raise the nose flap up on a curved crease without undoing the forehead sink.



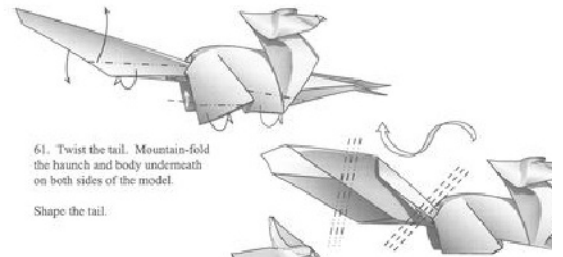
57. Shape the sides of the head and crimp the nose down.

58. Fold up the nose tip on the crease of step 4. Pleat the forehead on curved creases.

59. Raise the rostrum. Narrow cheeks with mountain creases.



60. Crimp the tail up. Crimp haunches on both sides of the body. The haunch crimps start below the midline of the back. Shape the neck on both sides with mountain creases.

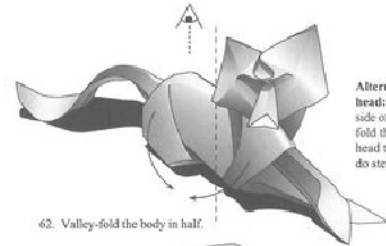


61. Twist the tail. Mountain-fold the haunch and body underneath on both sides of the model.

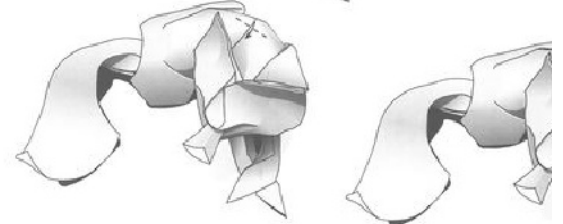
Shape the tail.



FINISHED KIT FOX!



62. Valley-fold the body in half.

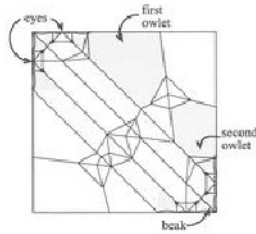


63. Valley-fold the peak down.

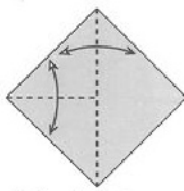
Alternate step 60 to turn the head: Valley-crease the right side of the neck and mountain-fold the left side. Twist the head to the left side and then do step 61.

Spooky Owlets

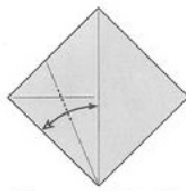
Created / 2006
 Difficulty / Intermediate
 Time to fold / 20 minutes
 Dimension / R=0.5



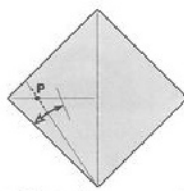
Author's comments: Ariel Achtman named this model. Use a bi-colored square to create this spooky group of 2 owl chicks. I like to wet fold this model from white or black Canson backed with bright green or yellow foil for the face color. Perfect decoration for Halloween!



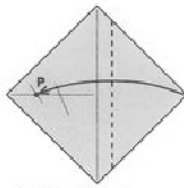
1. Crease the side of paper or foil that will be visible only around the eyes.



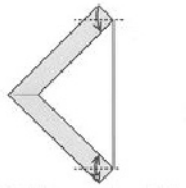
2. Crease an angle bisector at the horizontal diagonal and slightly below it.



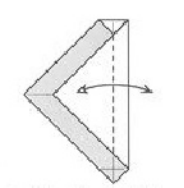
3. Bisect angle once more, creasing only at point P on the diagonal.



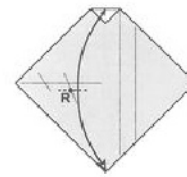
4. Valley-fold the right corner to point P.



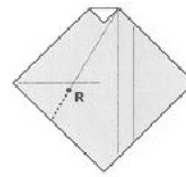
5. Fold the top corner down. Fold and unfold the bottom corner.



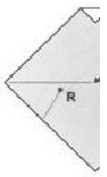
6. Valley-fold and unfold along the midline.



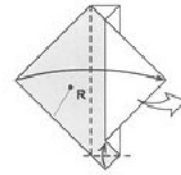
7. Put the bottom corner on the midline at the top. Pinch on the crease of step 2 at point R.



8. Define a line from the right side of the white triangle through point R. Valley-crease the line below point R.

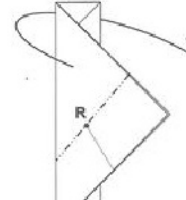


9. Pleat the right existing folds.

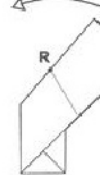


10. Fold the left corner to the right corner.

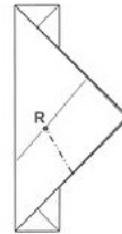
Fold the bottom corner up



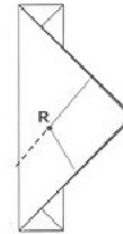
11. Mountain-fold the top half of the model behind on a line through point R.



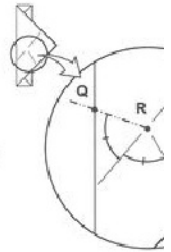
12. Adjust the fold corners on the midline's reverse side. Unfold the last step.



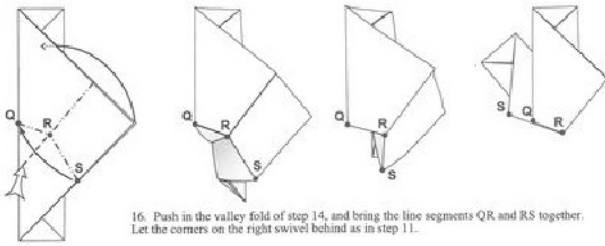
13. Mountain-fold the crease of step 8 through all layers.



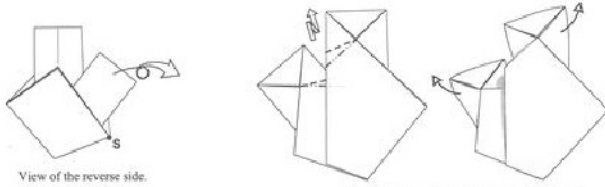
14. Change the mountain fold below point R to a valley fold.



15. Create a mountain (QR) through all layers; valley fold of the line the angle QRS.

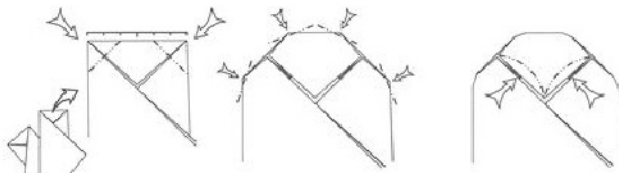


16. Push in the valley fold of step 14, and bring the line segments QR and RS together. Let the corners on the right swivel behind as in step 11.



View of the reverse side.

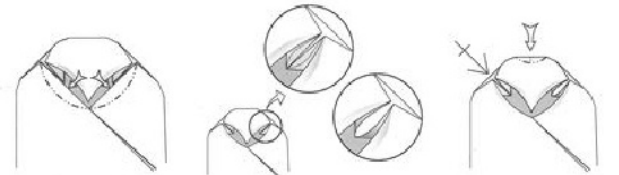
17. Crimp the sides of the two owl heads and then undo the crimps.



18. Open-sink corners of the owl's head on the right.

19. Close-sink edges to round the top of the head.

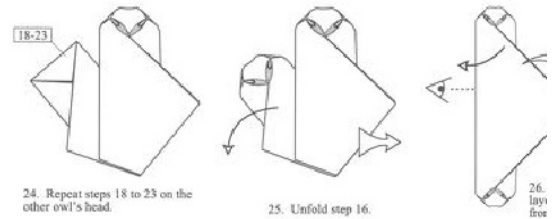
20. Shape the bill with curved mountain creases.



21. Shape the lower edges in a similar manner.

22. Spread apart edges to create eyes.

23. Shape the left eye and dent the top of the head.

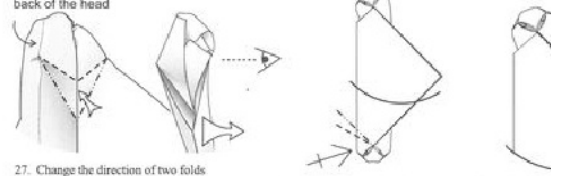


24. Repeat steps 18 to 23 on the other owl's head.

25. Unfold step 16.

26. Lay free

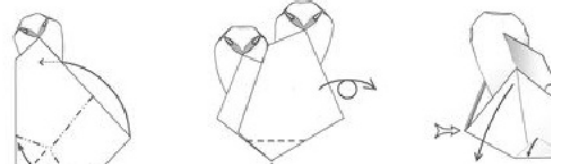
back of the head



27. Change the direction of two folds on the back of the head and then symmetrically crimp the edge inside the model.

28. Repeat step 27 on the other chick's head.

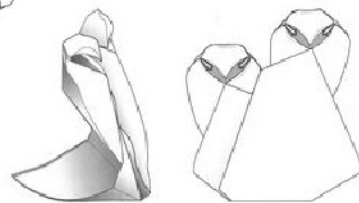
29. Put both flaps roll their edges



30. Refold step 16.

31. Close-sink the bottom and turn the model over.

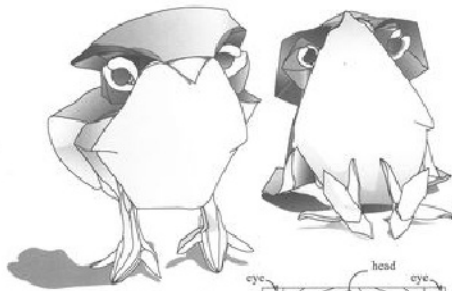
32. Fold the large flap bottom down. The flap will bend inward.



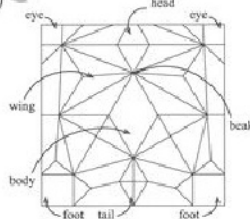
Completed owlets
Don't worry if you slightly different
Just make them up

Owlets

Created / 2005
 Difficulty / Complex
 Time to fold / 3 hours
 Dimension / R=0.37



Author's advice: This is a challenging model because it has just enough paper to make the features, and it has a lot of steps. At first I did not want to include this model in the book because I could not find a simple way to fold the tail and the feet. However, after I got many requests to include it, I put some more paper in the tail to make it easier for you to learn. Once you have folded several of this basic owl, try folding a variant of this design I detail later.



1. Valley-crease diagonals and lightly mountain-crease book folds.

2. Bisect distance with a crease on the top edge at point P.

3. Place point P on the right edge midpoint and valley-fold and unfold the left and right side of the fold (not the middle).

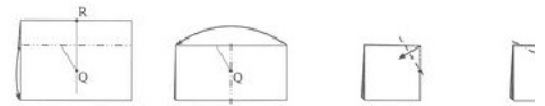
4. Bring the bottom edge to the last fold and crease the midline at point Q.

5. Mountain-fold the paper in half.

6. Crease again through both layers at point Q and open the paper to reveal point R.

7. Mountain-fold the top part of the paper through point R.

8. Place point R on the midline and valley-crease through point Q.



13. Unfold.

14. Place the top left corner on the bottom edge and the top edge on the midpoint of the right side. Crease at point S.

15. Valley-fold and unfold the top edge to point S.

16. Valley-fold between creases of steps 14 and 15.

17. Change the direction of the following creases.

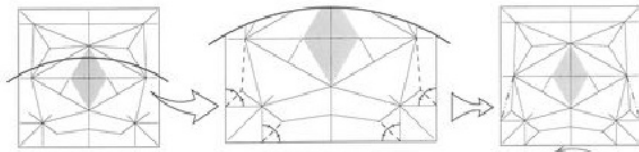
18. Extend mountain creases.

19. Valley-fold bottom crease intersections.

20. Valley-crease perpendicular to the paper edges from the intersections of the last creases and the diagonals. This is the paper for the toes.

21. Mountain-crease the "legs".

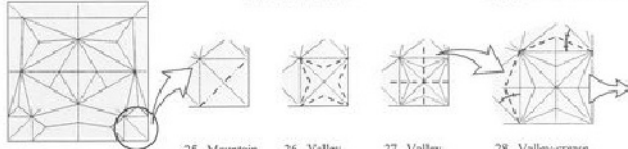
22. Create in the top half. Bisect distance bottom half.



Notes: The body of the owl is located in the shaded area.

23. Create angle bisectors and then extend valley creases as indicated.

24. Mountain-crease and turn the paper over side to side.



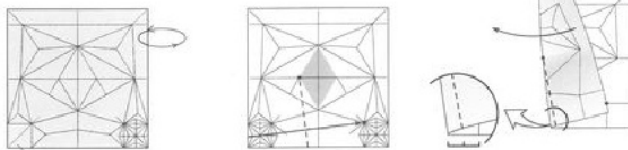
The following steps describe pre-creasing the toes.

25. Mountain-crease.

26. Valley-crease angle bisectors.

27. Valley-crease.

28. Valley-crease.

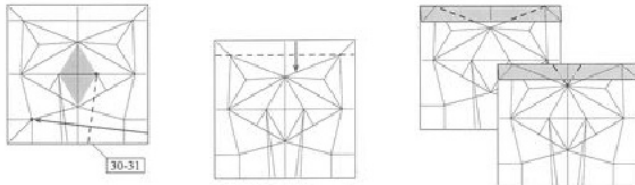


25,28

29. Repeat steps 25 to 28 on the left bottom corner and turn the paper over side to side.

30. Begin a crimp by valley-folding the left edge to the intersection marked by a circle in step 20. Start the fold at the left side of the owl's body.

31. Valley-fold this edge back to the left and then undo the crimp.

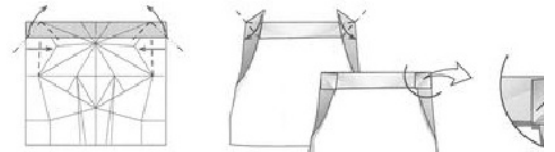


30-31

32. Repeat steps 30 to 31 on the right.

33. Valley-fold the top edge down on an existing crease. We are now starting to fold!

34. Valley-crease the top layer on existing folds. Then bisect the distance between these creases and the midline with mountain creases.



35. Swivel-fold the top edge. The model will remain 3-D from this point onwards.

36. Squash corners symmetrically.

37. Inside right side.



38. Fold back down.

39. Repeat steps 37 to 38 on the left side of the corner flap.

40. Valley-fold the corner up as far as it will go.

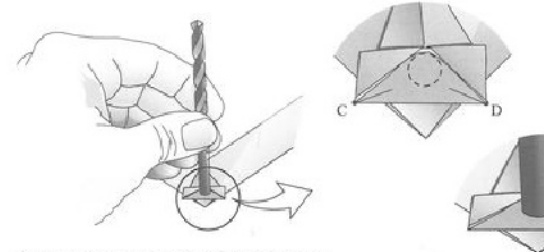
41. a tiny



42. Round the tip with two more tiny valley folds.

43. Valley-fold the corner down.

44. Valley-crease bisectors in the model.



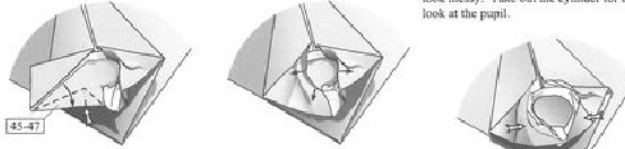
Notes: You can do these next steps by hand or you can use a tool to help you. Place a cylindrical object with a flat bottom at the site indicated by dashed lines. The diameter of the cylinder should be 1/4 of distance CD.

45. Press down cylinder. Peel



46. Wrap the exposed white edge around the cylinder. Incorporate the indicated crimp.

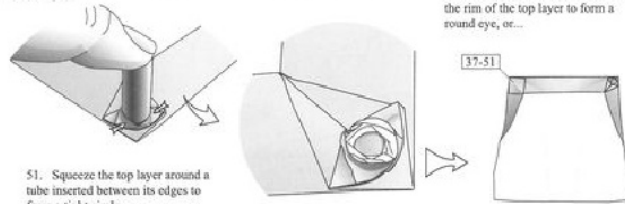
47. Squash these layers down around the base of the cylinder. The layers will look messy. Take out the cylinder for a look at the pupil.



48. Reinsert the cylinder and repeat steps 45 to 47 on the left. Overlap white edges.

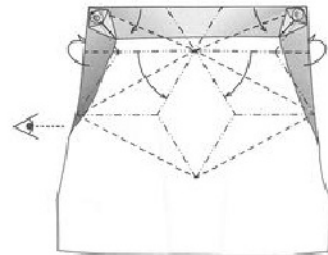
49. Spread the top layer to form a circle around the pupil.

50. Alternately squash and spread the rim of the top layer to form a round eye, or...

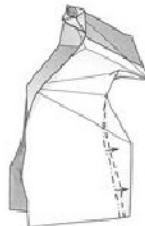


51. Squeeze the top layer around a tube inserted between its edges to form a tight circle.

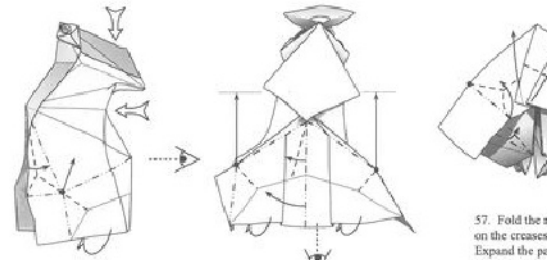
52. Repeat steps 37 to 51 on the top left corner.



53. Partially collapse the model on existing creases.



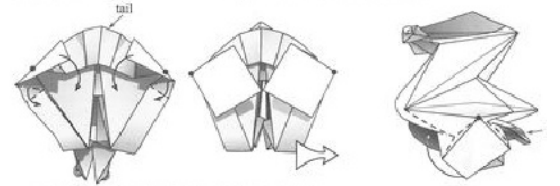
54. Crimp both sides of the bottom half of the model (steps 30-32).



55. Raise the points (dots) on both sides of the model while compressing the top of the model downward.

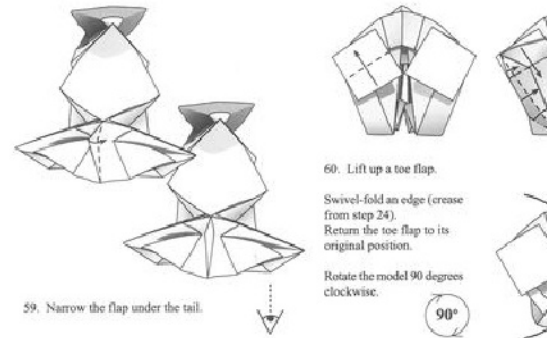
56. When the points are at the level of the mid chest, take up the loose paper in front of the model with a crimp and fold it underneath the model (next view).

57. Fold the paper on the creases. Expand the paper (steps 30-32) to the toe paper valley-folding 19 and 23.



58. You will have finished collapsing the bottom half of the model when the raw corners of the toes face each other.

Side view of the last step.



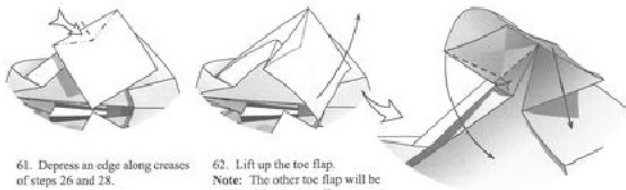
60. Lift up a toe flap.

Swivel-fold an edge (crease from step 24). Return the toe flap to its original position.

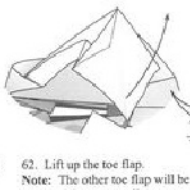
Rotate the model 90 degrees clockwise.



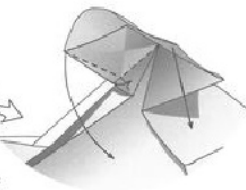
59. Narrow the flap under the tail.



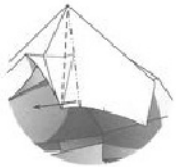
61. Depress an edge along creases of steps 26 and 28.



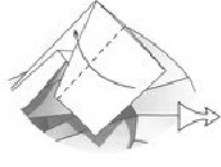
62. Lift up the toe flap.
Note: The other toe flap will be removed from some diagrams to make them clearer.



63. Rabbit-ear fold on the creases of step 28.



64. Crimp the toe flap to the left.



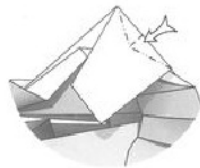
65. Lift up the toe flap to the left.



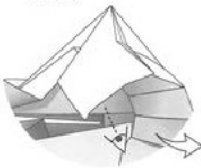
66. Valley-fold the edge down. The top part of the fold is an angle bisector.



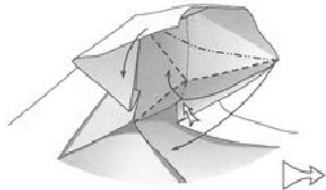
67. Fold the flap down.



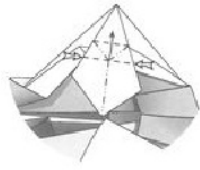
68. Depress this edge along creases of steps 26 and 28.



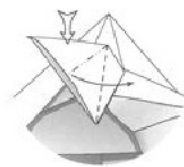
Next view is inside the toe flap.



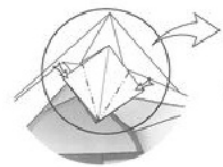
69. Rabbit-ear fold the edge at the white arrow and fold down the toe flap.



70. Petal-fold the toe flap.



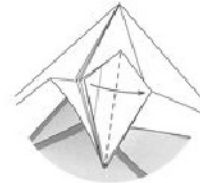
71. Squash-fold.



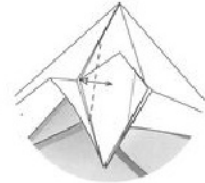
72. Inside reverse-fold.



73. Valley-crease layer to narrow.



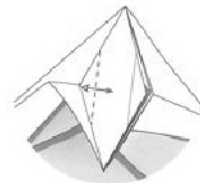
74. Fold a layer to the right.



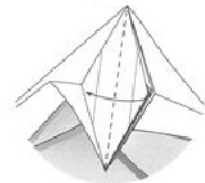
75. Crease the next double layer.



76. Fold another layer to the right.



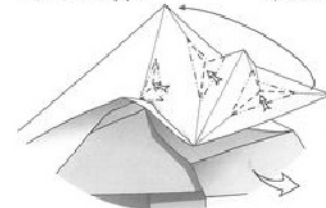
77. Crease the last layer that is attached to paper.



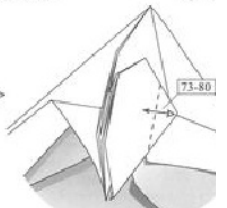
78. Valley-fold two layers back to the left.



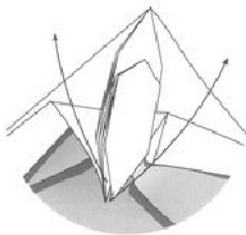
79. Open up to the right.



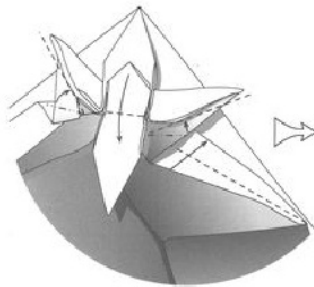
80. Open-sink the triangle-shaped areas creased in steps 73 to 77 and close the flap on existing creases.



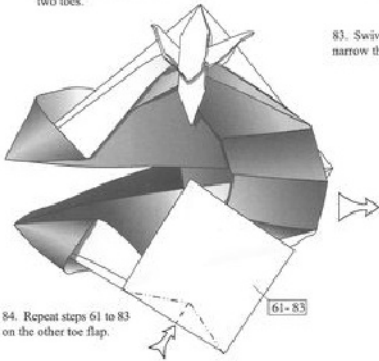
81. To



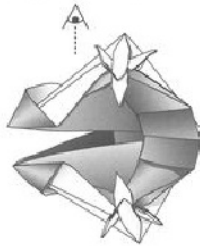
82. Inside reverse-fold two toes.



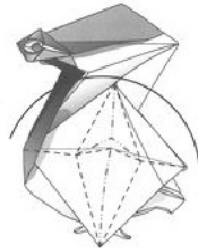
83. Swivel-fold and tuck paper inside the toes to narrow them. Valley-fold the "heel" down.



84. Repeat steps 61 to 83 on the other toe flap.



85. Pull down the leg flap.

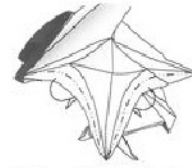


86. Narrow the leg with angle bisectors. Crimp the leg ridge to take up loose paper.

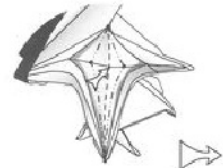


87. Open a crimp only at the indicated edge.

Next view is from the side.



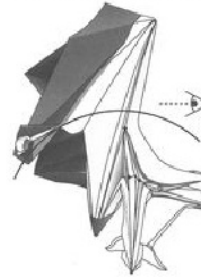
88. Mountain-fold leg sides under.



89. Open-sink between the dots to narrow the leg. View on the right is of a partially compressed leg.



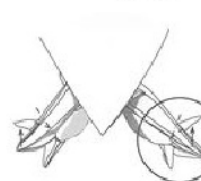
90. Repeat steps 85 to 89 on the right leg.



Keep pressing leg to wing and bottom of down as a result.



92. Crimp feet up in the following way. First squash down and spread the two middle layers on top of the middle toe.

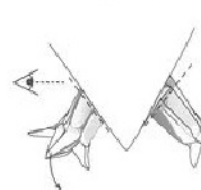


91. Swing between the toes.



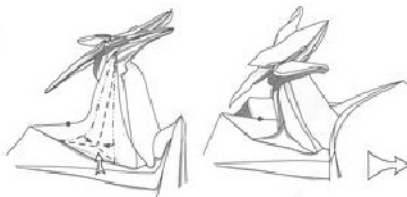
94. Valley-fold legs so that middle toes point forward.

Next view layers of flaps

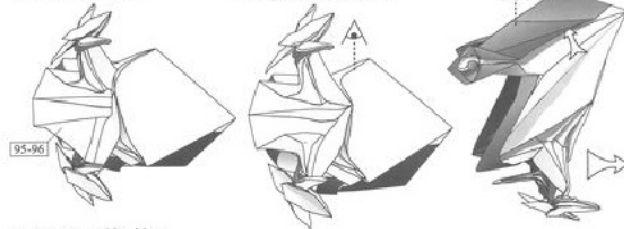




95. Fold so that the dot lies along a tail edge underneath it.

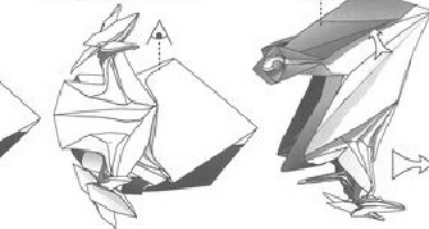


96. Open-sink to narrow leg.

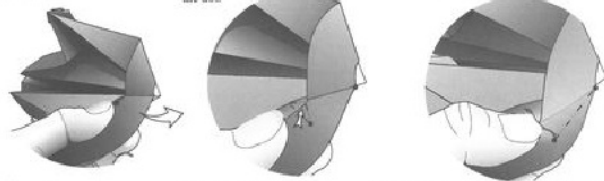


95-96

97. Repeat steps 95 to 96 on the other leg.

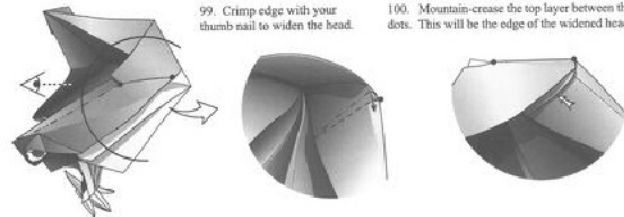


98. Lift up the top layer at the white arrow and place a thumb on the top edge at the dot.



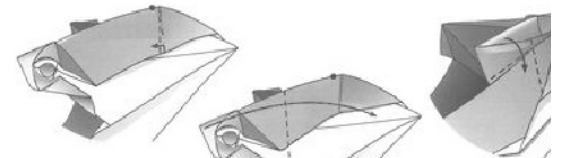
99. Crimp edge with your thumb nail to widen the head.

100. Mountain-crease the top layer between the dots. This will be the edge of the widened head.



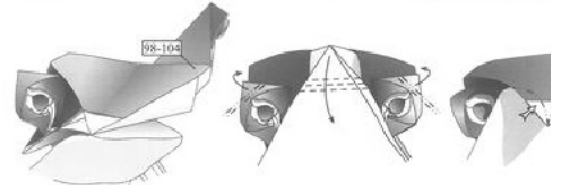
101. Extend the mountain crease to the tip of the eye flap.

102. Crimp the top layer and fold down the head extension. The mountain fold (white arrow) lies along the back edge of the head.



103. Crimp the top layer to take up loose paper. Then fold the eye flap forward.

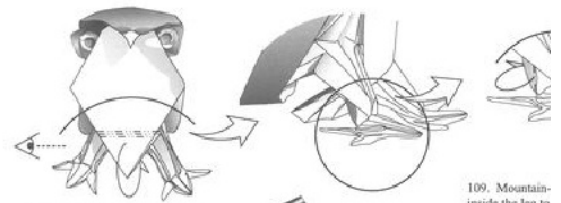
104. Valley-fold the end of degrees on a line parallel with the side of the head. Bend down the side of the head.



105. Repeat steps 98 to 104 on the right side of the head.

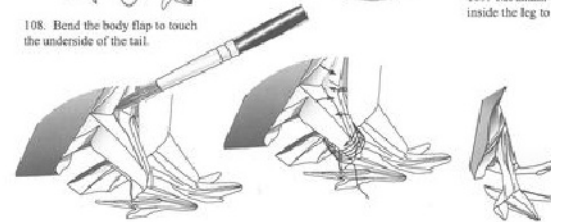
106. Curve the points on the eye flaps behind and bend down the beak.

107. Shape the beak mountain creases.



108. Bend the body flap to touch the underside of the tail.

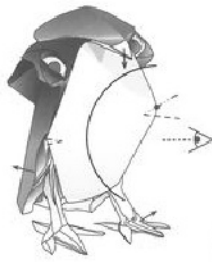
109. Mountain-crease inside the leg to form the toe.



Optional: Dampen the layers of the leg and toes with water or a methyl cellulose solution.

110. Close up the layers of the leg and body. Optional: Bind the leg and toe layers with thread and let them dry.

111. Repeat step on the other leg.



112. Pull down the beak. Crimp the corners of the body to round them. Lift up the edges of the wings below the crimps.

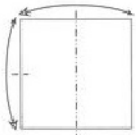
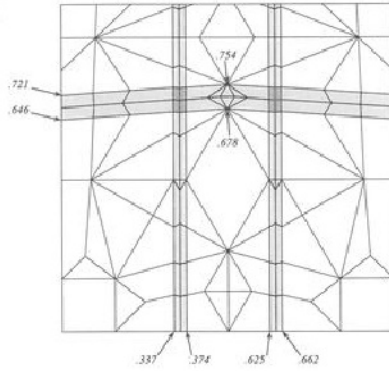


Side view of the body crimp and rounded wing edge.

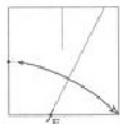


Finished Owl! **Optional:** Position the legs and feet for walking or sitting.

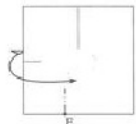
Note: To make an owl with an open beak, either measure pleats according to the proportions to the right or use the diagrams below.



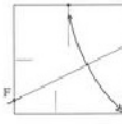
1. Crease the midline and midpoint of the left side.



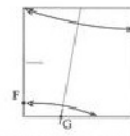
2. Bring the bottom right corner to the midpoint of the left side. Crease the bottom edge at point E.



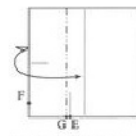
3. Mountain-crease the bottom edge on to itself through point E.



4. Bring the bottom right corner to the midpoint of the top edge and crease the left side at point F.



5. Bring the top left corner to the right edge, and point F to the bottom edge. Crease the bottom edge at point G.



6. Mountain-fold and unfold the left side through point G.

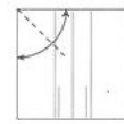


7. Mountain-fold the paper in half along the midline.

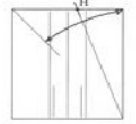
8
a
12



9. Unfold.



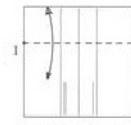
10. Bisect an angle.



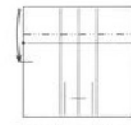
11. Bring the top right corner to the angle bisector and crease the top edge at point H.



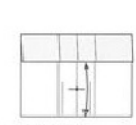
12. Bring top corner to the left edge.



13. Valley-fold and unfold the top of the paper down through point I.



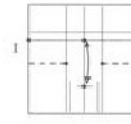
14. Valley-fold the top edge to the midpoint on the left side.



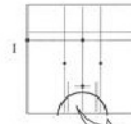
15. Mark the distance bisector between raw edges with a crease to define the bottom of the owl's body (dot).



16.



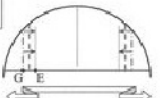
17. Valley-crease between point I and the crease of step 15 only where indicated. Dots define the sides, top, and bottom of the owl's body.



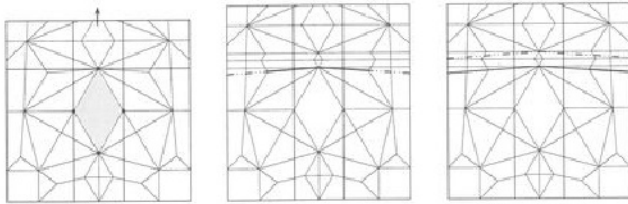
18. Pleat by lining up the outer vertical creases with the inner ones.



19. Pleat by crease of step 18.



19. Pleat by crease of step 18.

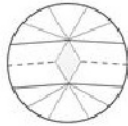
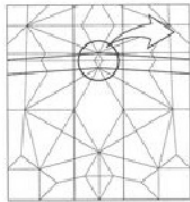


20. Use some of the first 30 steps of the owllet to create the creases above. Note that the owl's body (shaded) is defined by the pleat edges and steps 15 and 17.

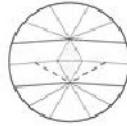
21. Extend bisectors of step 22 of the owllet (dark lines) to the raw paper edges.

22. Create parallel mountain folds at the top of the open beak.

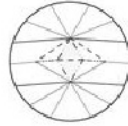
Unfold to expose the open beak (shaded at right).



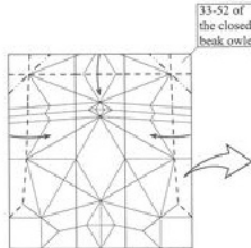
23. Bisect distances with valley creases.



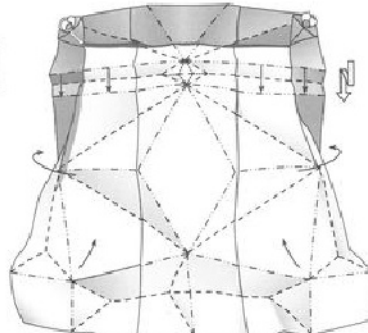
24. Extend valley creases.



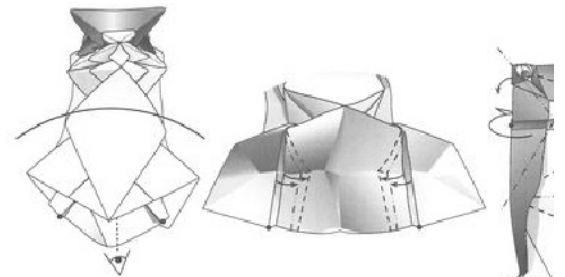
25. Crease as indicated.



26. Do steps 33-52 of the closed-beak owllet to create the eyes.



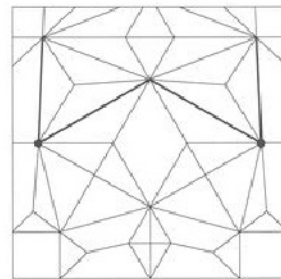
27. Pleat on creases of steps 22-23 and collapse the model as you did for the owllet. Note: You do not need steps 30-32 of the closed-beak owllet because you already have vertical pleats near the tail (dots).



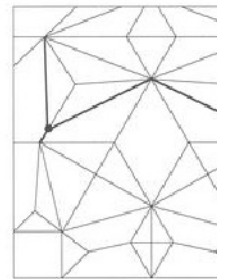
28. Change the vertical pleats at the bottom of the model. Angle them toward the center of the model and then fan them out to the bottom edge. Use the extra paper at the bottom edge of these pleats to accommodate a tail (made in step 57 of the closed-beak owllet).

29. Close the pleat and do 1 step to make the owllet with Do step 53 of the closed-beak owllet step 54. Use the extra pleat on the left and right edge (dot) to fluff up the wings or eyes farther forward.

Note: To broaden the bottom of the wings, move the intersections of the darkened creases up the angle bisectors of step 22 of the closed-beak owllet.



Narrow wings



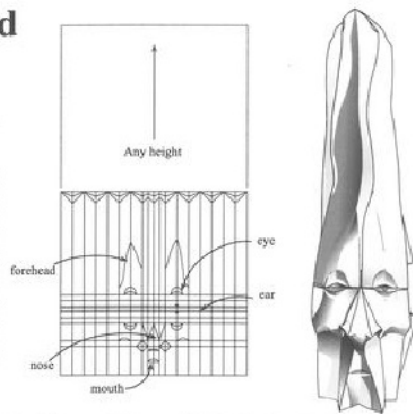
Broader wings

Final Challenge: See if you can fold these models without putting any creases across the chest of the owllet.

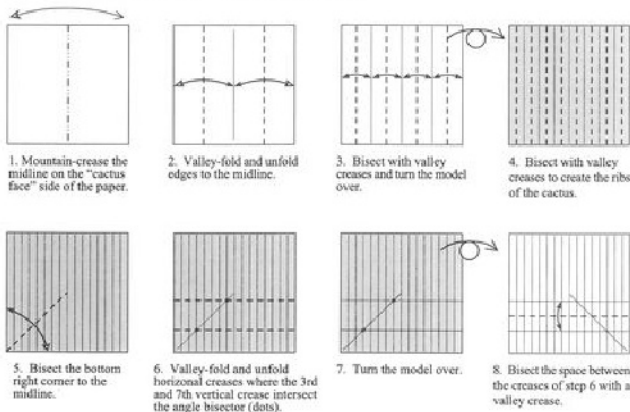
Cactus Head

Created / 2005
 Difficulty / Intermediate
 Time to fold / 70 minutes
 Dimension / R=0.81 for height from a square.

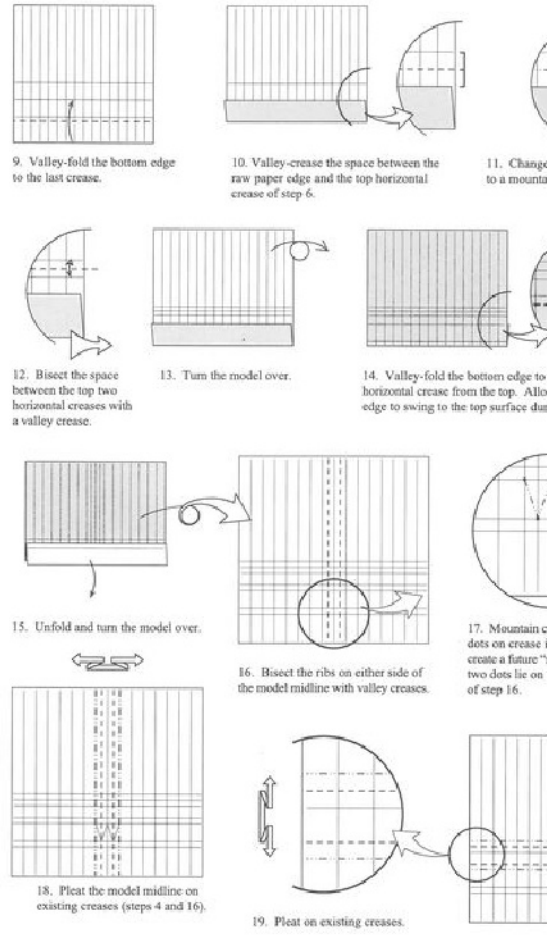
Author's advice: Cacti with segments, holes for owl nests, and even faces! These directions will serve for cacti of any height. For longer cacti, substitute a rectangle for the square shown here. For best results, wet-fold medium weight paper 50 cm wide or larger. Shown here is a cactus with a head at the base. Later I will show you how to design your own segmented cactus.



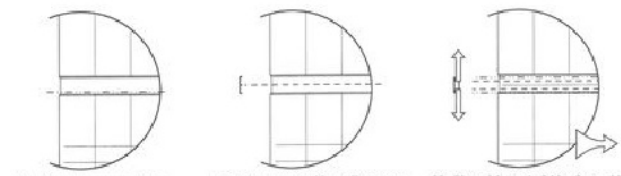
Note on authorship: After designing this cactus I discovered Saadya Sternberg had used pleats to make both eyes and ears for his masks decades ago. I didn't steal this idea from you, Saadya, but here I do give you credit for its design. I knowingly borrowed the basic folding pattern for making segmented cacti from Mark Turner's Christmas cactus. This I modified with curves. I think it is permissible to do this as long as you give credit to people.



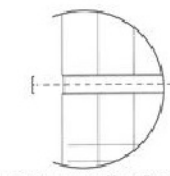
1. Mountain-crease the midline on the "cactus face" side of the paper.
2. Valley-fold and unfold edges to the midline.
3. Bisection with valley creases and turn the model over.
4. Bisection with valley creases to create the ribs of the cactus.
5. Bisection the bottom right corner to the midline.
6. Valley-fold and unfold horizontal creases where the 3rd and 7th vertical crease intersect the angle bisector (dots).
7. Turn the model over.
8. Bisection the space between the creases of step 6 with a valley crease.



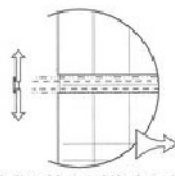
9. Valley-fold the bottom edge to the last crease.
10. Valley-crease the space between the raw paper edge and the top horizontal crease of step 6.
11. Change to a mountain crease.
12. Bisection the space between the top two horizontal creases with a valley crease.
13. Turn the model over.
14. Valley-fold the bottom edge to horizontal crease from the top. Allow edge to swing to the top surface with a valley crease.
15. Unfold and turn the model over.
16. Bisection the ribs on either side of the model midline with valley creases.
17. Mountain crease dots on crease (create a future "two dots lie on" of step 16).
18. Pleat the model midline on existing creases (steps 4 and 16).
19. Pleat on existing creases.



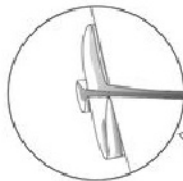
20. Mountain-crease along a folded edge.



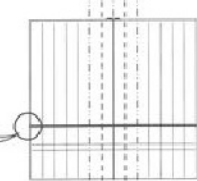
21. Bisect space with a valley crease.



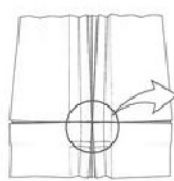
22. Pleat. Mountain folds of steps 11 and 20 meet in the center.



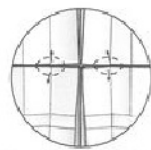
Detail of the pleats (steps 19-22).



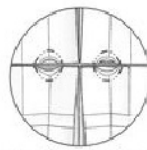
23. Pleat the center of the model loosely to form mountains and valleys.



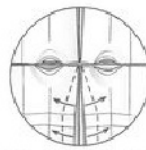
Area of subsequent steps.



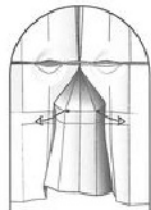
24. Pre-crease cyclids in the troughs between mountain folds.



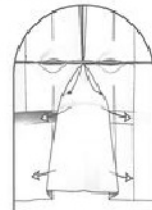
25. Surround these creases with arch-shaped mountain creases. Don't worry if these creases disappear. We will refold them later.



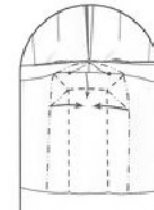
26. Spread open the sides of the center pleats along the folds of step 17. The bottom of the model will raise upward.



27. Push the edges of the "nose" out (dots).



28. Release trapped paper on either side of the nose.



29. Collapse the center under the nose. See the next 3 diagrams first.



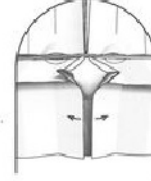
30. As you redo the pleat on both sides of the nose and under it, spread the nostrils (dots) to the side.



31. Pull paper out nose to raise it up.



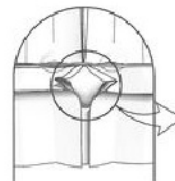
Side view of the raised nose.



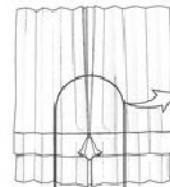
32. Open the sides of the pleat.



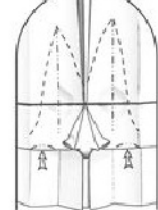
33. Put a small crease to take up loose paper.



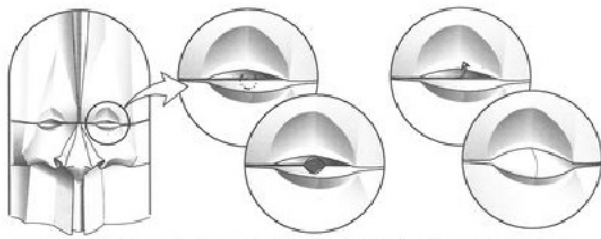
34. Shape nose by flattening its sides, flaring the nostrils, and crease along the bottom edge of the nostrils part way toward the center.



35. Reverse the direction of the vertical pleat under the eyes. Dent the bottom edge of the pleat on either side of the nose to create cheeks.



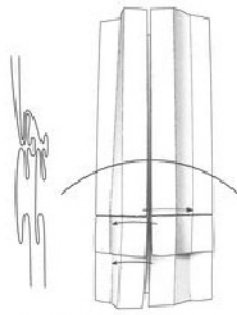
36. Re



37. Two ways to form eyeballs: Either spread apart the small pleat to create a "pupil" or push the pleat out from underneath to create a rounded eyeball. Be careful! I have poked out a lot of cactus eyes with my finger. That is a third way...



38. Bring the raw edges together behind the face. (Next view is the backside).



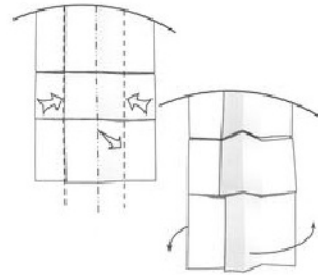
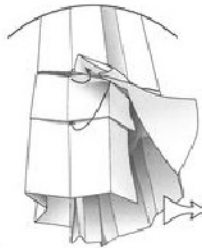
39. Overlap two parts of a cactus rib on both sides by engaging the top pleat.



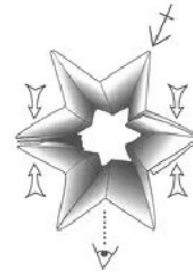
40. Open the top layer.



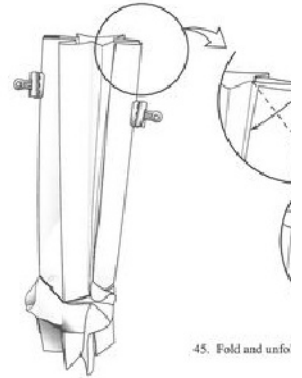
41. Engage the other two pleats to finish locking the sides of the cactus.



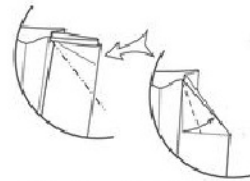
42. Reform ribs and rotate the model 45 degrees counter-clockwise.



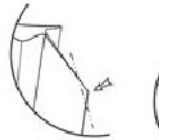
44. View from the top of the cactus. At this stage I like to clamp the sides of 2 ribs together. Repeat the previous step on the other ear if you like.



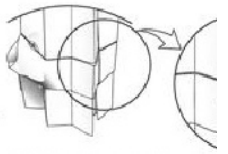
45. Fold and unfo



46. Inside reverse-fold both layers and then valley-fold them together to one side inside the model.

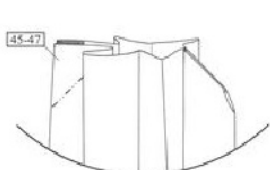


47. Close-sink an edge to ro

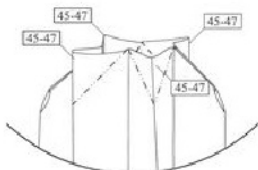


43. **Optional:** Very very carefully pull paper from the hidden pleats to create an ear. I sometimes rip ears. If that happens, tuck the ear back in and Shhhhh...

Note: I often do just one ear because I like asymmetry. You can express the other ear if you want to.



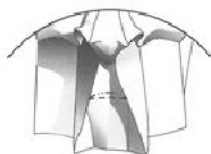
48. Repeat steps 45 to 47 on the opposing cactus ribs.



49. Repeat steps 45 to 47 on the remaining ribs. Hint: I pre-crease two ribs, fold the other two, then fold the former with the help of some tweezers.



50. Form a mouth by opening the sides of the pleat under the nose.



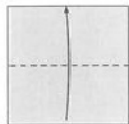
51. Crimp a mouth.



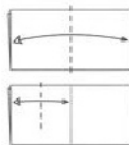
52. Bend the edges of the ribs to make them look wavy. I paint my medium weight paper with water before doing this. You can clamp edges to keep them together when they dry.



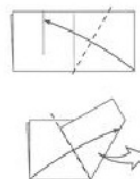
There is a way to create wavy edges with a jig.



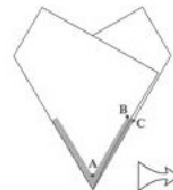
53. Take a square piece of paper 40 percent as wide as the width of the cactus paper and fold it in half.



54. Crease the midline and the middle of the left half.



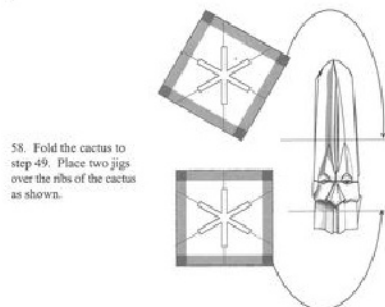
55. Valley-fold the bottom right corner to the last crease. Then align the bottom edge to the right edge.



56. Cut off the shaded portion. Length AB is longer than your cactus ribs and CB is 1/6 a rib width or wider for fatter cactus.



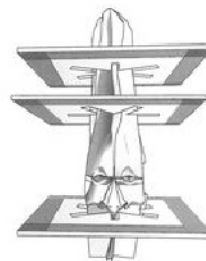
57. Unfold the star pattern on so (cardboard, foam out. Tape its ed)



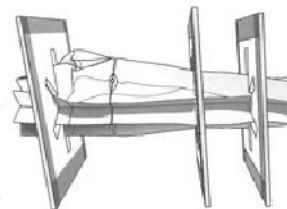
58. Fold the cactus to step 49. Place two jigs over the ribs of the cactus as shown.



59. Twist the top clockwise. Note: Too much horizontal crimps



60. If you like, place more jigs over the top of the cactus and twist them until their bottom edges are parallel.

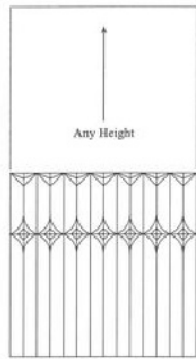


61. Put a small jig on the end to close up the hole. Tape the bottom edges of the larger jigs to a surface water on the cactus (if your paper is thick enough); removing the jigs and forming the mouth.

Segmented Cactus

Created / 2003
 Difficulty / Intermediate
 Time to fold / 40-90 minutes,
 depending on number of
 segments.
 Dimension / $R=0.91$ for height
 from a square for a cactus with
 2 segments.

Author's advice: Have fun
 designing your own cactus
 segments with steps 1 adapted
 from Mark Turner's Christmas
 cactus. I recommend you make
 segments at least 4 times as
 high as the width of your cactus
 ribs. After you master these
 steps you can combine the face
 you folded previously to make
 a cactus that screams at the sun.



-
1. Start with the cactus side of the paper facing up. Crease the midpoint P.
-
2. Place the top right corner on the bottom edge and the top edge on point P and crease line A lightly.
-
3. Place the bottom edge on line A and crease the left side at point Q.
-
4. Place the bottom right corner on point Q and crease the bottom edge at point R.
-
5. Valley-fold and unfold through point R.
-
6. Valley-fold and unfold the right edge to the last crease.
-
7. Bisect spaces with valley creases.
-
8. Valley-fold and unfold the left edge to the second crease from the left.

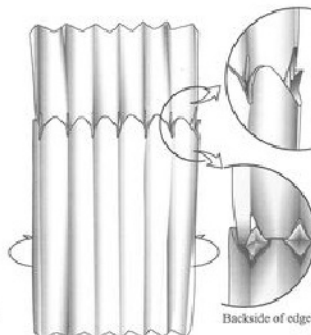


-
12. Lightly valley-fold two parallel creases a third farther from the segment division than the width of your cactus ribs. Make mountain creases according to the thick line pattern above. The units of the pattern I discuss below is the curved diamond shape shown above.
-
13. Mountain-fold the top seg behind on the crease of step 11.

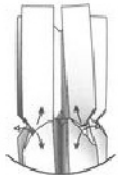
-
14. Indent the diamond-shaped units. For each one, push up its ridge from underneath (parts of crease 11). Next view is from above.
-
15. Push the curved sides toward the center of the diamond shape. Pinch the cactus ribs together. Allow the ridge to pop up during this process.
- Note: Some crimp process of squeeze ribs together.



16. Valley-fold the top cactus segment up. Preserve the orientation of the lobed edge of the bottom cactus section.



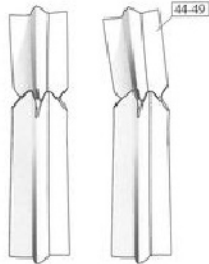
17. Place the sides of the cactus together behind. Next views are from the back of the cactus top.



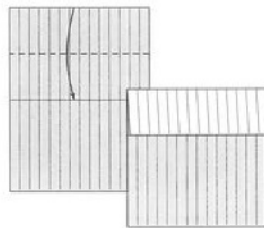
18. Unfold steps 14 and 15 of the two cactus ribs on the paper's long edges.



19. Place the two halves of one rib over the other. Refold both layers together to lock them.



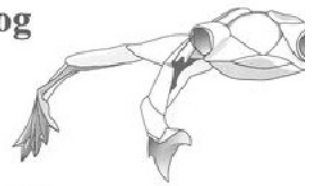
20. Tilt segments if you want to and squeeze new folds around the segment division. Then repeat steps 44 to 49 of the previous design at the top and shape your cactus.



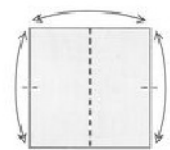
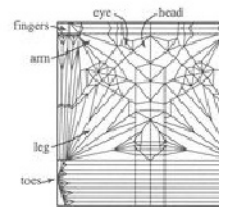
Final Note: To make a higher colored lobe at the top, extend your paper and fold the top over to a segment division crease.

Red-Eyed Frog

Created / 2005
 Difficulty / Complex
 Time to fold / 2 hours
 Dimension / R= 0.17 for length of the frog's body, and 0.41 for length of legs.



Author's advice: Kami is useful for practice on this model, however, much better results can be achieved with very thin paper. I use a 22-25 cm square of backcoated tissue or gampi, one sheet red and the other light green. The red color shows through the green side giving the appearance of translucent skin. Spend enough time making the eyes and positioning the limbs. After you master the frog, you might want to add a habitat and a predator to give your frog(s) something to react to. Those diagrams follow this set.



1. Mountain-crease the midlines.



2. Place the bottom left corner on the midline of the right side, and crease the top edge.



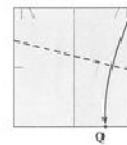
3. Repeat step 2 on the right side.



4. Bisect creases with points P.



5. Valley-fold and unfold the bottom right corner to the midline. Crease the bottom edge at point Q and slightly above it.



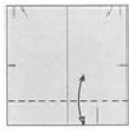
6. Place the top right corner on point Q and valley-crease lightly.



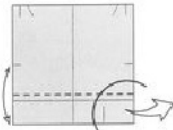
7. Bisect the distance from the bottom left corner to the intersection of edges.



8. Unfold pleats.



9. Valley-fold and unfold through the crease of step 7.



10. Valley-fold and unfold the bottom edge to the midline creases.



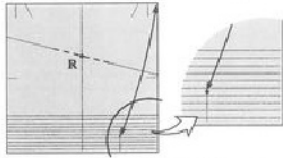
11. Bisect the distance from the bottom edge to the crease above it with a valley crease.



12. Bisect again with valley creases.



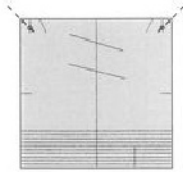
13. Bisect all five distances with mountain creases.



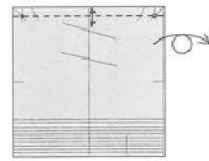
14. Place the top right corner on the crease of step 3 and midway between the 4th and 5th crease from the bottom edge. Crease the midline at point R.



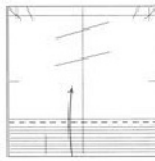
15. Place the top edge on point R and crease the midline at point S. These points will define the heel.



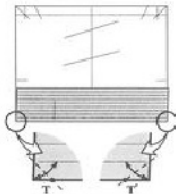
16. Bisect top corner angles with valley creases that intersect the creases of step 4 (open circles).



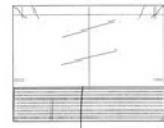
17. Valley-fold and unfold through these intersections and turn the model over.



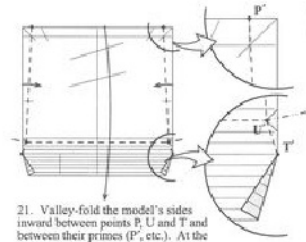
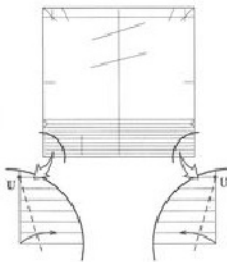
18. Valley-fold the bottom part of the model up on the second toe crease from the top.



19. Valley-fold and unfold the corners to define points T and T'.



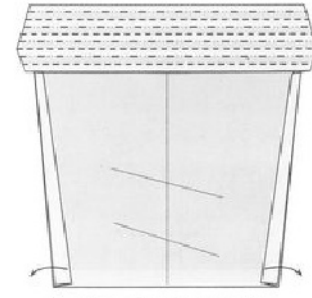
20. Unfold the bottom part of the model. Then valley-fold the corners to the toe crease above them. These folds start at the paper edges on the 5th toe crease at points U and U'.



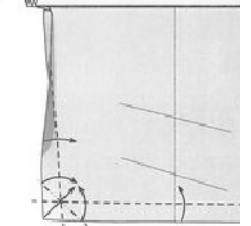
21. Valley-fold the model's sides inward between points P, U and T and between their grimes (P', etc.). At the same time fold the top of the square down on the crease of step 18.



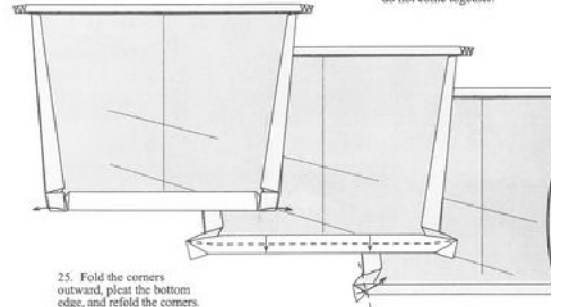
22. Valley-fold the top edge down existing crease and the sides in war valley crease that aligns with the raw edges underneath. Allow the paper the top edge to swing upward.



23. Pleat the top of the model on existing creases. Then fold the double-layered bottom corners outward. The model will not be flat.

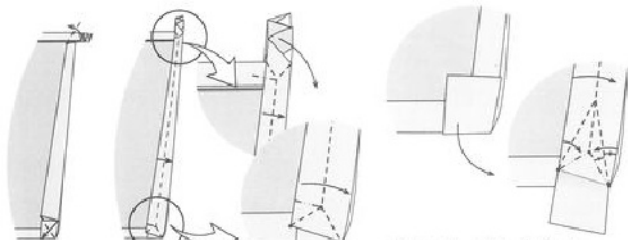


24. Preliminary-fold the corners sides. Note: The points of the pre do not come together.



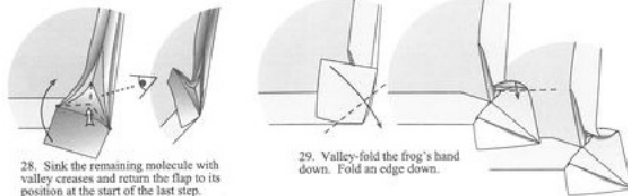
25. Fold the corners outward, pleat the bottom edge, and refold the corners.





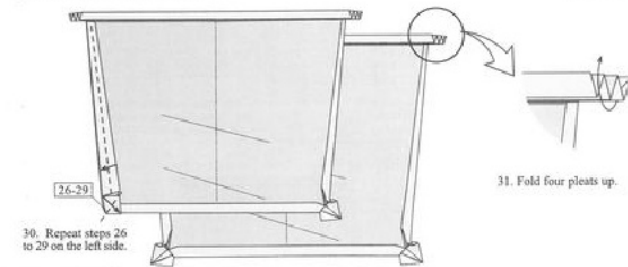
26. Valley-fold a small flap down and a pleated section up, and then valley-fold the edge along the model sides in half (rabbit-ear folds at the ends).

27. Swivel the preliminary fold flap down. Then incorporate angle bisectors to narrow its attachment point to the model.



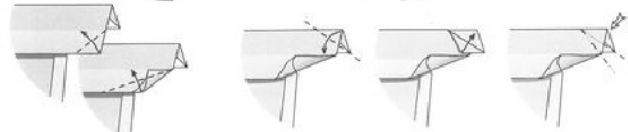
28. Sink the remaining molecule with valley creases and return the flap to its position at the start of the last step.

29. Valley-fold the frog's hand down. Fold an edge down.



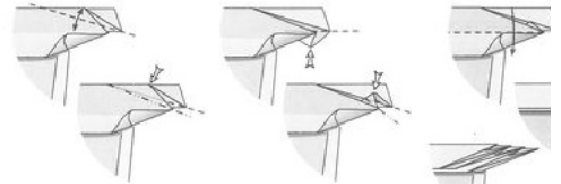
30. Repeat steps 26 to 29 on the left side.

31. Fold four pleats up.



32. Valley-fold a corner over and over.

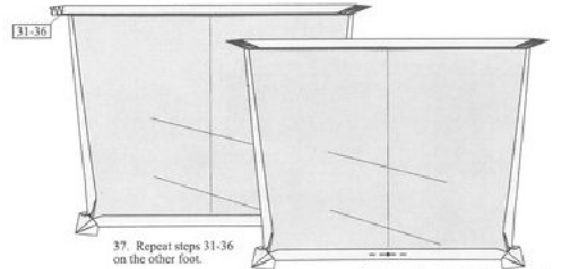
33. Valley-fold and unfold a corner and then inside reverse-fold that edge. Note: Re-align the mountain fold.



34. Valley-fold and unfold an angle bisector and inside reverse-fold this edge.

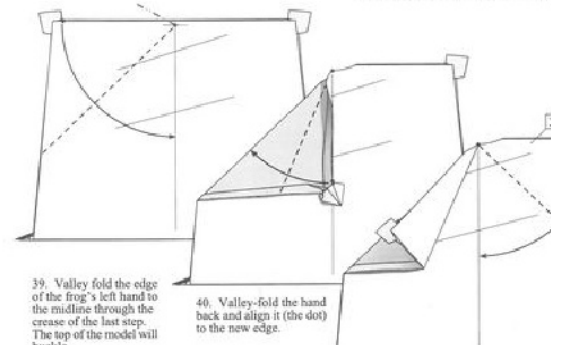
35. Complete the narrowing between toes with 2 more inside-reverse folds.

36. Fold one by on steps 33 to



37. Repeat steps 31-36 on the other foot.

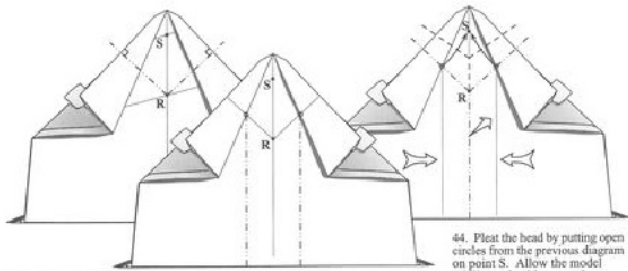
38. Crease the middle of the pleat at the midline and turn the model over.



39. Valley fold the edge of the frog's left hand to the midline through the crease of the last step. The top of the model will buckle.

40. Valley-fold the hand back and align it (the dot) to the new edge.

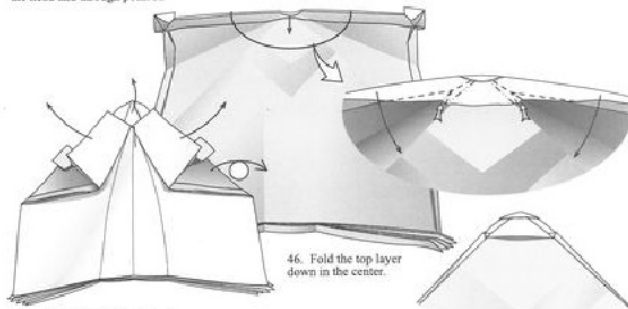
41. Repeat steps 39 to 40 on the



42. Make mountain creases perpendicular to the edge of the head and through point R.

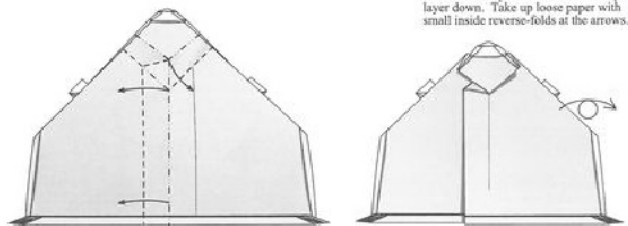
43. Extend mountain creases from open circles to the bottom edge.

44. Pleat the head by putting open circles from the previous diagram on point S. Allow the model midline to buckle upwards.



45. Unfold to the start of step 39 to create a chin.

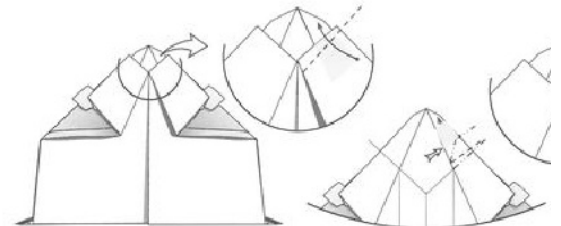
46. Fold the top layer down in the center.



47. Refold steps 39 to 41 with the top layer down. Take up loose paper with small inside reverse-folds at the arrows.

48. Swivel-fold the head down and fold the midline to the left on existing creases.

49. Turn the model over.



50. Pull out the bottom edge of the "eye" pleat on the right side of the head.

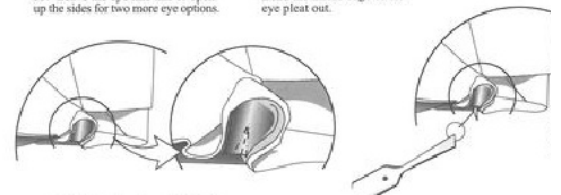
51. At the same time depress its edge at the arrow as shown above in a diagram of an unpleated head.



53. Leave the eye like this or open up the sides for two more eye options.

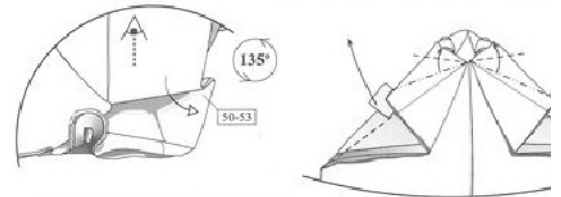
54. View from underneath: Bend the inside edge of the eye pleat out.

55. Refold the eye curved valley fold.



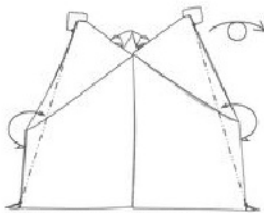
56. Either dent the middle of the bottom edge of the eye pleat to form a pupil as seen below...

57. ... or stuff the cavity of the eye with a small amount of stiff paper between the cotton of the pleat to help form a round flat eye. You can r

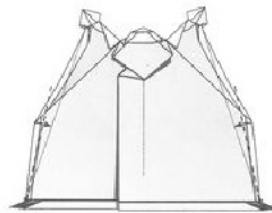


58. Repeat eye folds 50 to 53 (or more folds) on the other side and rotate the model.

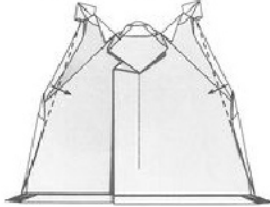
59. Swivel-fold front limbs forward.



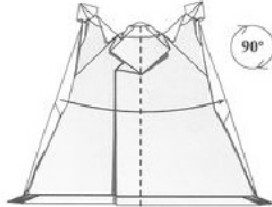
60. Mountain-fold and unfold edges between the dots and turn the model over.



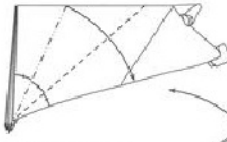
61. Valley-fold edges to the creases of the last step.



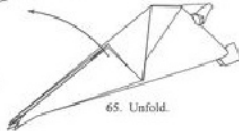
62. Valley-fold edges inward on creases of step 60.



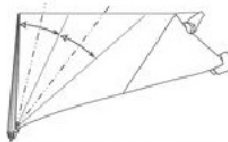
63. Valley-fold the model in half and rotate it clockwise 90 degrees.



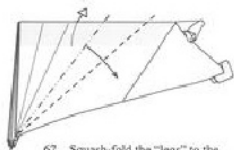
64. Trisect the angle at the base of the foot. Fold through all layers.



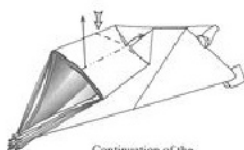
65. Unfold.



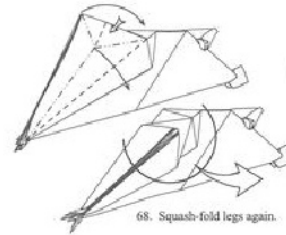
66. Lightly crease angle bisectors through all layers. These folds and the mountain fold from step 64 may need to be adjusted in the next steps.



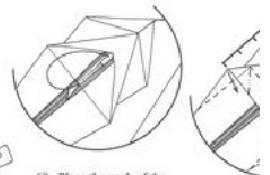
67. Squash-fold the "legs" to the right while unpleating the midline fold from step 48 (shaded area).



Continuation of the squash-fold.



68. Squash-fold legs again.

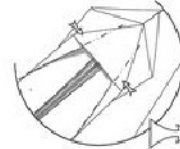


69. Place the peak of the squash fold inside.

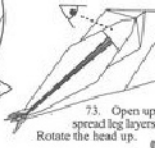
70. Swivel the top of the arc parallel to the legs.



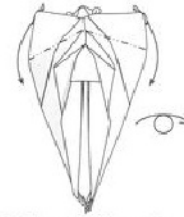
71. Put the top of the last fold inside.



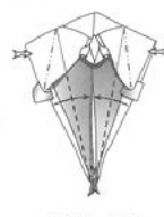
72. Close-sink leg edges or mountain-fold them behind.



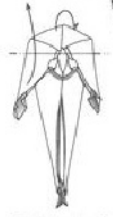
73. Open up spread leg layers. Rotate the head up.



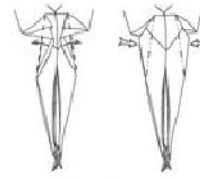
74. Mountain-fold the top of the model down and turn it over.



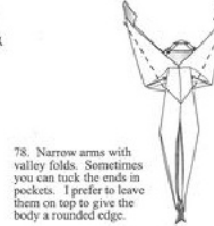
75. Valley-fold the legs and arms in half.



76. Swivel the head and then narrow leg folds along edges.

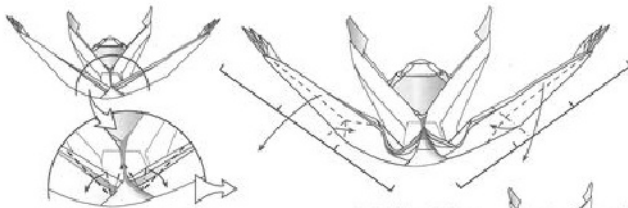


77. Valley-fold leg edges outward and then close-sink them inside the legs.



78. Narrow arms with valley folds. Sometimes you can tuck the ends in pockets. I prefer to leave them on top to give the body a rounded edge.

79. Is this a fire ballerina? Valley-fold leg and outward.



80. Swivel-fold to narrow legs where they join the body.

81. Rabbit-ear fold legs and turn the model over.



82. Crimp arms downward. Wet legs where the brackets indicate and wrap them with thread to narrow them. Let them dry.

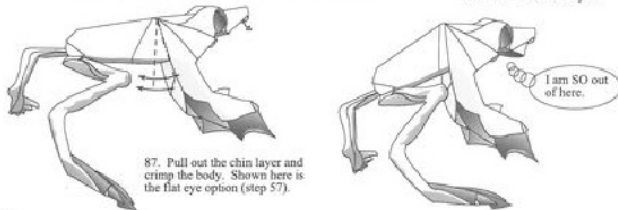
83. Mountain-fold feet and spread toes apart.



84. Shape "digits" with curved mountain folds.

85. Swivel-fold arms in half and bend them down.

86. Mountain-fold the body slightly, and valley-fold the limbs towards you.

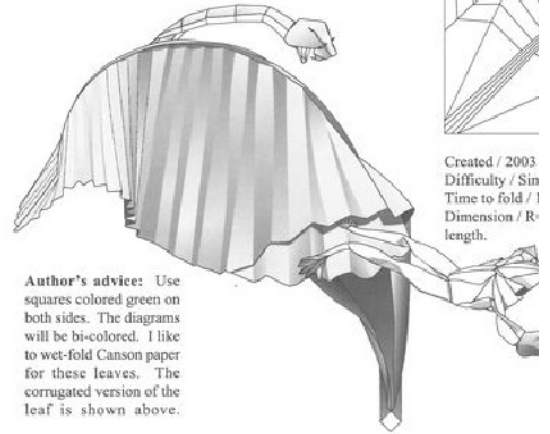


87. Pull out the chin layer and crimp the body. Shown here is the flat eye option (step 57).

I am SO out of here.

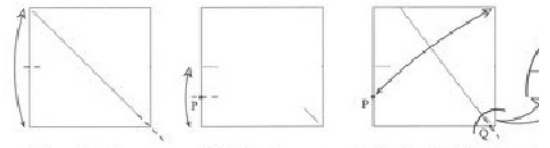


Rain Forest Leaf



Created / 2003
Difficulty / Sim
Time to fold / 1
Dimension / R
length.

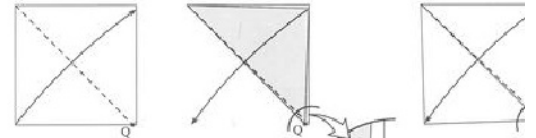
Author's advice: Use squares colored green on both sides. The diagrams will be bi-colored. I like to wet-fold Canson paper for these leaves. The corrugated version of the leaf is shown above.



1. Crease the midline on the left edge and the downward diagonal at the bottom right corner.

2. Bisect the edge once more to define point P.

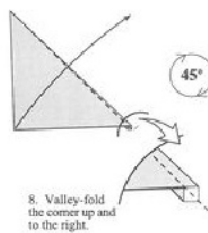
3. Place the top right corner on point P and create the bottom edge at point Q.



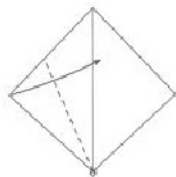
5. Valley-fold through the top left corner and point Q.

6. Valley-fold back down through the corner.

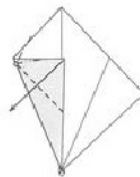
7. Valley-fold the top right corner to the lower left corner.



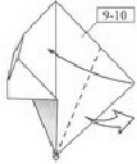
8. Valley-fold the corner up and to the right.



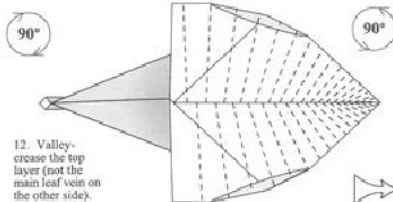
9. Kite-fold the left edge past the midline.



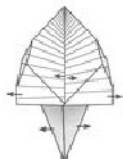
10. Swivel-fold the left corner so that its lower edge is perpendicular to the midline.



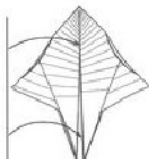
11. Repeat steps 9 to 10 on the right.



12. Valley-crease the top layer (not the main leaf vein on the other side).



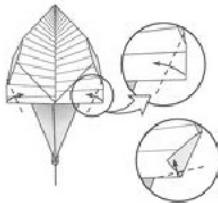
13. Optional: Open the model to expose the midline.



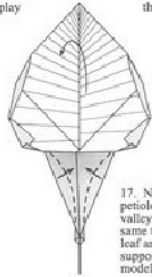
14. Optional: Glue or tape a wire on the midline to display the leaf.



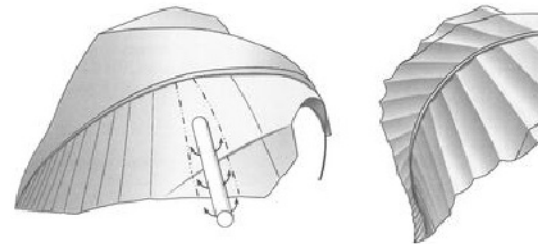
15. Optional: Close the sides of the leaf.



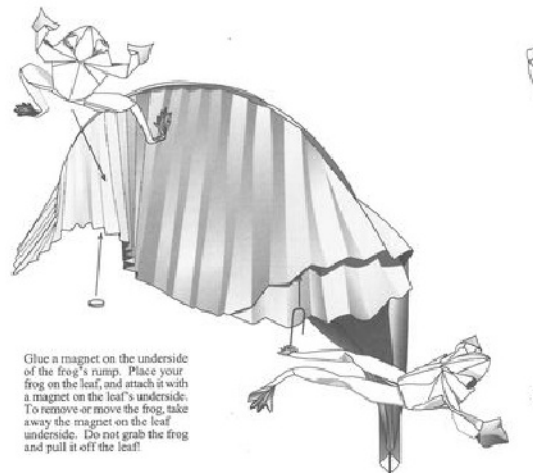
16. Round the bottom of the leaf with valley folds.



17. Narrow the leaf petiole with curved valley folds. At the same time curve the leaf and its wire support. Turn the model over.



18. The leaf can be further shaped by using your fingers or a round object such to curve the surfaces between the leaf ribs. Alternatively you can place a valley to mountain ridges to create the corrugated look of the leaf seen below.



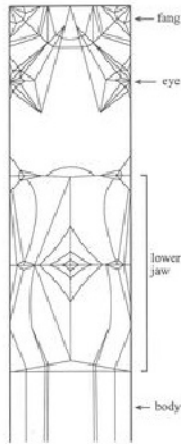
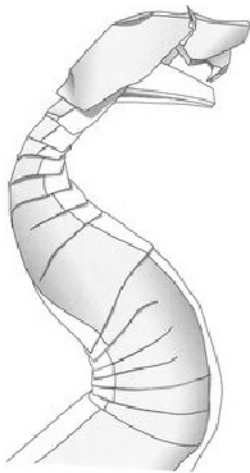
Glue a magnet on the underside of the frog's rump. Place your frog on the leaf, and attach it with a magnet on the leaf's underside. To remove or move the frog, take away the magnet on the leaf underside. Do not grab the frog and pull it off the leaf!

Glue a wire before it is loop on its position.

Attach your leaf to an origami tree with other leaves, or insert the wire into a hole in a base.

Eyelash Pit-Viper

Created / 2010
 Difficulty / Complex
 Time to fold / 2 hours
 Dimension / R= 0.34 for length of the snake's head.



Author's advice: Use a bi-colored rectangle at least 4 times as long as it is wide. I make the entire snake by gluing together 2 rectangles, each one 6 cm wide by 60 cm long. I hide the glued edges under a body pleat. The initial steps of this model are a bit tedious.

In nature this highly poisonous viper ranges in color from dull brown, to bright yellow! It is commonly found in palm plantations and rain forests from Southern Mexico to Ecuador. Eyelash pit-vipers rarely descend to the ground, preferring to hunt for lizards, frogs, and birds in small trees. Bites from this relatively small snake (45-75 cm long) cause severe tissue damage.



1. Create the right edge at point P.



2. Valley-fold the bottom of the model up through point P and mark the left edge at point Q where the raw edge meets it.



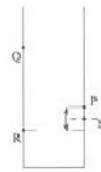
3. Lightly crease a diagonal through point Q.



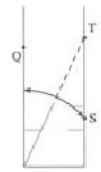
4. Crease the bisected angle only on the left edge at point R.



5. Mountain-fold the paper edges through point R.



6. Crease the right edge at point S, which is midway between point P and a crease from the last step.



7. Place point S on the left edge and mark the right edge at point T.



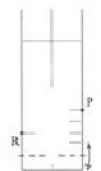
8. Mount point T on the right edge at point T.



9. Define the back of the future head at point U as the intersection of a diagonal from point R to point T and a midline valley-crease. Crease the midline at the bottom edge and above point U.



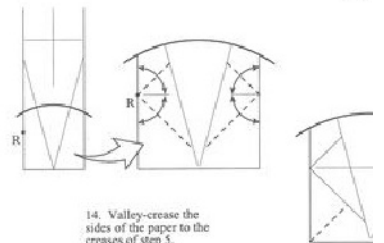
10. Crease the right edge midway between point P and the bottom right corner.



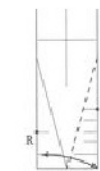
11. Bisect this distance again with valley creases on both sides of the paper.



12. Fold on the right crease midline to the bottom edge and above point U.

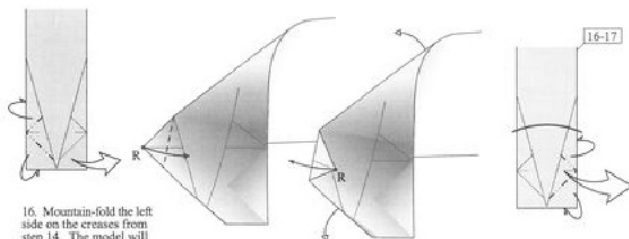


14. Valley-crease the sides of the paper to the creases of step 5.

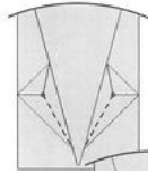


13. Repeat step 12 on the right. These two steps define the snake's head.

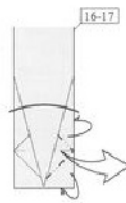
15. Bisect the bottom creases and turn the



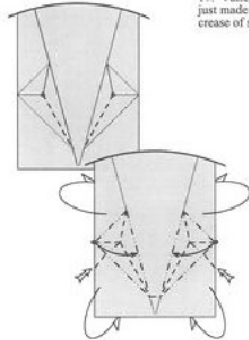
16. Mountain-fold the left side on the creases from step 14. The model will not lie flat.



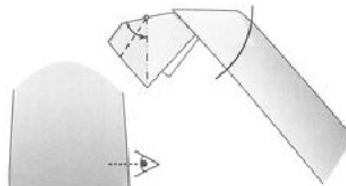
17. Valley-fold and unfold the eye flap just made so that point R lies beyond the crease of step 12. Then unfold the model.



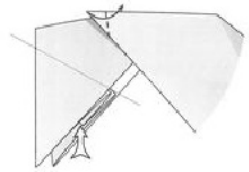
18. Repeat steps 16 to 17 on the right.



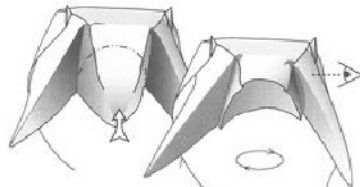
19. Extend valley creases as shown above. Then open sink the triangular molecules and swing the points defined by dots to the sides of the head (rabbit-ear folds). The model is now 3-D.



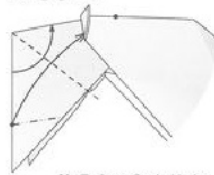
20. Mountain-fold the snake's nose down by crimping the sides of the head on creases of step 15. Open circles above show where the mountain fold lies across the bridge of the nose as seen in the left-hand diagram.



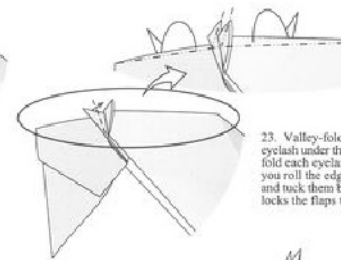
21. Fold back corners on both sides of the head to create the eyelashes. Then sink the 3-D middle flap to create an upper jaw. Curve the mountain fold slightly on the nose as seen in the right-hand diagrams.



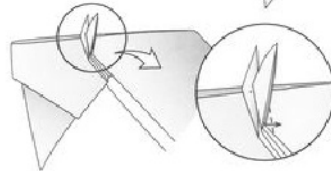
Foraging Snake



22. Tuck one flap inside the other (dots touch each other). Align their top edges.



23. Valley-fold eyelash under it fold each eyelash you roll the edge and tuck them it locks the flaps.

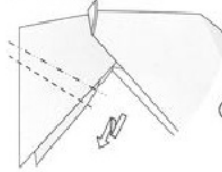


24. Valley-fold the top layer to the right to create an eye.

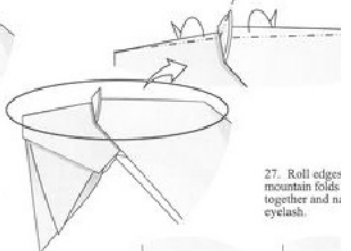


25. Repeat step on the other side striking snake.

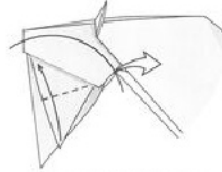
Striking Snake



26. Pleat the large flap on the side of the head to create a snake with fangs. Place the valley fold inside the upper jaw.



27. Roll edges mountain folds together and n eyelash.

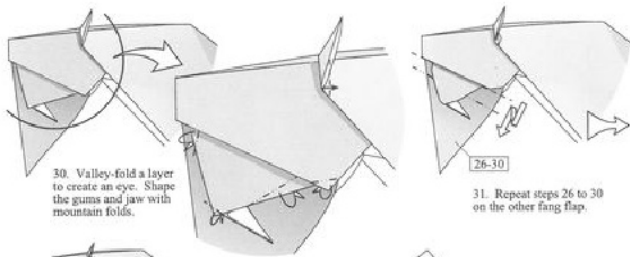


28. Valley-fold the fang up.



29. Rabbit-ear fold the fang. Then re-fold it symmetrically to create the and to place it inside the gums.

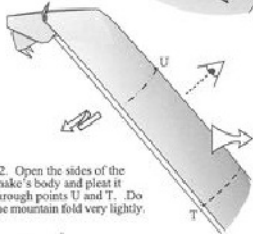




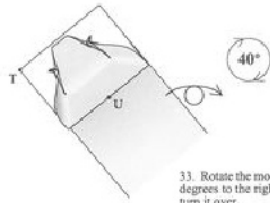
30. Valley-fold a layer to create an eye. Shape the gums and jaw with mountain folds.

26-30

31. Repeat steps 26 to 30 on the other fang flap.



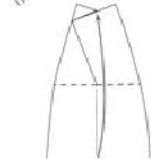
32. Open the sides of the snake's body and pleat it through points U and T. Do the mountain fold very lightly.



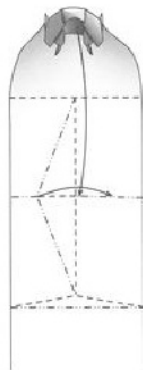
33. Rotate the model 40 degrees to the right and turn it over.



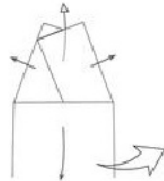
34. Crimp the lower jaw through all layers (shaded region depicts the head on the other side).



35. Valley-fold the body of the snake up. The notch in the lower jaw should line up with the midline crease of step 9.

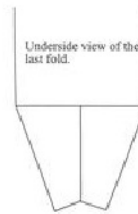


36. Valley-fold the body back down.

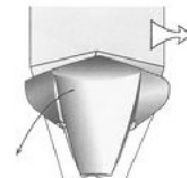


37. Open up the model to step 32.

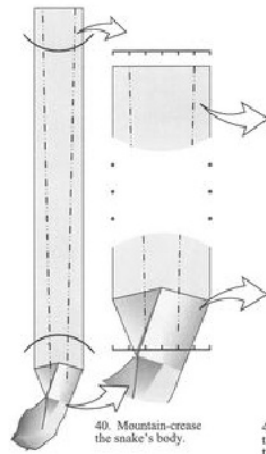
38. Collapse the model by putting the crimp of step 34 inside jaw layers.



Underside view of the last fold.



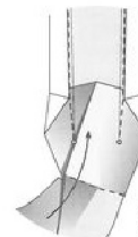
39. Lift up the head and put it to the side.



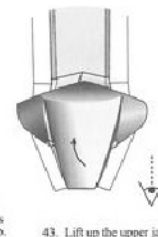
40. Mountain-crease the snake's body.



41. Valley-fold the model to mountain crease touching them.



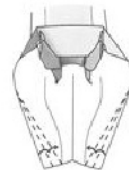
42. Valley-crease along the raw edges and fold the head up.



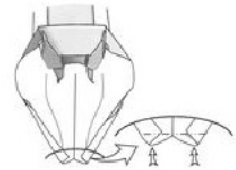
43. Lift up the upper jaw.



44. Valley-crease jaw through all layers.



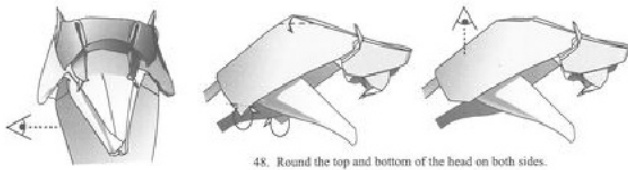
45. Roll the lower jaw edges together.



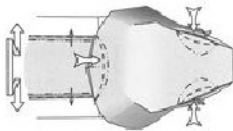
46. Close-sink the tips.



47. Shape the body.



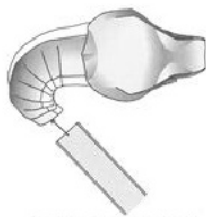
48. Round the top and bottom of the head on both sides.



49. Flatten the body over the raw paper edges. Push the eyes in to create bumps on the top of the head. Shape the back of the head with a curved crimp.



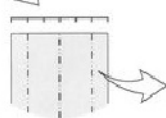
50. Crimp the snake's body to create coils and to round it. Your snake can appear from a hiding place, or you can add more body and a tail with these next steps.



Prepare a tail segment and glue its top edge to the underside of the head segment. Here is how to prepare it.



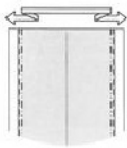
Steps to add a tail to your snake



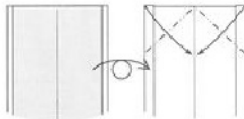
51. Use a similar width rectangle as you used for the head. Mountain-crease it parallel to the raw edges. The center mountain crease does not extend far.



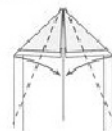
52. Valley-fold raw edges toward the last crease as in step 41.



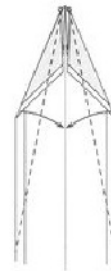
53. Pleat the edges to finish a body segment.



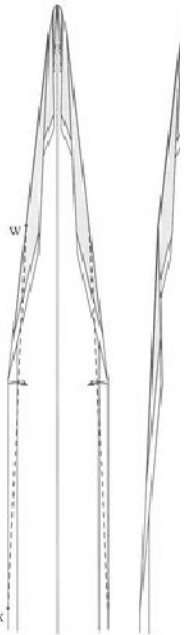
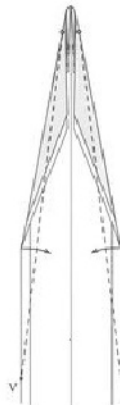
54. To make a tail, turn the body segment over. Valley-fold corners toward the midline. Leave a space between corners.



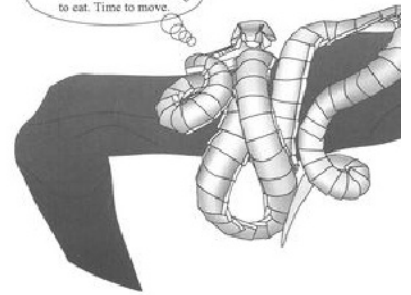
55. Valley-fold again. Start these folds near the midline and leave a space between edges at the midline.



56. Narrow the tail with a series of valley folds. Use your judgement for the placement and number of these folds. The labelled points and the guide below are my suggestion for a 1 x 10 rectangle.



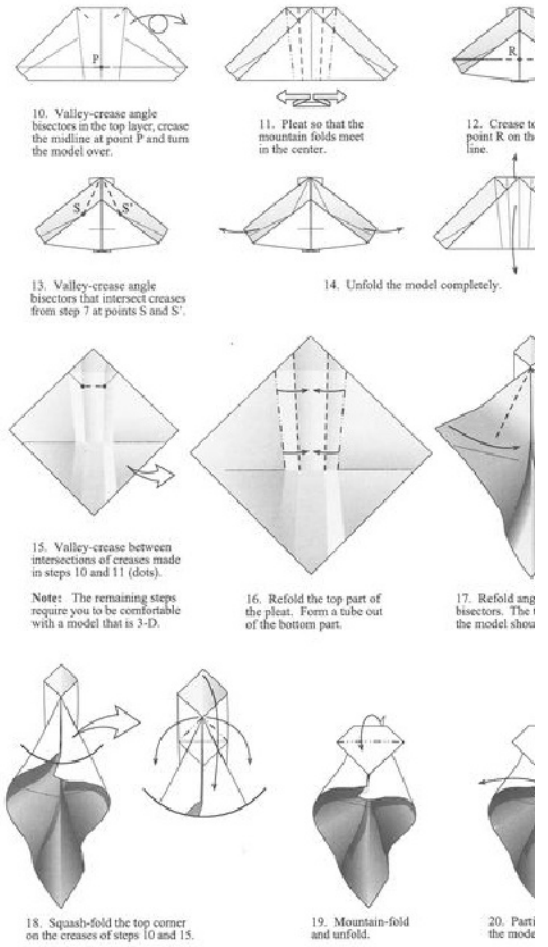
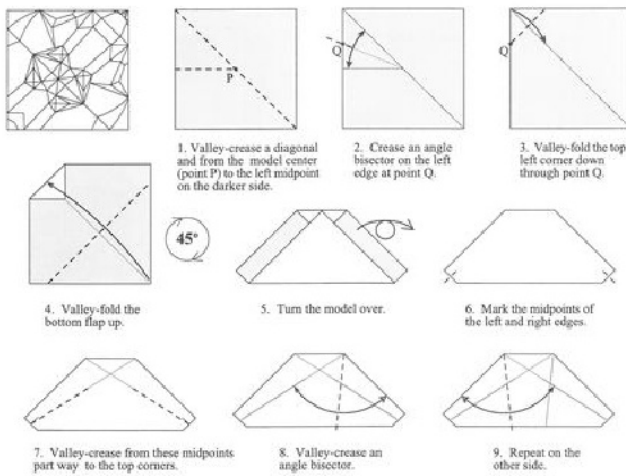
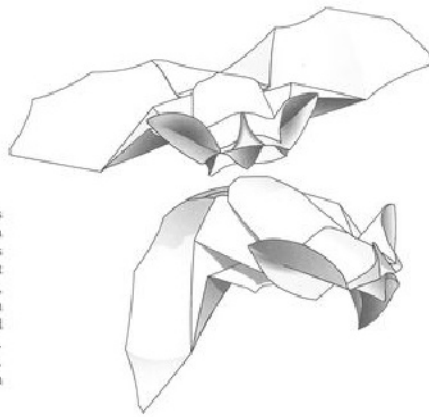
I have been waiting a whole week for something to eat. Time to move.



Tent Bat

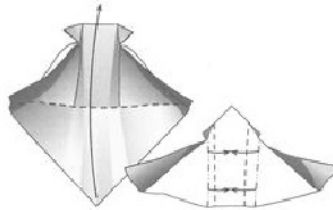
Created / 2012
 Difficulty / Intermediate
 Time to fold / 45 minutes
 Dimension / R= 0.53 for body length.

Author's advice: These bats of Central and South America nestle under large broad leaves during the day and come out at night to feed on nectar, fruit, and insects. Use a 15-17 cm square, white on one side, and yellow to orange on the other. Wet folding works very well. Good results can be had with kami and foil.

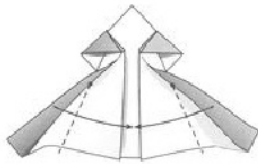




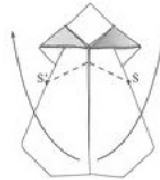
21. Mountain-fold the top corner to the other side.



22. Place the bottom half of the model inside the top half and redo the pleat.



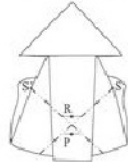
23. Push layers together at the dots and refold the "wings" lightly.



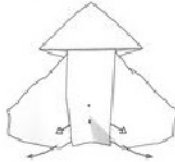
24. Valley-fold the wings up through points S and S' so that the dark edges (**bold**) are parallel or nearly so. Turn the model over.



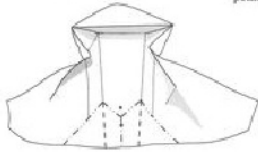
25. Valley-fold the "head" flap up.



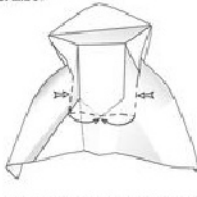
26. Mountain-crease through all layers. Creases cross midway between points R and P.



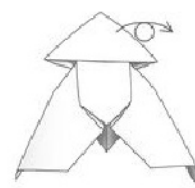
27. Undo the pleat at the bottom edge.



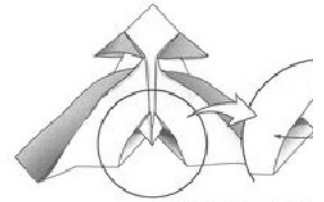
28. Form creases as shown above.



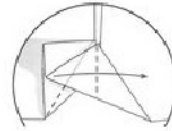
29. Collapse the sides of the pleat. The middle of the bottom edge will not lie flat.



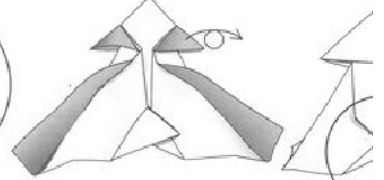
30. Turn the model over.



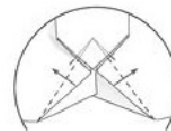
31. Squash-fold the pleat to the right.



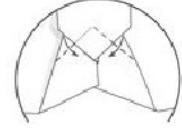
32. Squash-fold the pleat back to the right.



33. Turn the model over.



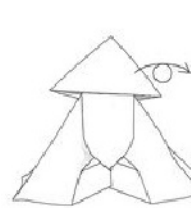
34. Inside reverse-fold edges of "legs" outward.



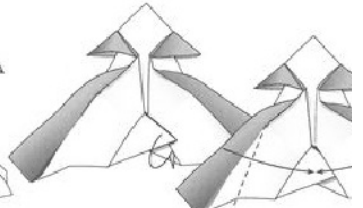
35. Inside reverse-fold edges to form thighs.



36. Round mountain fold.



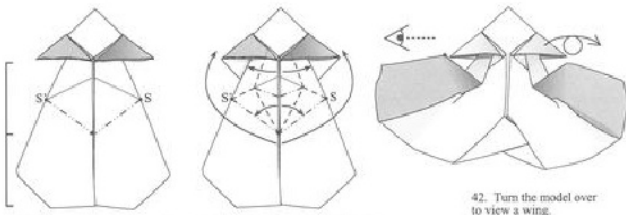
37. Turn the model over. Again? What are we making here? A pancake?



38. Tuck the flap end in the pocket of a leg.

39. Valley-fold lightly back to the right.

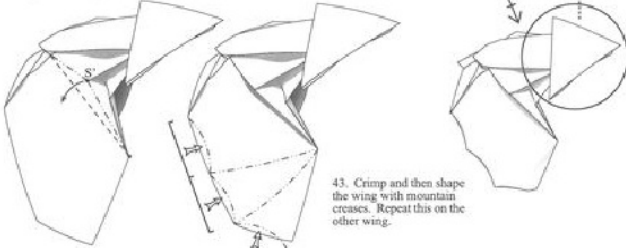




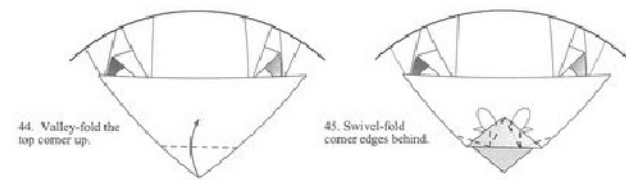
40. Mountain-crease the top layer of the wings from points S and S' to a point half way down their leading edges marked by a dot.

41. Reverse-fold the wing edges while folding them back up on the crease of step 24.

42. Turn the model over to view a wing.

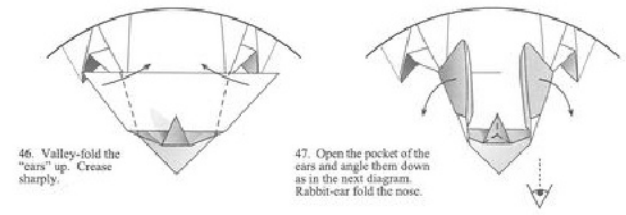


43. Crimp and then shape the wing with mountain creases. Repeat this on the other wing.



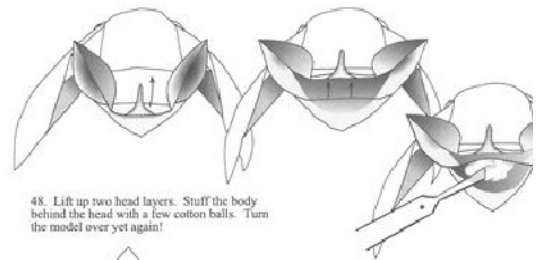
44. Valley-fold the top corner up.

45. Swivel-fold corner edges behind.

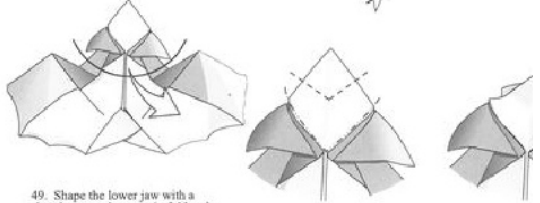


46. Valley-fold the "ears" up. Crease sharply.

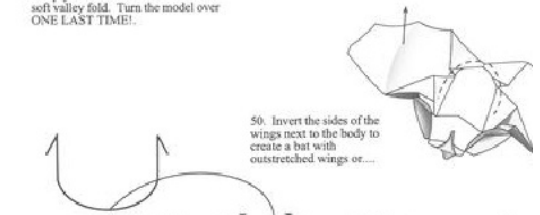
47. Open the pocket of the ears and angle them down as in the next diagram. Rabbit-ear fold the nose.



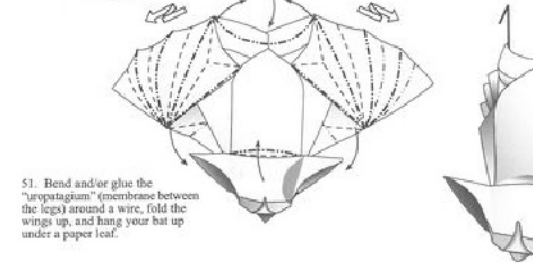
48. Lift up two head layers. Stuff the body behind the head with a few cotton balls. Turn the model over yet again!



49. Shape the lower jaw with a sharply creased mountain fold and a soft valley fold. Turn the model over ONE LAST TIME!



50. Invert the sides of the wings next to the body to create a bat with outstretched wings or...

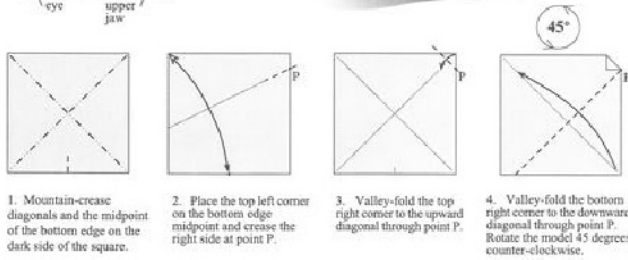
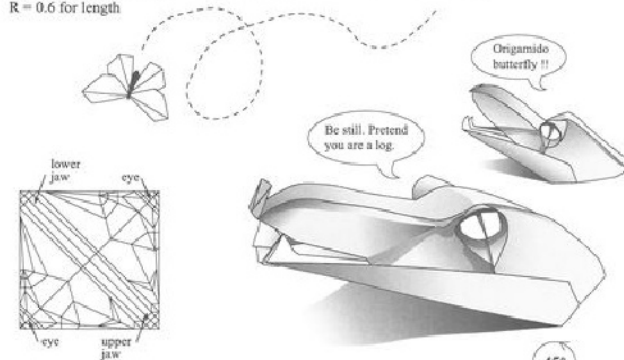


51. Bend and/or glue the "uropatagium" (membrane between the legs) around a wire, fold the wings up, and hang your bat up under a paper leaf.

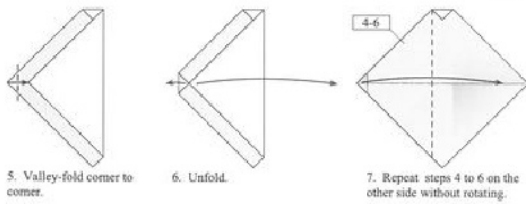
Caiman

Created / 2012
 Difficulty / Intermediate
 Time to fold: 30 minutes
 R = 0.6 for length

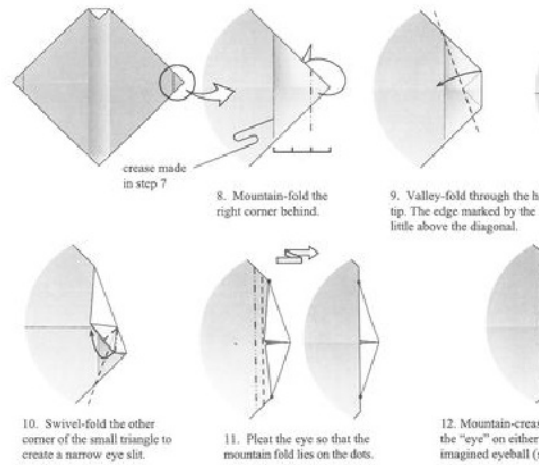
Author's advice: It is not a good idea to go swimming after dark in the Amazonian tributaries. Just below the surface there might lurk a caiman, a South American alligator. Fold yours from a bi-colored square, white, yellow, or orange on one side for the eyes and teeth; and brown to black for the body.



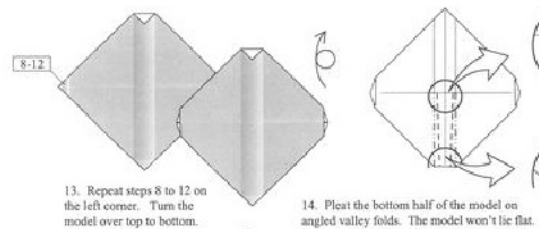
1. Mountain-crease diagonals and the midpoint of the bottom edge on the dark side of the square.
2. Place the top left corner on the bottom edge midpoint and crease the right side at point P.
3. Valley-fold the top right corner to the upward diagonal through point P.
4. Valley-fold the bottom right corner to the downward diagonal through point P. Rotate the model 45 degrees counter-clockwise.



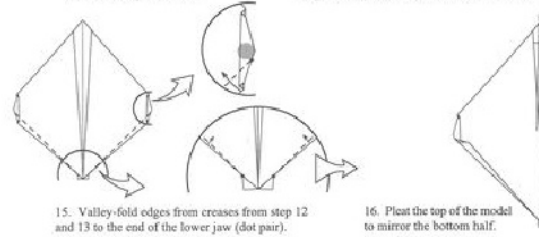
5. Valley-fold corner to corner.
6. Unfold.
7. Repeat steps 4 to 6 on the other side without rotating.



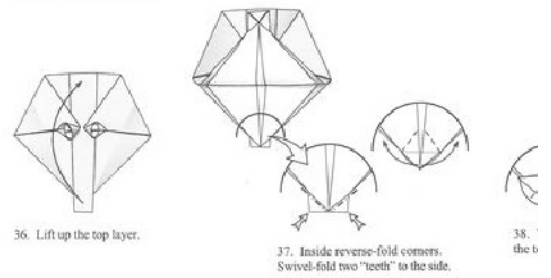
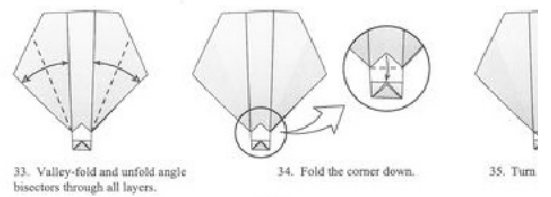
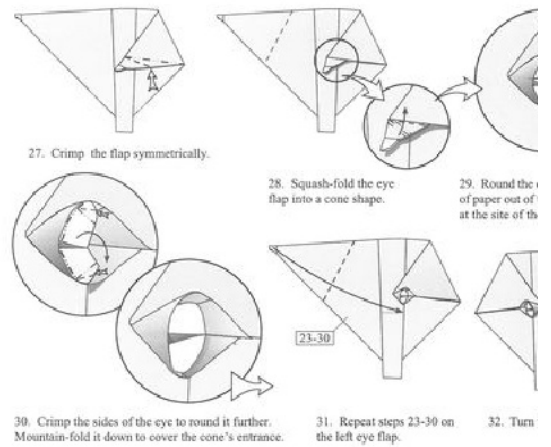
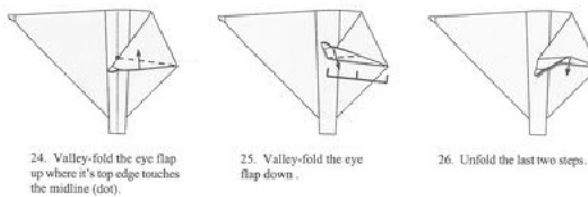
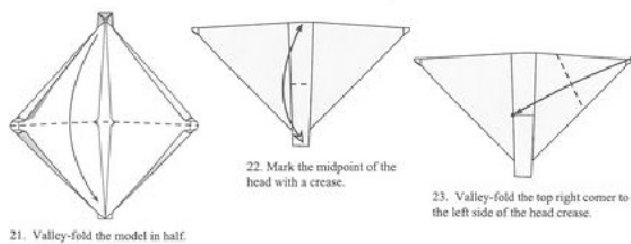
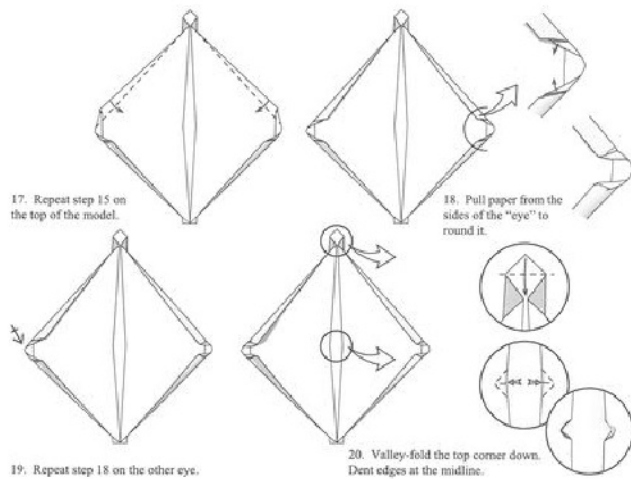
8. Mountain-fold the right corner behind.
9. Valley-fold through the tip. The edge marked by the little above the diagonal.
10. Swivel-fold the other corner of the small triangle to create a narrow eye slit.
11. Pleat the eye so that the mountain fold lies on the dots.
12. Mountain-crease the "eye" on either imagined eyeball.



13. Repeat steps 8 to 12 on the left corner. Turn the model over top to bottom.
14. Pleat the bottom half of the model on angled valley folds. The model won't lie flat.

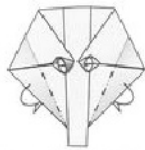


15. Valley-fold edges from creases from step 12 and 13 to the end of the lower jaw (dot pair).
16. Pleat the top of the model to mirror the bottom half.

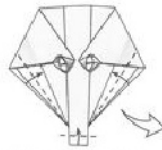




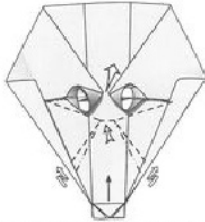
39. Put the upper layer back down.



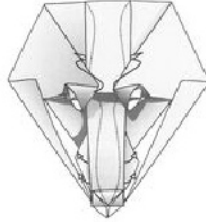
40. Mountain-fold one layer underneath.



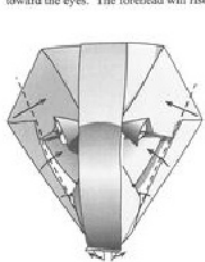
41. Valley-fold edges to edges (angle bisectors). Valley-fold the nose up.



42. Crimp the upper jaw. Shove it back toward the eyes. The forehead will rise up.



43. Release paper from the midline pleat to raise the forehead some more and make the upper jaw 3-D. X-ray lines show the result of the hidden pleat folds under the top layer. Tuck the eye cones under the pleat if you can.



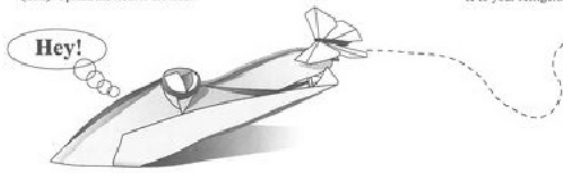
44. Valley-fold lower jaw sides up into the notch of the upper jaw (dots). Spread the teeth to the sides.



45. Round the back of the head with mountain folds.



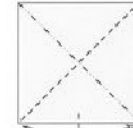
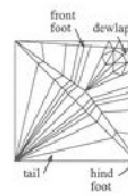
Optional: Put a magnet on the bottom layer inside the model to attach the carman to a river or to your refrigerator.



Anolis Lizard

Created / 2010
Difficulty / Intermediate
Time to fold / 80 minutes
Dimension / R=0.9 for length

Author's advice: Male anolis lizards mates by flashing a brightly-colored skin called a "dewlap". Use a thin piece of red or yellow on one side for the dewlap or brown for the lizard.



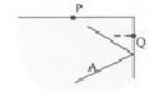
1. Crease diagonals and the midpoint of the bottom edge on the dewlap side of the paper.



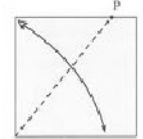
2. Place the top left corner on this midpoint and crease line A where indicated.



3. Fold right edge to top edge.



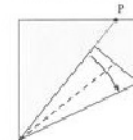
4. Bisect the right edge from where Line A intersects it to the corner to define point Q.



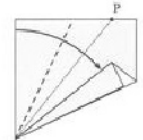
5. Valley-fold and unfold through point P.



6. Valley bisect.



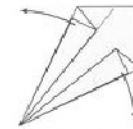
7. Valley-fold an angle bisector.



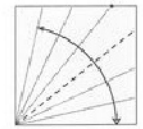
8. Valley-fold another angle bisector.



9. Valley another.



10. Unfold.

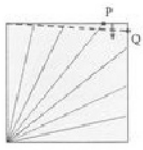


11. Valley-fold and unfold.

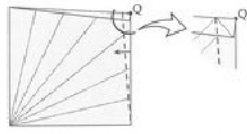


Do you angles?





12. Valley-fold the top edge down from the top left corner to point Q.



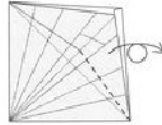
13. Valley-fold the right edge in similar fashion. The fold starts where the diagonal meets the folded top edge and goes to the lower right corner.



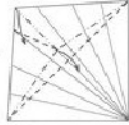
14. Valley-crease an angle bisector on the diagonal.



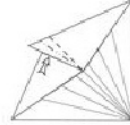
15. Bisect the angle once more.



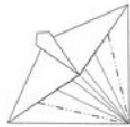
16. Valley-crease and turn the model over.



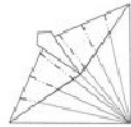
17. Crimp.



18. Squash head flap symmetrically.



19. Change these creases to mountain creases.



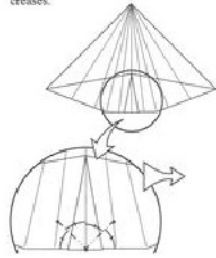
20. Extend mountain creases to the edges.



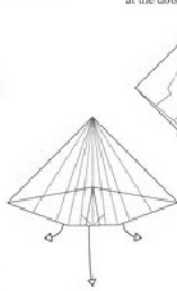
21. Bisect angles with valley creases that end at the dots.



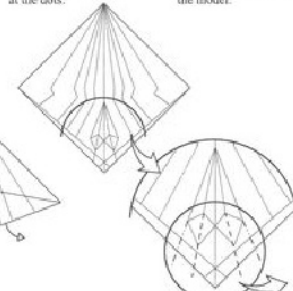
22. Mountain-fold head flap behind and rotate the model.



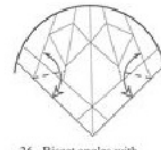
23. Mountain-crease angle bisectors between the dots (through all layers).



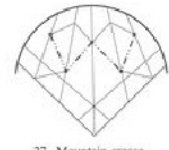
24. Unfold completely. Yes, yes.



25. Extend creases to the raw edges. Reverse crease orientations in their extensions.



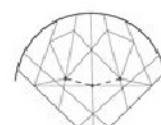
26. Bisect angles with valley creases.



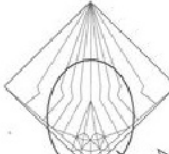
27. Mountain-crease between the dots. This may adjust previous creases.



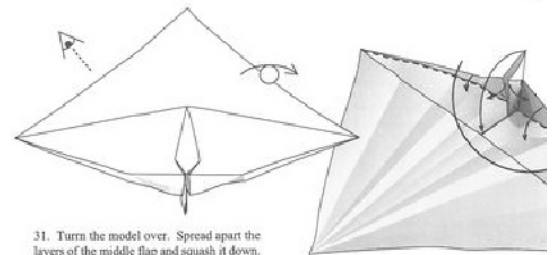
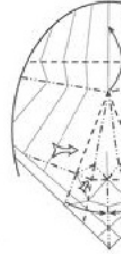
28. Mark the creases between the dots.



29. Connect dots with valley creases.



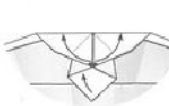
30. Collapse the bottom corner while refolding the crimp along the horizontal diagonal.



31. Turn the model over. Spread apart the layers of the middle flap and squash it down. Rotate the model counter-clockwise.



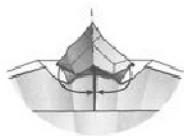
32. Tuck edges underneath on existing valley creases and refold steps 12 and 13.



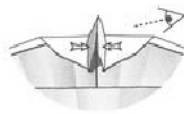
33. Spread apart the sides of the "dewlap" flap (dots).



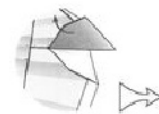
34. Lift the flap creases of steps 12 and 13.



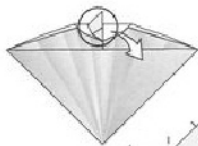
35. Mountain-fold the dewlap flap halves together while rotating the corners behind to the midline.



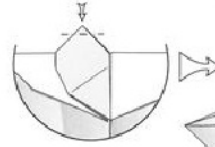
36. Press the sides together.



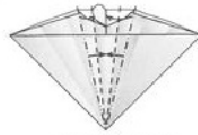
37. Valley-fold the flap to the left side of the midline.



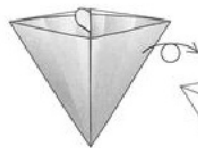
38. Inside reverse-fold the corner and close-sink the flap's edge to round it.



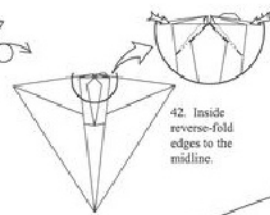
39. Close-sink the end of the flap.



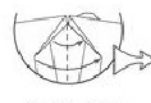
40. Crimp leg flaps to the midline.



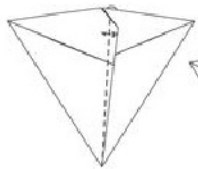
41. Turn over side to side.



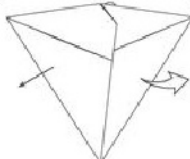
42. Inside reverse-fold edges to the midline.



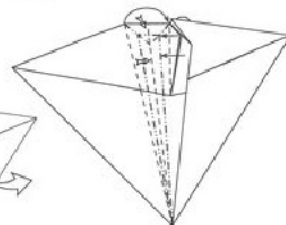
43. Valley-fold two edges to the right.



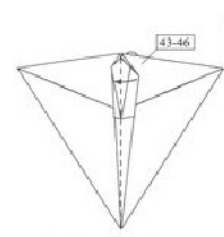
44. Valley-fold and unfold the top edge to the midline.



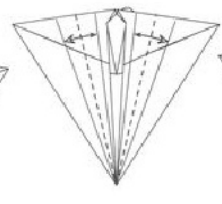
45. Open crimp (one half of step 40).



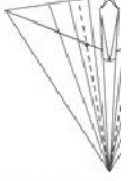
46. Open-sink flap on the creases of step 44. Cover the sunk area with two edges.



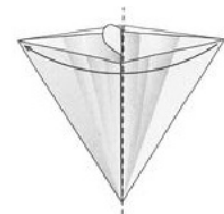
47. Repeat steps 43 to 46 on the right.



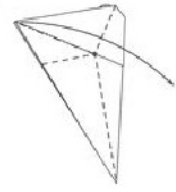
48. Bisect angles with valley creases.



49. Bisect angles once in creases. Note position of intersection of these bisect of steps 15 and 16. Turn



50. Valley-fold the model in half.



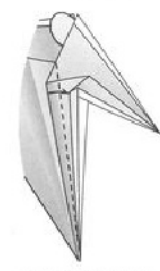
51. Rabbit-ear fold the top flap to the right around the intersection defined in step 49 (dot).



52. Swivel-fold valley fold folk beneath it.



53. Swivel-fold. The valley fold on the right follows the edge beneath it.



54. Valley-fold along an existing crease.



55. Valley-fold



56. Valley-fold a flap to the right.



57. Valley-fold the flap edge back to the left.



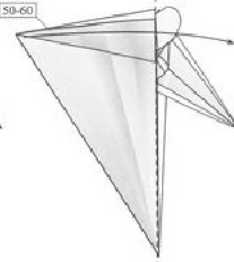
58. Valley-fold.



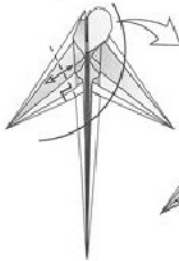
59. Valley-fold once more.



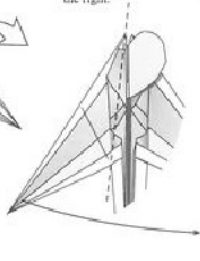
60. Valley-fold the dewlap to the right.



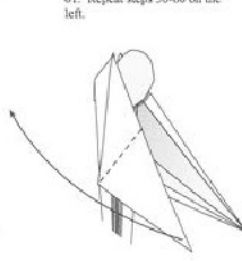
61. Repeat steps 50-60 on the left.



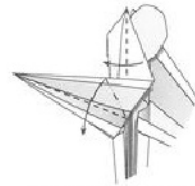
62. Valley-crease the hind leg perpendicular to its lower edge.



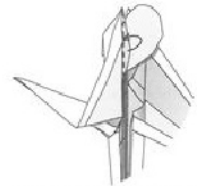
63. Valley-fold the leg to the right through all visible layers.



64. Valley-fold the leg up to the left on the crease of step 62.



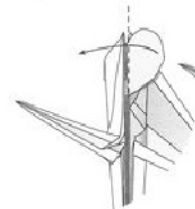
65. Swivel-fold the leg to narrow it. The apex of the folds is 1/3 up the crease of the last fold.



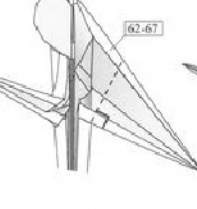
66. Valley-fold a flap edge inside.



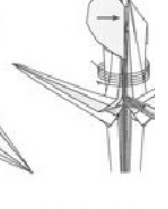
67. Swivel-fold a



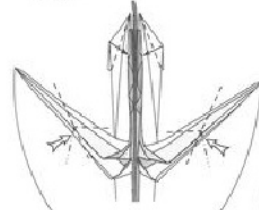
68. Valley-fold the dewlap to the left.



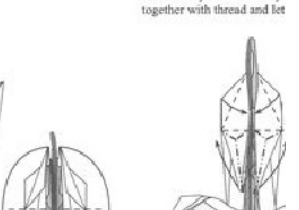
69. Repeat steps 62 to 67 on the right hind leg flap.



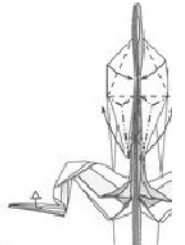
70. Move the dewlap to a v. At this point I apply methyl the inner layers of the body together with thread and let



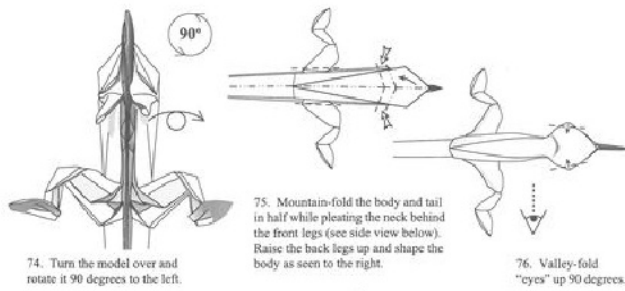
71. Narrow the front legs with valley folds. Crimp the hind legs back and keep the two parts of each leg on the same plane.



72. Valley-fold the front legs down and crimp the feet outward.



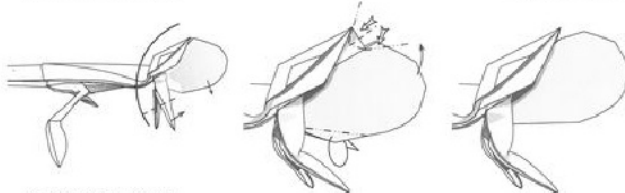
73. Valley-fold Rabbit-ear fold. Spread layers on each foot.



74. Turn the model over and rotate it 90 degrees to the left.

75. Mountain-fold the body and tail in half while pleating the neck behind the front legs (see side view below). Raise the back legs up and shape the body as seen to the right.

76. Valley-fold "eyes" up 90 degrees.



77. Crimp forelegs forward. Pull the front of the dewlap down slightly.

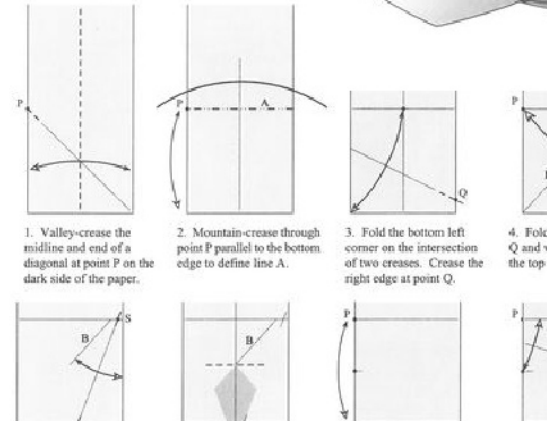
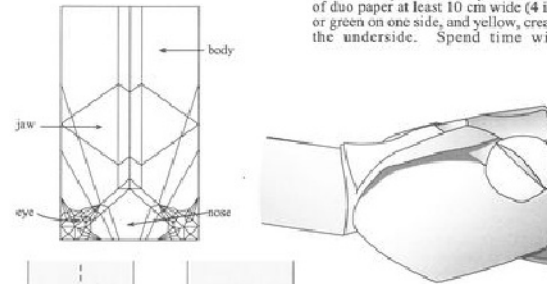
78. Inside reverse-fold parts of the dewlap, then crimp under the nose to raise the dewlap.



Blunt-Nosed Vinesnake

Created / 2008, revised 2012
 Difficulty / Complex
 Time to Fold / 1 hour
 Dimension / R=0.41 for head length

Author's advice: Dr. Harry Greene is a lover of snakes which I celebrate in this origami. I advise you to use a paper of duo paper at least 10 cm wide (4 in) or green on one side, and yellow, cream or the underside. Spend time with



1. Valley-crease the midline and end of a diagonal at point P on the dark side of the paper.

2. Mountain-crease through point P parallel to the bottom edge to define line A.

3. Fold the bottom left corner on the intersection of two creases. Crease the right edge at point Q.

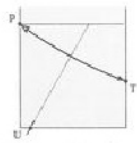
4. Fold Q and P to the top edge.

5. Place the right edge on line B and crease at points R and S.

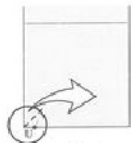
6. Mountain-crease to mark the back of the snake's head (shaded) where line B touches the midline.

7. Now let us make the eyes. Mark the midpoint between point P and the bottom edge.

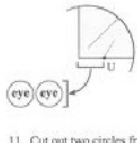
8. Fold I touches the right edge to the bottom edge.



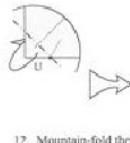
9. Place point P on point T and crease the bottom edge at point U.



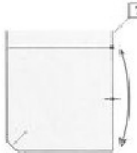
10. Bisect the bottom corner with a valley crease.



11. Cut out two circles from stiff cover stock with a radius equaling the distance from point U to the raw corner. These will help you shape the eyes.



12. Mountain-fold the corner behind through point U to the diagonal crease.



13. Repeat steps 7 to 10, and 12 on the right. Identify T' on the left edge, the comparable point to T. I mark these with pencil on the backside of the paper.



14. Valley-fold the right edge of the hidden raw corner (shaded) to the diagonal crease.



15. Valley-fold the raw corner nearly in half. Swivel-fold the bottom edge.



16. Valley-crease angle bisectors through both layers.



17. Insert an eye circle in the pocket under top layers.



18. Mountain-crease through all layers around the eye circle.



19. Change the crosses of step 16 to mountain folds. Pinch them toward the eye circle. This will form tangential mountain creases from these bisectors around the eye circle as shown above.

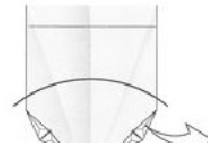


20. Remove the eye circles.

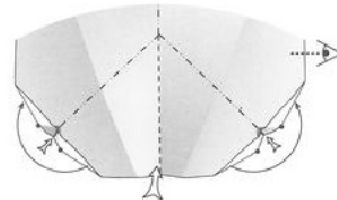


14-20

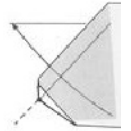
21. Repeat steps 14 to 20 on the other side.



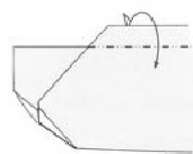
22. Valley-fold the eyes in half by bringing together the mountain fold intersections marked by the dots. In progress below.



23. Fold the eyes in half (dot to dot), and bring the edges marked by the curved arrows together. Pinch both layers together, starting at the eyes and ending at the midline. Inside reverse-fold the nose between them.



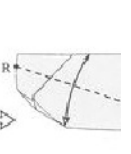
24. Reverse-fold (shaded) from the inside out on a line parallel to the midline.



25. Fold back and forth along the length of the paper.



26. Close-sink the edge all the way to the back of the paper.



27. Valley-fold layers together along lines R and S.



28. Valley-fold and unfold both layers from point T to the top of line A. Start the fold at the back of the head defined in step 6.

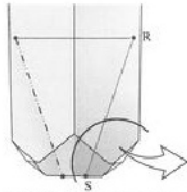
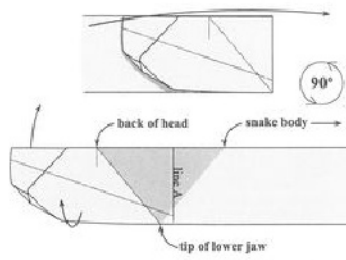


29. Mountain-fold both layers together on a line through the intersection of the last crease to the bottom edge.

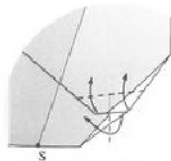




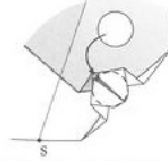
30. Valley-fold and unfold both layers together on the crease of step 28 to define the lower jaw (shaded in the right-hand image). Unfold the model and rotate it 90 degrees counter-clockwise.



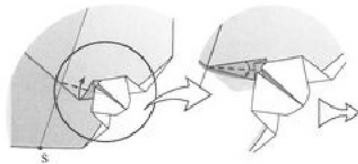
31. Change the complementary crease of line RS to mountain.



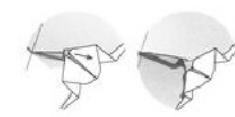
32. Swivel-fold the eye.



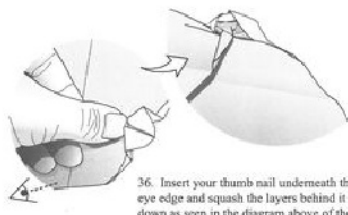
33. Undo the pocket slightly to insert the cut out circle again.



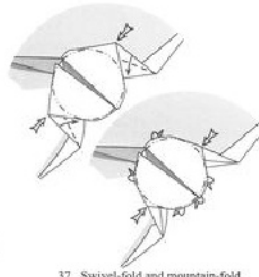
34. Valley-fold an edge up and then back down to narrow it.



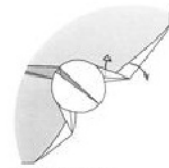
35. Bend the top of the eye to the right.



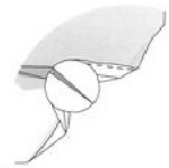
36. Insert your thumb nail underneath the eye edge and squash the layers behind it down as seen in the diagram above of the back of the eye.



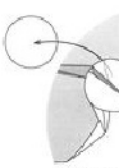
37. Swivel-fold and mountain-fold paper tightly around the eye insert.



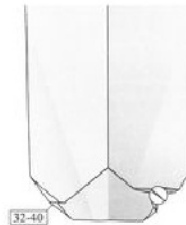
38. Pull out paper.



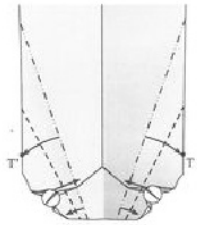
39. Narrow the edge with a valley fold.



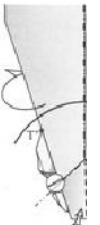
40. Careful to remove t



41. Repeat steps 32 to 40 on the other eye.



42. Pleat the paper on the existing mountain folds (RS and its complement). Tuck these mountain folds under the eyes. Position points T and T' on the mountain fold edges as references for the orientation of the valley folds.



43. Inside nose whittled model 90



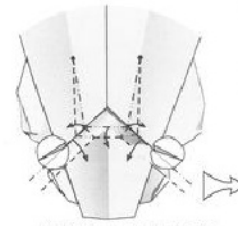
44. Inside reverse-fold the nose.



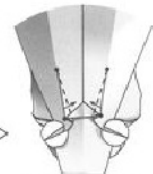
45. Valley-fold and unfold part of the top edge to a position parallel to the bottom edge.



46. Unfold sides a 90 degrees counter-clockwise.



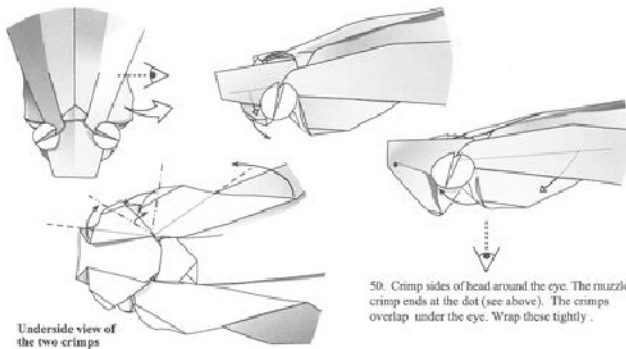
47. Recrook the nose pleat while taking up the extra paper in two long crimps to make the model 3-D.



48. Valley-fold the crimps toward the midline.

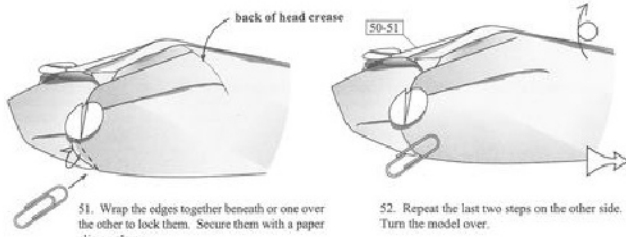


49. Close-up



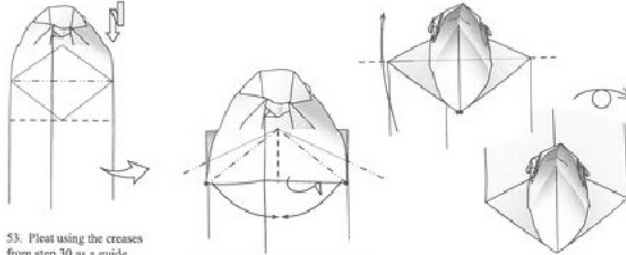
Underside view of the two crimps

50. Crimp sides of head around the eye. The muzzle crimp ends at the dot (see above). The crimps overlap under the eye. Wrap these tightly.



51. Wrap the edges together beneath or one over the other to lock them. Secure them with a paper clip or clamp.

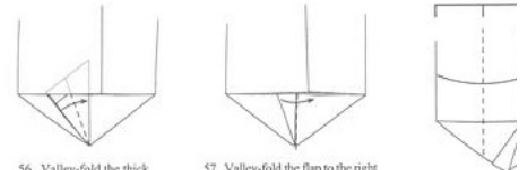
52. Repeat the last two steps on the other side. Turn the model over.



53. Pleat using the creases from step 30 as a guide.

54. Bring the corners (dots) to the hidden midline. Put the paper between corners underneath.

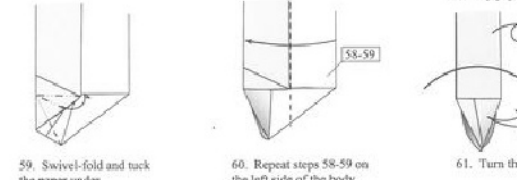
55. Valley-fold the snake body up and turn the model over.



56. Valley-fold the thick flap in half.

57. Valley-fold the flap to the right to lock the lower jaw halves.

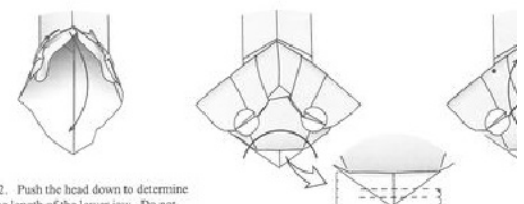
58. Valley-fold the body paper.



59. Swivel-fold and tuck the paper under.

60. Repeat steps 58-59 on the left side of the body.

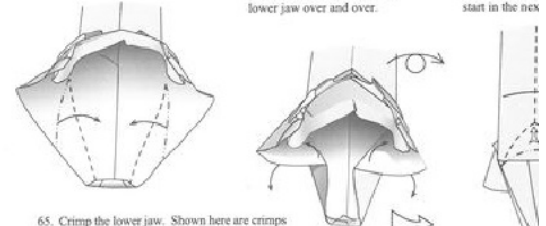
61. Turn the



62. Push the head down to determine the length of the lower jaw. Do not crease the back of the head.

63. Valley-fold the tip of the lower jaw over and over.

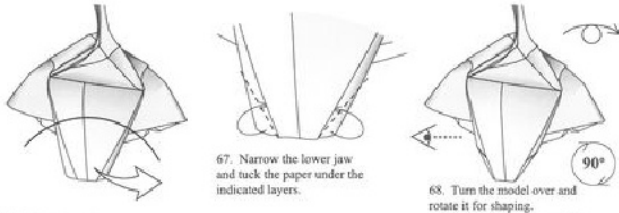
64. Lift the head to indicate where start in the neck.



65. Crimp the lower jaw. Shown here are crimps for an open jaw. Arcs the mountain folds up for a closed jaw. Start positioning the layers as shown to the right and turn the model over.

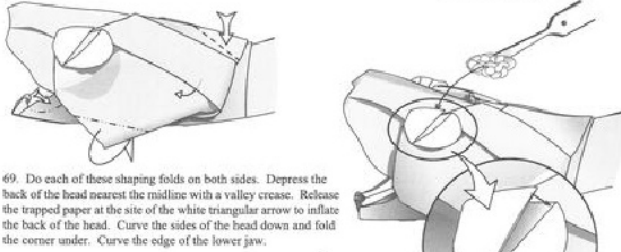
66. Shape the bottom valley-folding the sides.



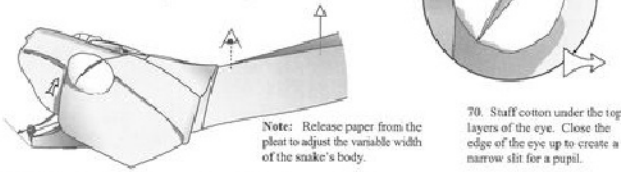


67. Narrow the lower jaw and tuck the paper under the indicated layers.

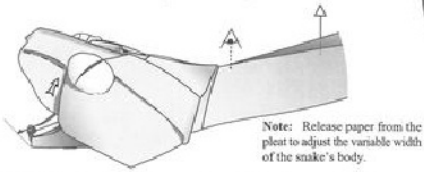
68. Turn the model over and rotate it for shaping.



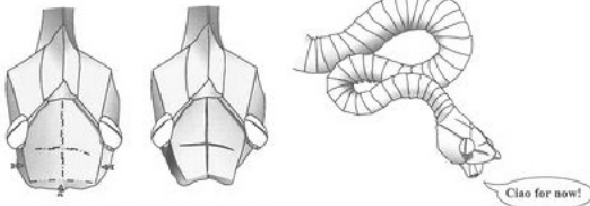
69. Do each of these shaping folds on both sides. Depress the back of the head nearest the midline with a valley crease. Release the trapped paper at the site of the white triangular arrow to inflate the back of the head. Curve the sides of the head down and fold the corner under. Curve the edge of the lower jaw.



70. Stuff cotton under the top layers of the eye. Close the edge of the eye up to create a narrow slit for a pupil.



71. Bend the tip of the lower jaw out a bit. Position the eyes on the sides of the head.



72. Crease the top of the muzzle to narrow it by creating scales. Dent its end with a curved mountain crease.

Finished vinesnake with body crimps like the pit-wiper.

Ciao for now!

