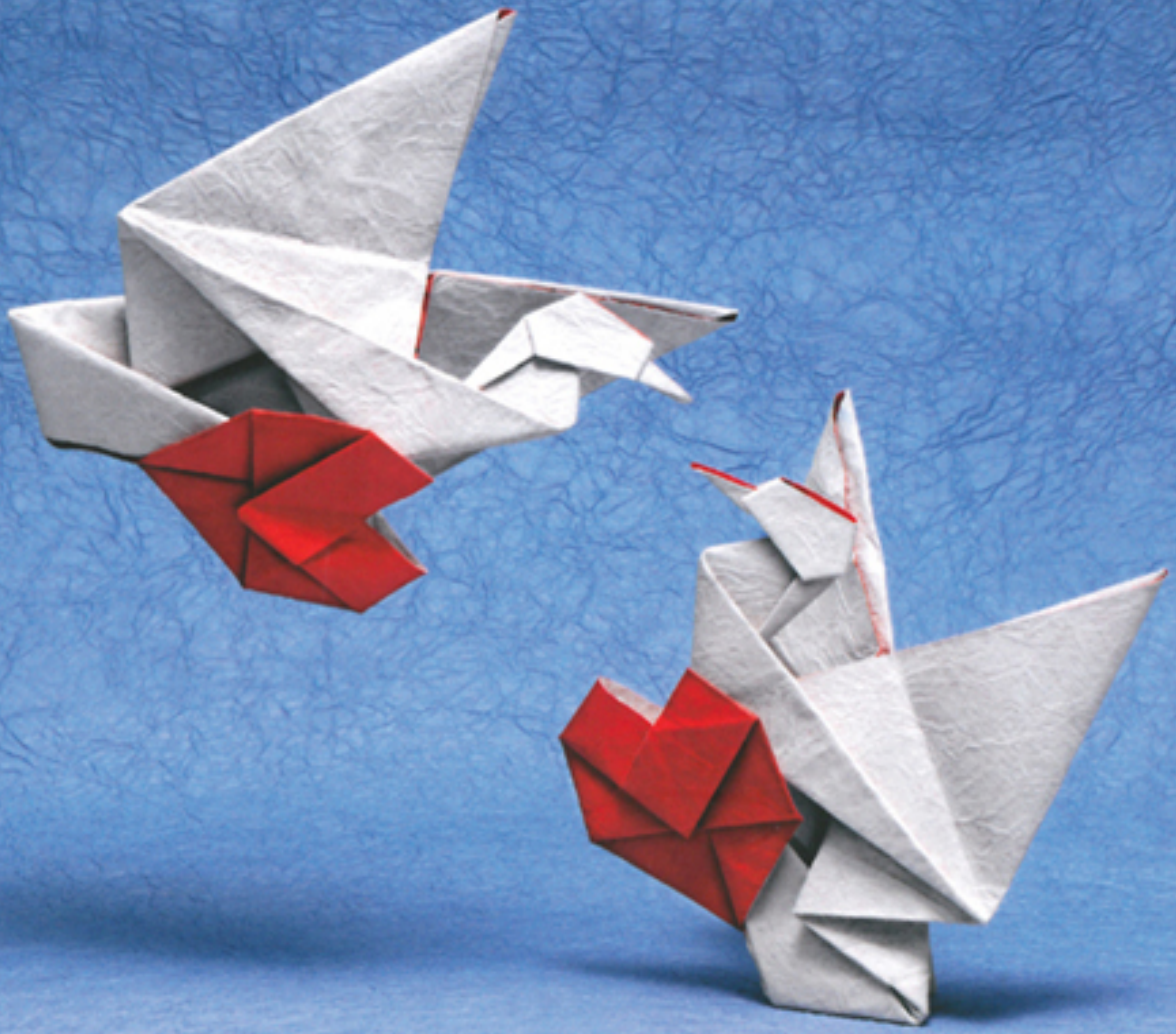
origami

a complete step-by-step guide to making animals, flowers, planes, boats, and more



Norio Torimoto & Yukiko Duke

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Foreword

Norio Torimoto first discovered the joy of origami as a little boy in post-war Fukui in western Japan. Norio struggled with poor health as a child and was unable to play outside with the other children. Norio found comfort in folding origami paper, and it wasn't long before he was folding basic shapes with ease.

At eleven, a travelling theater stopped by Norio's hometown. After the performances, the children would dawdle for a chance to meet and talk with the actors. When one of the actors folded a crane and pulled its tail to flap its wings, Norio was awestruck. He had never seen anything like it!

Norio was inspired by the complicated design and purchased a book on origami to uncover the performer's secret behind the flapping crane. With a racing heart he started folding and to his great surprise, the more complicated model was actually easier to fold than the regular crane, which he had been able to fold for years.

This experience led Norio to one of the origami maker's most important realizations: *that models may look complicated, but they are usually surprisingly easy to fold*. Origami instructions may seem lengthy and contain an overwhelming amount of illustrations, but if you follow them carefully and take it one step at the time, they are rarely difficult.

With a newfound strength Norio began to fold on a serious level. Over time he became one of the world's nine first origami masters, as recognized by the Japanese Nippon Origami Association. Although he is recognized worldwide for his

strength of form, Norio rejected an international career and chose to remain in Sweden.

Since Norio first moved to Sweden at the beginning of the 1970s, he's taught a multitude of Swedes about the art of folding origami. His models have been featured on the cover of the Swedish phone book, as well as National TV. Norio has also adapted origami as a teaching aid to explain mathematical problems at the Royal Institute of Technology in Stockholm, Sweden. Norio believes that origami is mathematics based on logical thinking as opposed to complicated calculations—a math that anyone can master.

Norio's dream has always been to help people freely create their own origami.

The main obstacle blocking Norio's dream has been that the origami books currently available only provide instruction on how to fold certain models. What they won't show is how to create models of your own. Accordingly, most people believe that origami is essentially about learning to fold a number of traditional models, when in fact, the traditional models are merely a base for self-made creations.

A couple of years ago Norio and myself therefore decided to write a basic origami guide. A book that clearly explains three fundamental steps: how to fold the basic models, how to fold traditional models, and finally how you should approach the creation of your own models. This book provides new insight into the world of origami and its history, for both the beginner and the experienced origami folder.

The book you are now holding in your hands in an entirely unique work. The folding instructions were carefully deconstructed and drawn out by Norio, while I have written the introductions to each section. The origami master also reveals how you can craft models of your very own. Never before has

an internationally known origami master so generously shared the secrets of his trade. Through this book one can now truly understand how a master thinks when he creates his origami models.

For this we kindly thank him.

Yukiko Duke

BEFORE YOU BEGIN

Origami is not difficult. There is no need for specific articles or special knowledge to fold. All you need is a square piece of paper. You can buy origami paper in Asian specialty stores, arts and craft shops, and certain paperies, but these are not at all necessary for success.

As Norio explains, “I have folded origami by using anything from the finest washi—Japanese paper—to dollar bills and pages from the phone book. But do you know what turned out to be the most ideal paper for folding? Regular brown wrapping paper!”

Some origami crafters will make cuts in their square piece of paper in advance in order to create their models. But Norio Torimoto believes that the challenge lies in exploring all the possibilities of the squared piece of paper. Therefore, he only uses scissors in one traditional origami model of this book.

Although some models require more steps to complete than others, none of these models are difficult to complete!

Symbols

In order to make the instructions easier to read, Norio’s drawings are accompanied by symbols. Learn to recognize the meaning of these symbols and the folding will become even easier!

The symbols also open the door to the global world of origami. Since most of the symbols are internationally known you can easily fold using Korean or Polish instructions without

mastering the language, as long as you know what the symbols mean.

Basic Folds

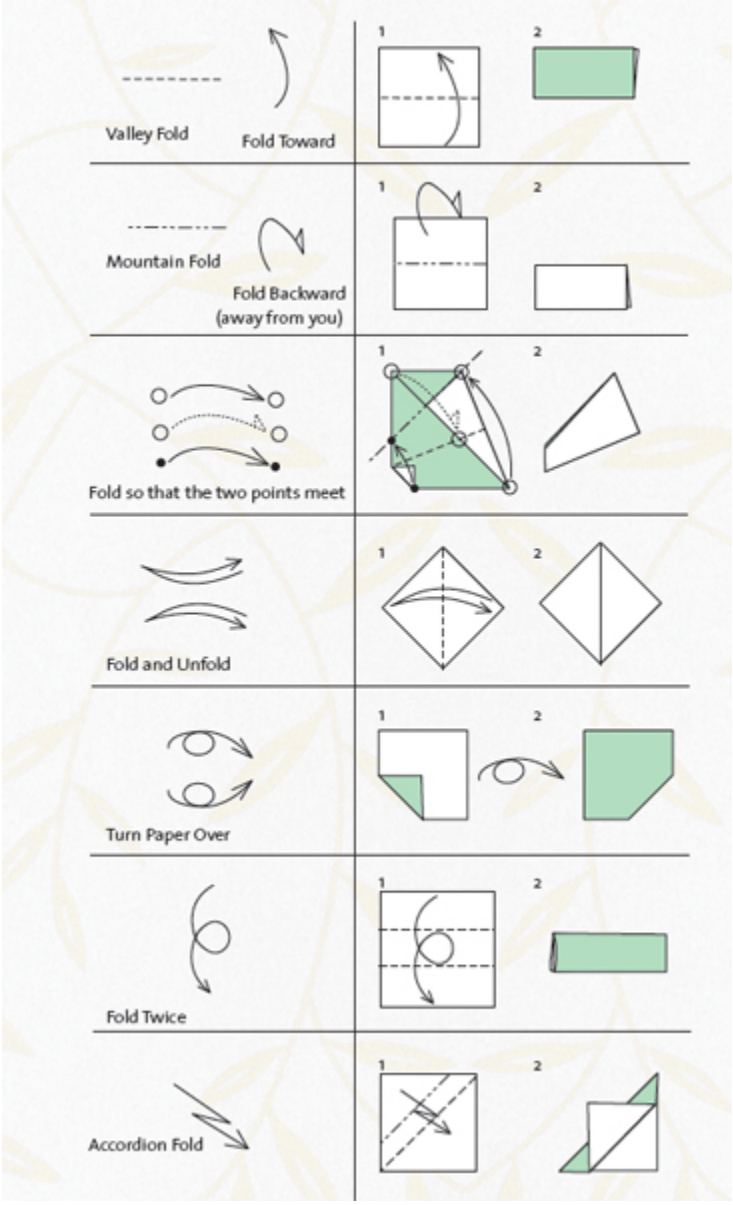
If you have been folding for a while you are most likely familiar with the existence of multiple basic folds. For the purposes of this book Norio has chosen the folds that most commonly occur. More or less all origami models—from the most fundamental to the most advanced—are based on these six basic folds. If you master these folds it will also make it easier to create models of your own.

We set out to make the illustrations and instructions as approachable as possible. However, the more complicated the models become the more folding lines and marking creases. These may clutter the illustrations and ultimately seem confusing. In these cases text may just confuse things even more for the folder. We have therefore chosen to keep the written instructions as short and informative as possible.

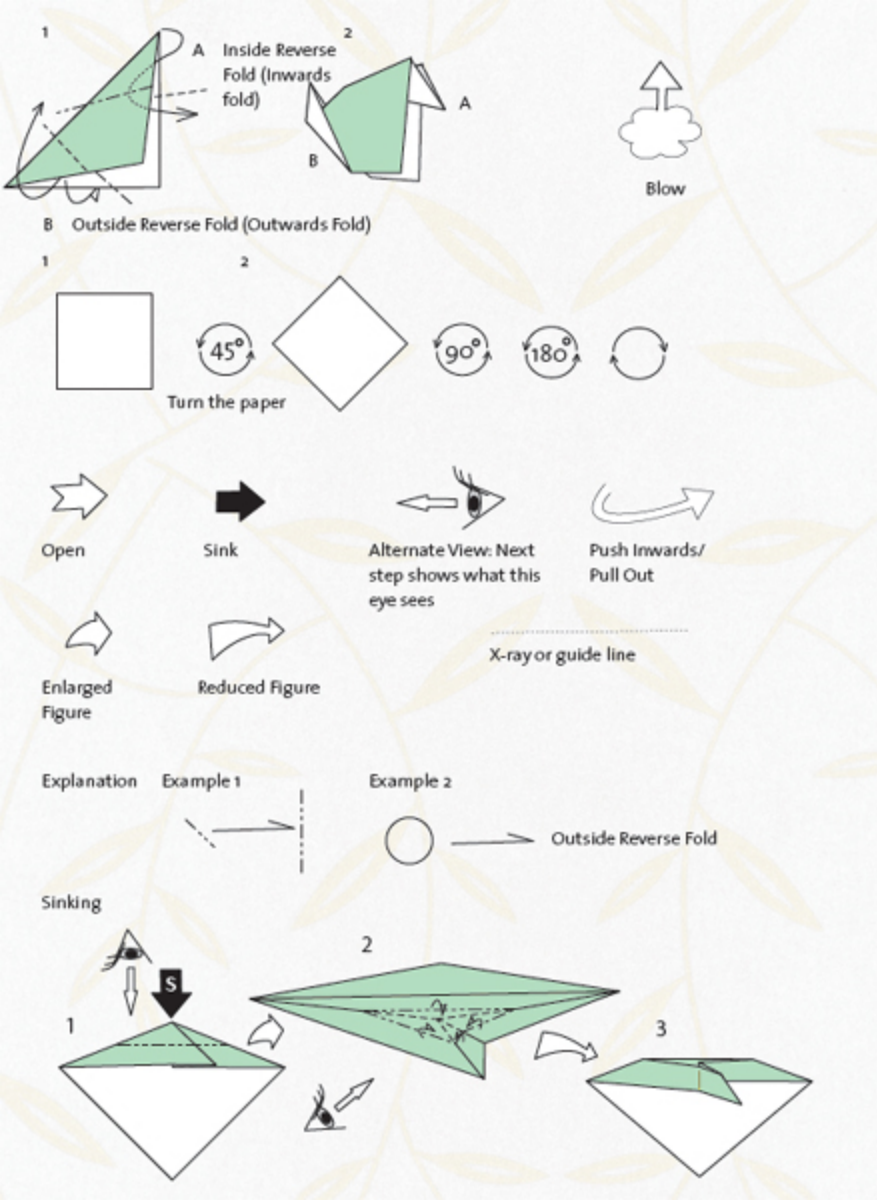
Norio recommends: "If you are unsure of how to fold anything, jump a few steps ahead in the instructions. By doing so you will usually be able to figure out how you should proceed. And if you want to make absolutely sure that you are doing things the right way, you may draw the illustrated marking creases on the paper itself. This will make the folding steps more obvious. Origami is an equal balance of sleight of hand and sleight of mind."

A crane couple, folded out of a single piece of paper, is soaring over Norio's armchair and a star box.

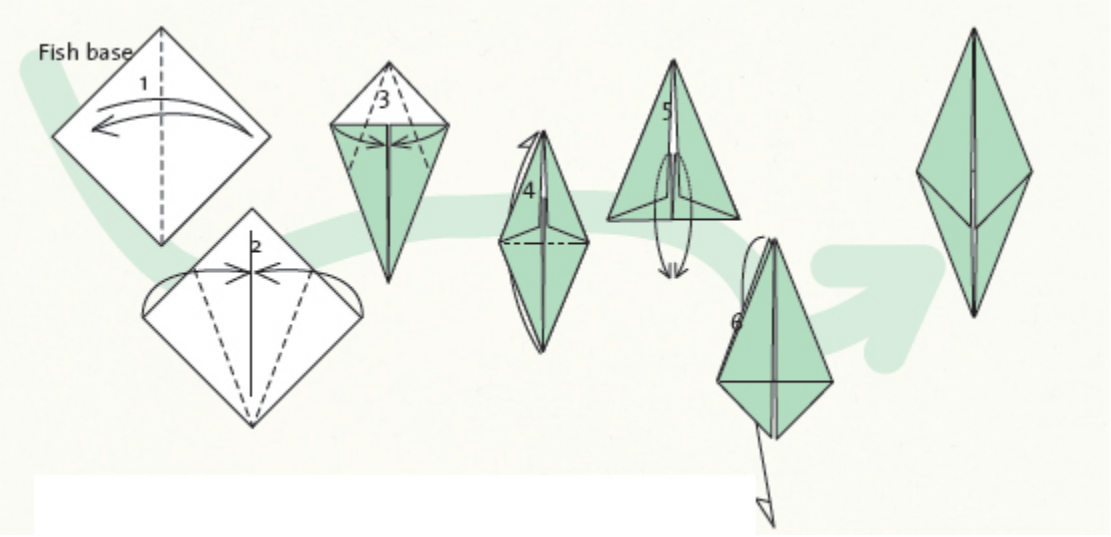
INTRODUCTION: SYMBOLS



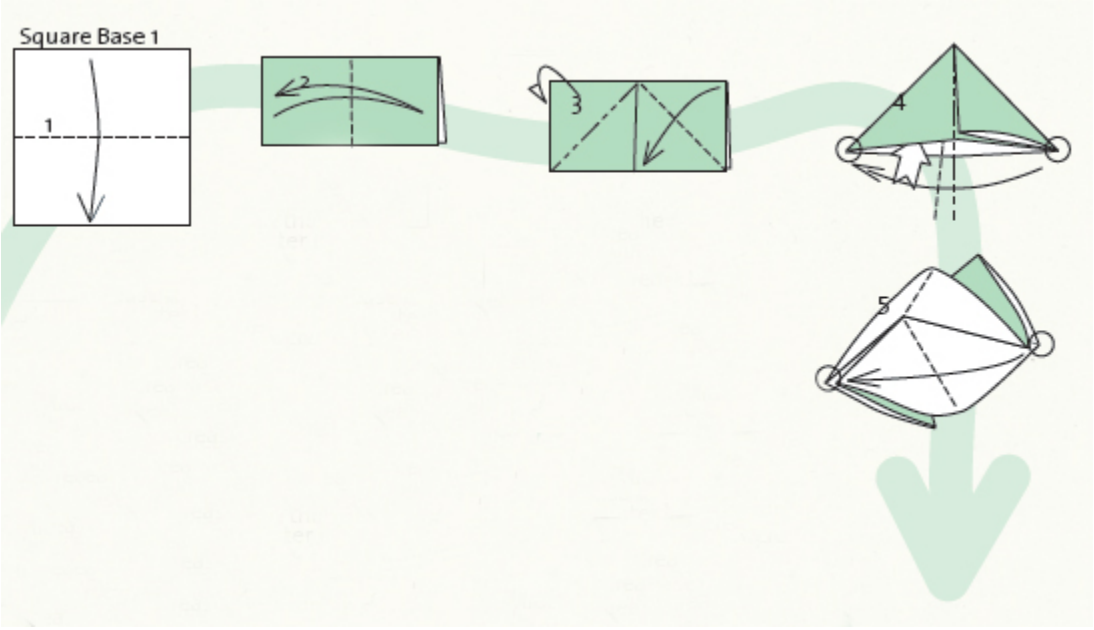
INTRODUCTION: SYMBOLS



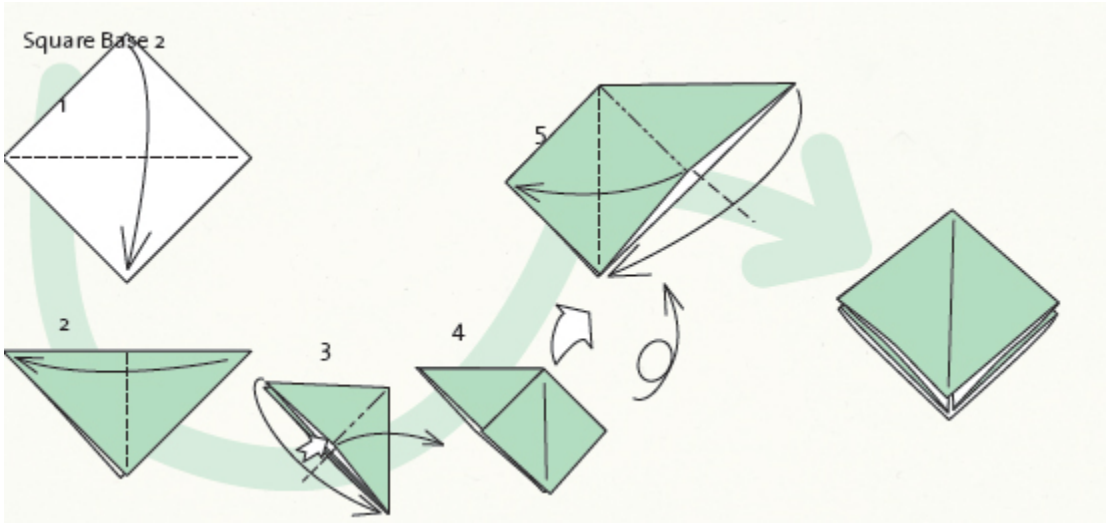
INTRODUCTION: FISH BASE AND SQUARE BASE



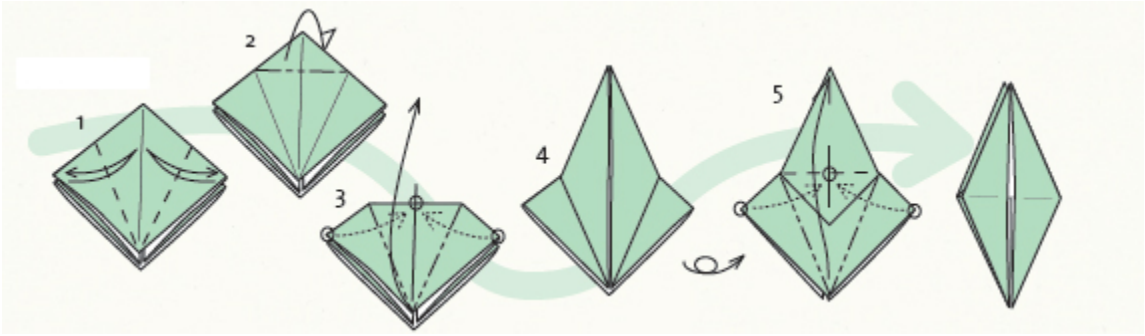
4. Fold up backwards or away from you, see symbol introduction p.14.
5. Fold the inner flaps down.



2. Fold a middle crease that you later use as a guide.
3. Fold the left flap backwards and the right flap forwards.
4. Fold the triangle's edges together so that you get a square.

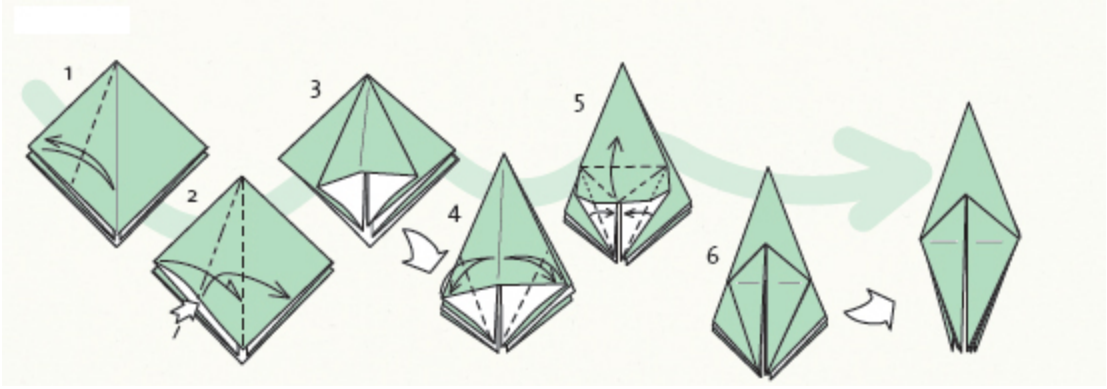


INTRODUCTION: CRANE BASE, FROG BASE, WINDMILL BASE



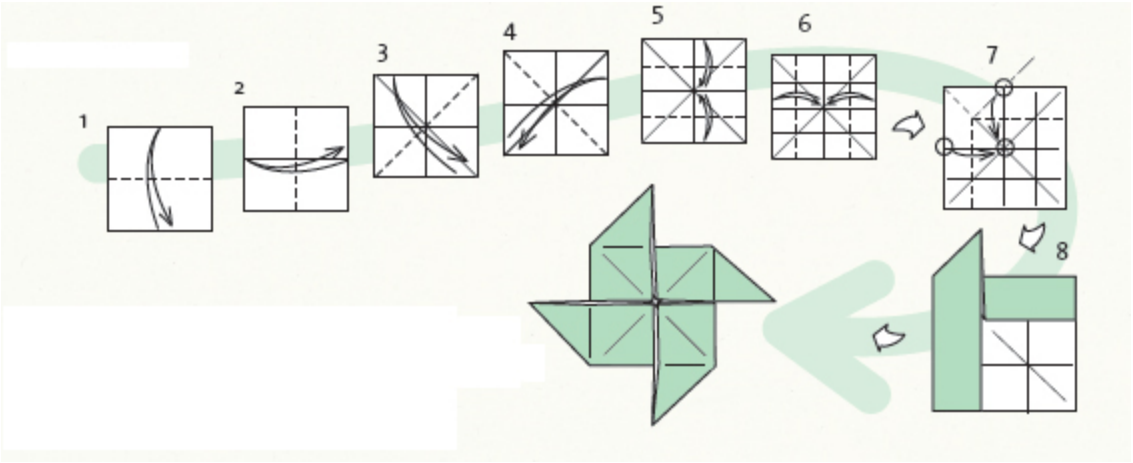
1. First fold a square base, then follow the illustrations above.
3. Unfold the top flap.

Frog Base



1. First fold a square base. Then fold the left flap towards the middle, as the illustration shows, and unfold.
2. Insert your index finger in the left flap, as the white arrow shows. Move towards the middle and push.
3. Repeat steps 1-3 three times so that each flap is folded in the same way.
4. Fold creases.
5. Fold the top flap up, as illustrated by the drawing.
6. Repeat steps 4-6 three more times.

Windmill Base



7. Fold so that the points marked on the paper meet. This will be easy since you have already created guiding creases.
8. Repeat three times.

A snow-white crane, and a pink flapping crane circle above a lily.

TRADITIONAL ORIGAMI

Nobody knows for certain when and how the art of origami began in Japan. We do know that the technique of producing paper came to Japan, from China though Korea, at the end of the

500s A.D. The paper, washi, known in the west as rice paper, has absolutely nothing to do with rice. Washi is made out of the fiber-heavy growth mitsumata, the kozo plant or the gampi tree, and it is especially suitable for origami because it doesn't tear easily.

In the beginning the paper was a rare and luxurious commodity and would only be used for writing, but in time, they started using folded paper in temple ceremonies. The art of folding was considered so important that one had to study for years before being allowed to fold.

Nowadays this kind of ceremonial folding is most commonly used in the Japanese gift wrapping traditions. When you buy a gift for a formal occasion you would, for instance, ask the store to attach a noshi as part of the wrapping—a kind of folded decoration which is attached to a cord around the gift.

Folding of certificates was another kind of early use of folding techniques. A folded certificate could be a guarantee of the quality of a sword or the value of a tea cup. Today the only trace of this folding tradition can be found in the word origamitsuki—"equipped with origami"— which functions as a guarantee of legitimacy. It is said that these two older versions of origami have been around since the Middle Ages. The third variety of folding—the variety we today consider to be the traditional Japanese art of folding paper—was most likely formed much later.

There are certain references to practices that could be origami in some accounts from the eleventh century. Among other things it is mentioned that the emperor Abe no Seimek folded birds out of paper that later came to life. However, we cannot know for certain that this relates to the art of origami.

The oldest unequivocal written reference to what we today refer to as origami may be found in a short poem by the author

Saikaku Ihara (1642-1693) where he writes: “The butterflies in/ Rosei’s dream/ would be origami”. He refers to an origami model called Male and Female Butterflies, which is used to decorate sake bottles in wedding ceremonies.

By the 17th century the tradesmen had obtained great economic power in Japan and the bourgeois culture was flourishing in the many cities. The art of paper folding was, presumably, a highly appreciated pastime. In the classic book *Koshoku Ichidai Otoko* (The Life of an Amorous Man, 1682) Saikaku Ihara writes about the protagonist Yonosuke that “one day, when he was seven years old, he distinguished himself from the other children. With a rare propriety he folded birds and flowers out of paper.”

From the 1600s and onward the art of origami quickly evolved. The first books featuring folding instructions were published as early as the 1700s: Sadake Ise’s book *Tsutsumi no Ki* (Fundamental Wrapping, 1764) and Akisato Rito’s *Sembazuru Orikato* (How to Fold 1000 Cranes, 1797). New origami models rapidly emerged, but many were difficult to fold and were therefore soon forgotten. By the beginning of the twentieth century there were about 150 origami models left; These shapes are today considered the classic models.

The Japanese are not the only ones who have practiced origami thorough the centuries. As long as paper has been in existence so has the art of folding existed worldwide.

Certain information indicates that the Moors created advanced geometrical paper shapes as early as the 600s. Perhaps they were inspired by some variety of paper folding that had come from Asia. When the Moors later entered the Iberian Peninsula in year 711, it is believed that they brought the art of folding with them into Europe. These accounts are unfortunately too vague to warrant a definite conclusion.

During the second half of the 1400s another form of paper folding emerged in Europe. In the 1490 edition of Johannes de Sacroboscos's “Tractatus de Sphaera Mundi” a folded paper boat is clearly featured in one of the illustrations. There are references to paper folding in literature even earlier than this.

By the end of the nineteenth century, it was first and foremost two European countries that had adapted a strong paper folding tradition: Spain and Germany. The German paper folding tradition later spread across Europe through the child educator Friedrich Fröbel’s idea of kindergarten; a preschool where children are given the opportunity to practice their skills in order to develop into well-balanced persons.

But there are very distinct differences between the European and Japanese art of folding paper. The European tradition is mainly based on folding in patterns of squares, whereas the Japanese tradition uses both traditional folding bases as well as square patterns. This gives an infinite number of possibilities when constructing new models.

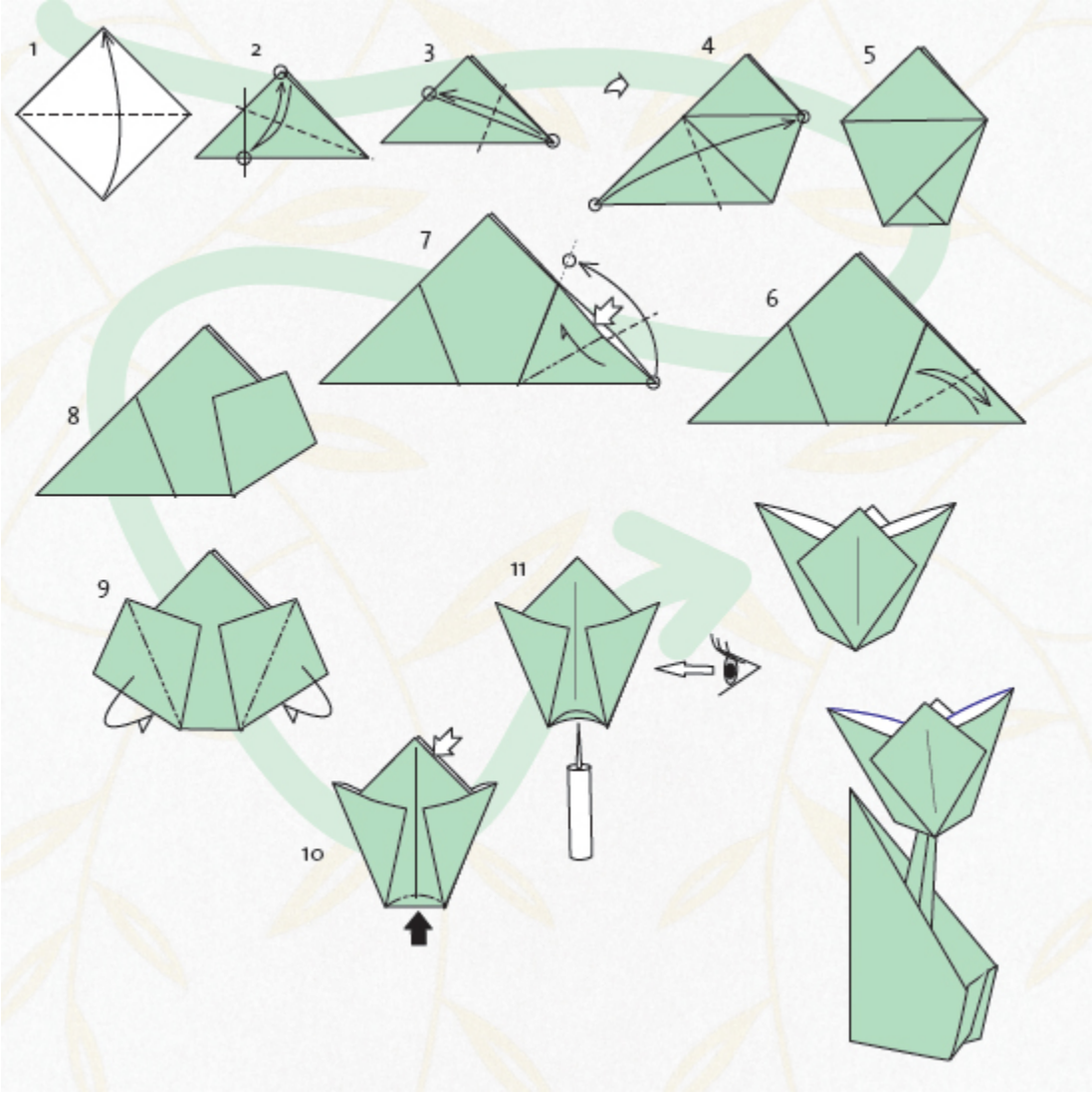
During the 1600s, origami became a popular pastime, in particular for the bourgeoisie in the cities.

Norio used two different stalks for these tulips: The flower to the far left is standing on stalk 1, p.39 and the two in the middle are standing on stalk 2, p.40.

THE TRADITIONAL TULIP

When the tulip first reached Japan at the end of the 1800s it gained instant popularity. Within a short period of time the origami model of the tulip emerged. The tulip is one of the simplest origami shapes, but it may easily be transformed into other origami models and forms.

Norio felt that the traditional tulip model looked too flourished, so he made his own version, see p. 38. If you wish, you may use one of Norio's origami stalks with the traditional tulip head, see p. 39 and 40.



2. Make a crease by folding the lower half of the triangle against the upper half.
3. Fold the right corner against the crease mark on the left triangle wall.
4. Fold the left corner to the right.
7. Using your finger, open the flap, as pictured, and fold it down toward the upper point of the triangle.

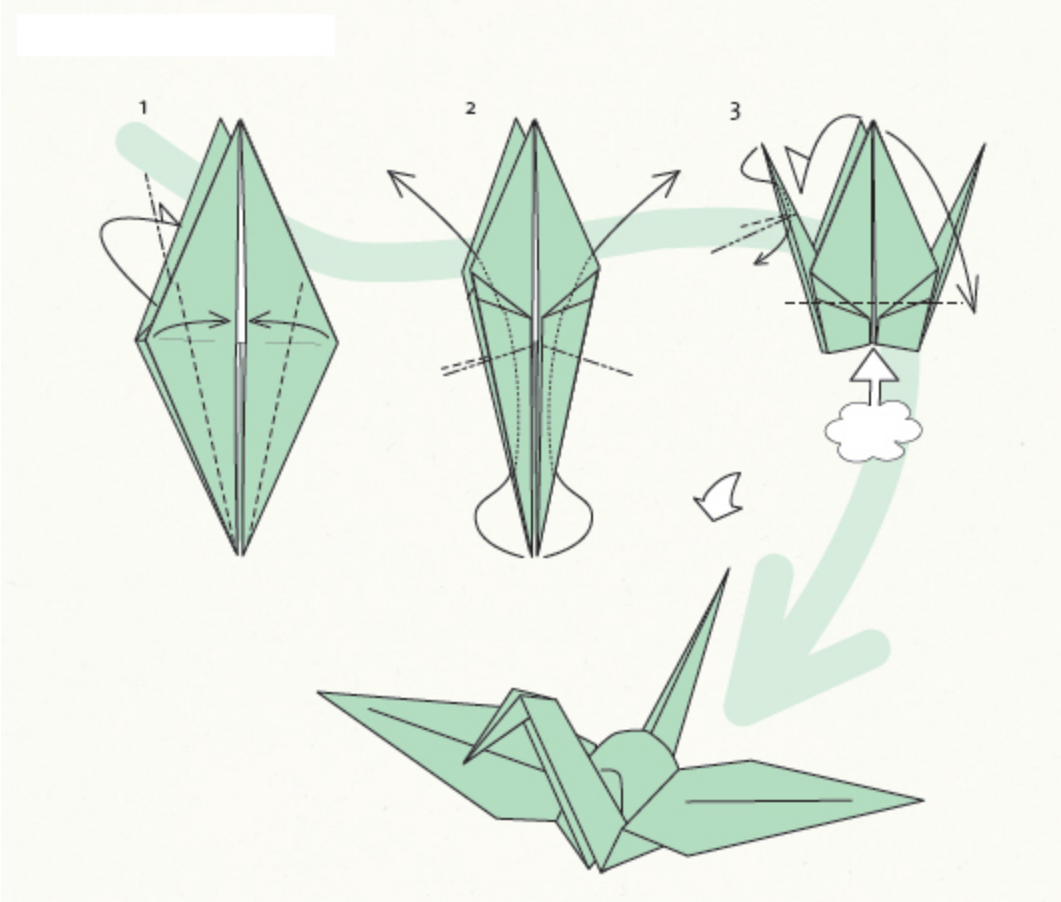
8. Repeat steps 6-8 on the left side.
11. Make a hole in the bottom of the tulip head. The stalk Norio used with this tulip may be found on p. 40.

THE CRANE

In Japan they say, "The crane lives for a thousand years, the turtle for ten thousand." Both animals are valued symbols of happiness and a long life. There's another old Japanese saying that says that the one who folds a thousand cranes will have a wish fulfilled by the crane. The wish can be for a long life or for release from disease. Therefore, people in Japan often bring garlands of folded cranes when they visit someone who is ill.

One does not only fold cranes when something bad happens, but also to make sure that one's circumstances remain favorable. In the 1600s the eloquent Haiku poet Kikaku Enomoto (1666-1707) releases a sighs of relief after a hectic New Year's bustle. He writes: "New Year's Eve/in the midst of this hustle/a silent crane folding". (On New Year's Eve the Japanese drink o-toso, spiced sake. Enomoto folds this white crane that, according to tradition, should be fastened on the bottle.)

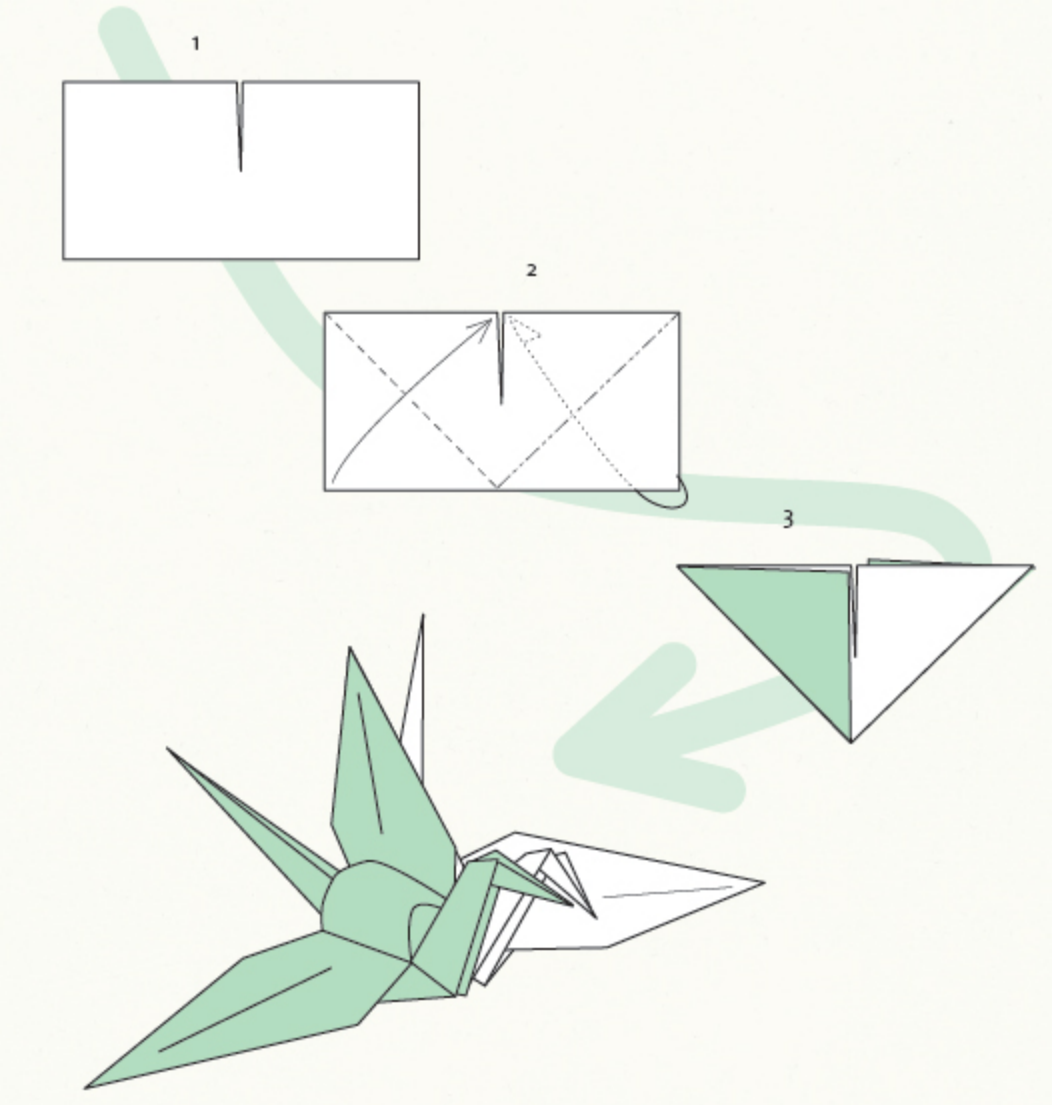
From the crane base, see p.17



1. Fold towards the middle on both sides, and do the same on the backside.
2. Open the flaps that will become the head and tail feathers.

CRANE COUPLE

In the beginning of origami, people would speak about folding a thousand cranes, which usually referred to folding a complicated imoseyama. This is an old, beloved group of origami models where the paper is cut in order to fold two or more cranes that are attached to one another. One of the oldest instructional books on origami, Akisato Rito's "Sembazuru Orikata" (1797), focuses solely on this one subject of folding an advanced imoseyama out of a single squared paper.



1. You need a rectangular piece of paper. Since you are folding two cranes, you need to cut the rectangle in the middle, as illustrated. You will then end up with two squares.

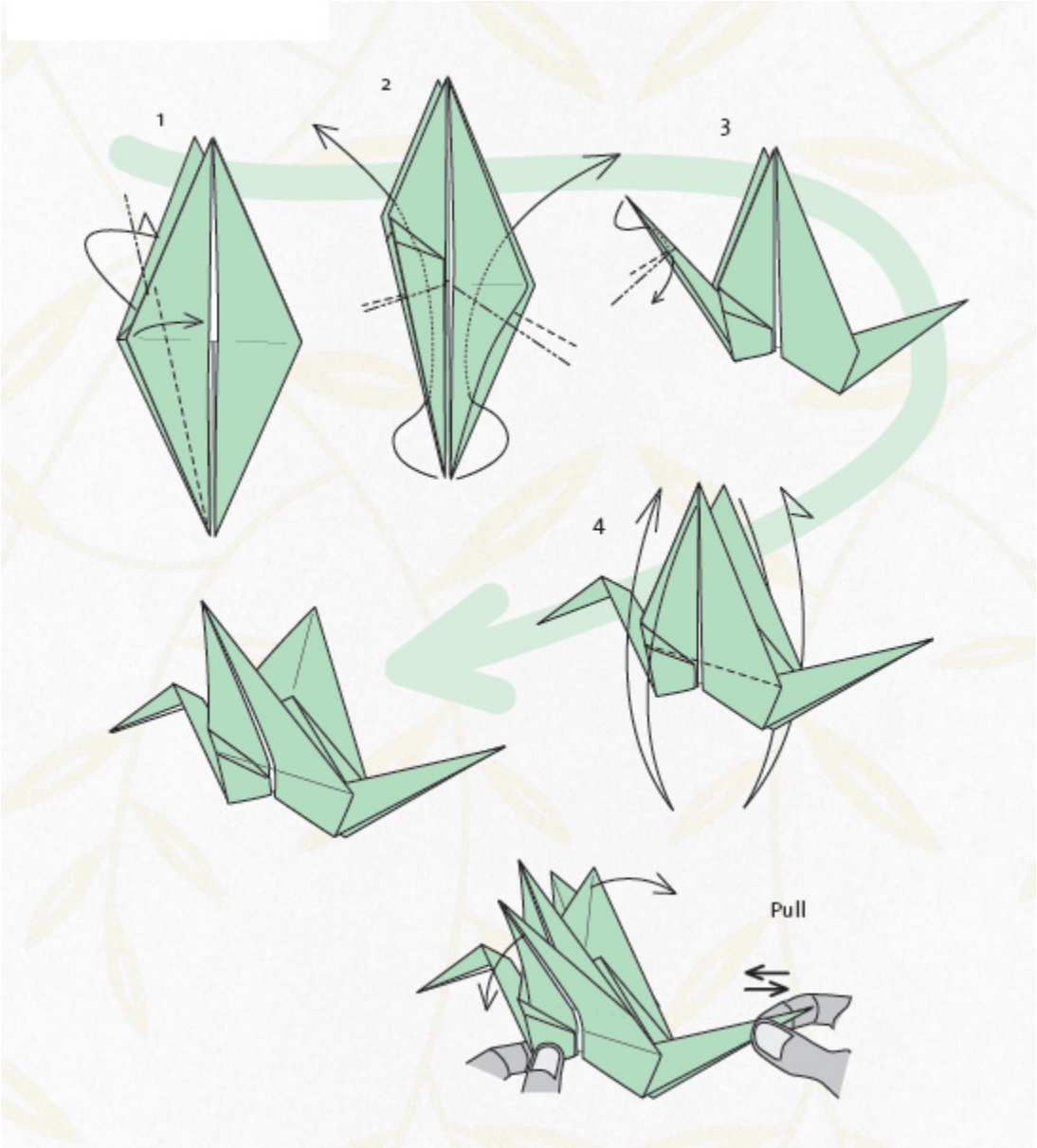
Follow the instructions closely, or the cranes may end up attached in the wrong way.

2. From this point you fold two separate square bases, p.i6, followed by two crane folds, see p.17 and p.24.

FLAPPING CRANE

This is the traditional crane model that speared Norio Torimoto's decision to dedicate his life to origami. As a child, he witnessed an actor fold this crane, and he was absolutely amazed. And it is amazing! It is also quite easy to fold, which Norio quickly realized.

From crane base, step 5, see p.17



1. Fold in towards the middle. Turn the base around and repeat on the other side.
2. Make sure you fold the tail flap in line with the abdominal. Leave a space of about 2-3mm / 1/16-1/8 in.

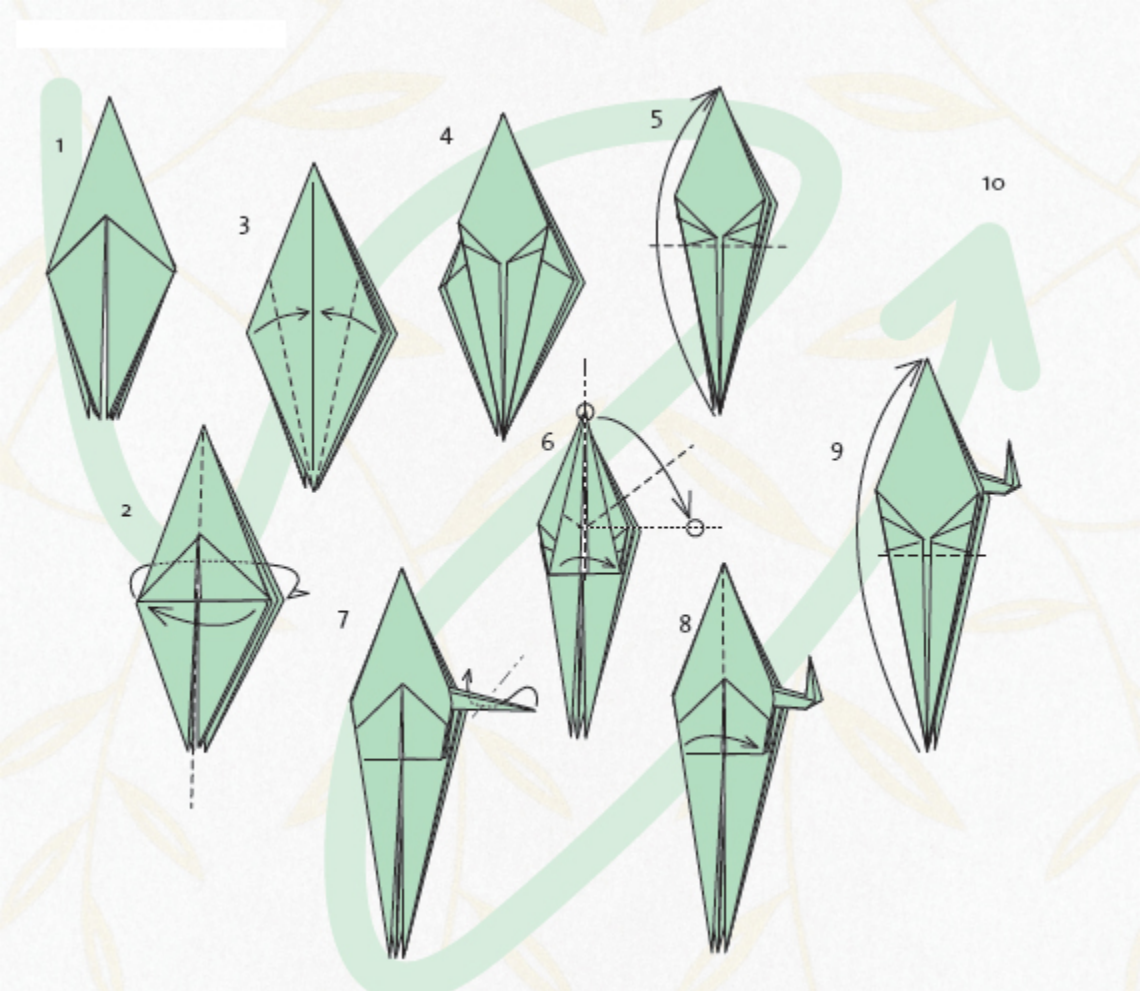
FROG

In Japanese the word for frog is kaeru. If the same word is written with a different chinese sign the word means "coming home."

In one of the poetry collections of the famous author Fujiwara no Kiyosukes (1104-1177) he shares the background of a poem he had written: "I was outraged by a woman and told her that I never wanted to see her again. However, I realized that at the end of it all I really did care about her—if possible, I cared more about her than I had before. With a blue- and white-striped paper I folded a frog that I sent to her with the following poem: "Words that were not thought through/flew out of my large gape/I now regret in silence."

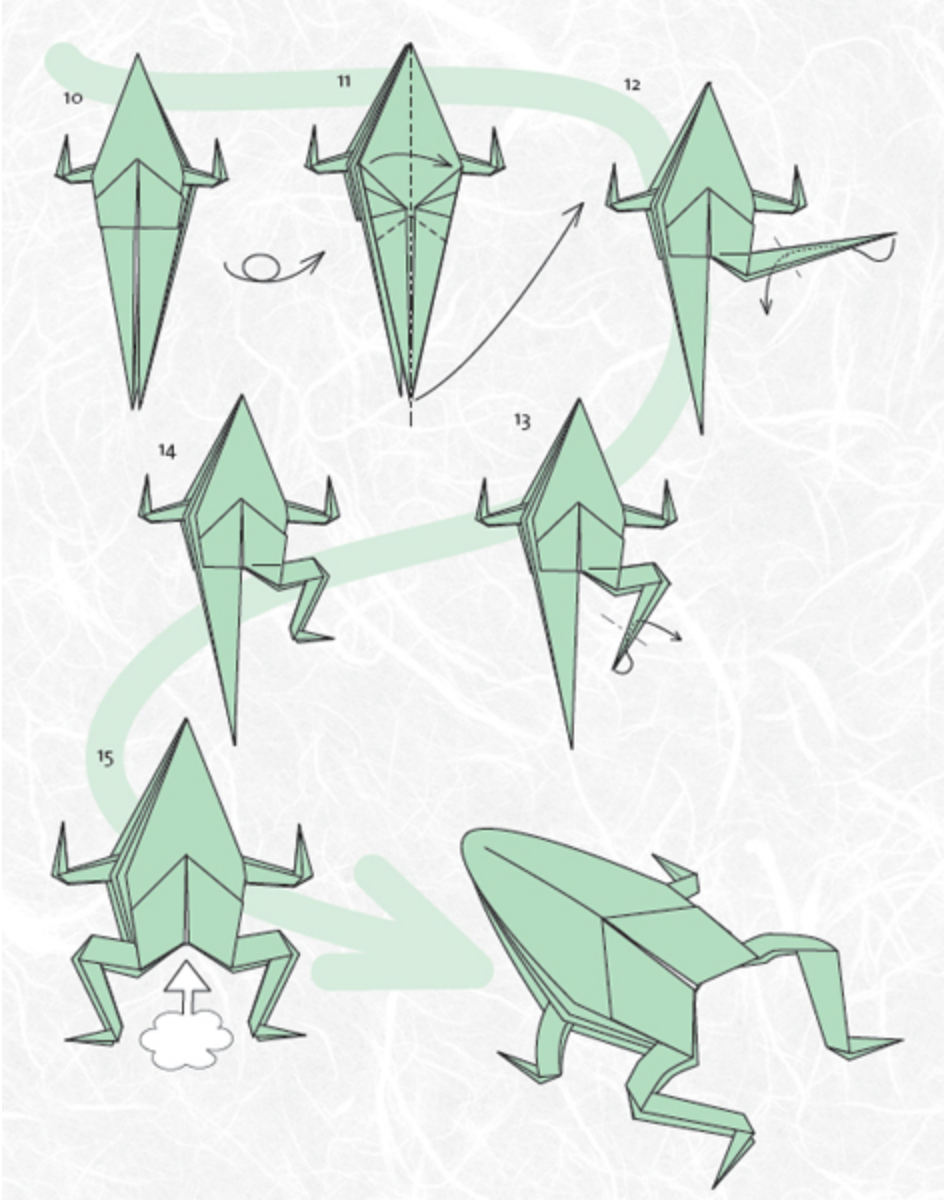
(*This frog model is, however, of a significantly later date than the poet's.)*

From frog base, see p.17



2. Fold the top left flap upwards to reveal an even diamond-shaped flap.
4. Repeat steps 3-4 on the remaining three even diamond-shaped flaps.
6. Fold the upper flap down in the direction the circles illustrate. At the same time, fold the left flap over the middle.
9. Repeat steps 5-8 to create the left front leg.

Frog



10. Turn around to do the back leg.
11. Fold the right leg at the angle the illustration shows. At the same time, fold the top flap on the middle.
14. Repeat steps 11-14 on the left side.

Nils, the hero of a popular Swedish fairy tale, flies on Goose 1 over a family of frogs.

LILY

In Japan there are fifteen different kinds of wild lilies. For a long time lily bulbs were used as a medicinal growth as well as in food preparations. It was not until the end of the 1800s that they started growing the flower for its beauty in their gardens; but when they did it quickly rose in popularity.

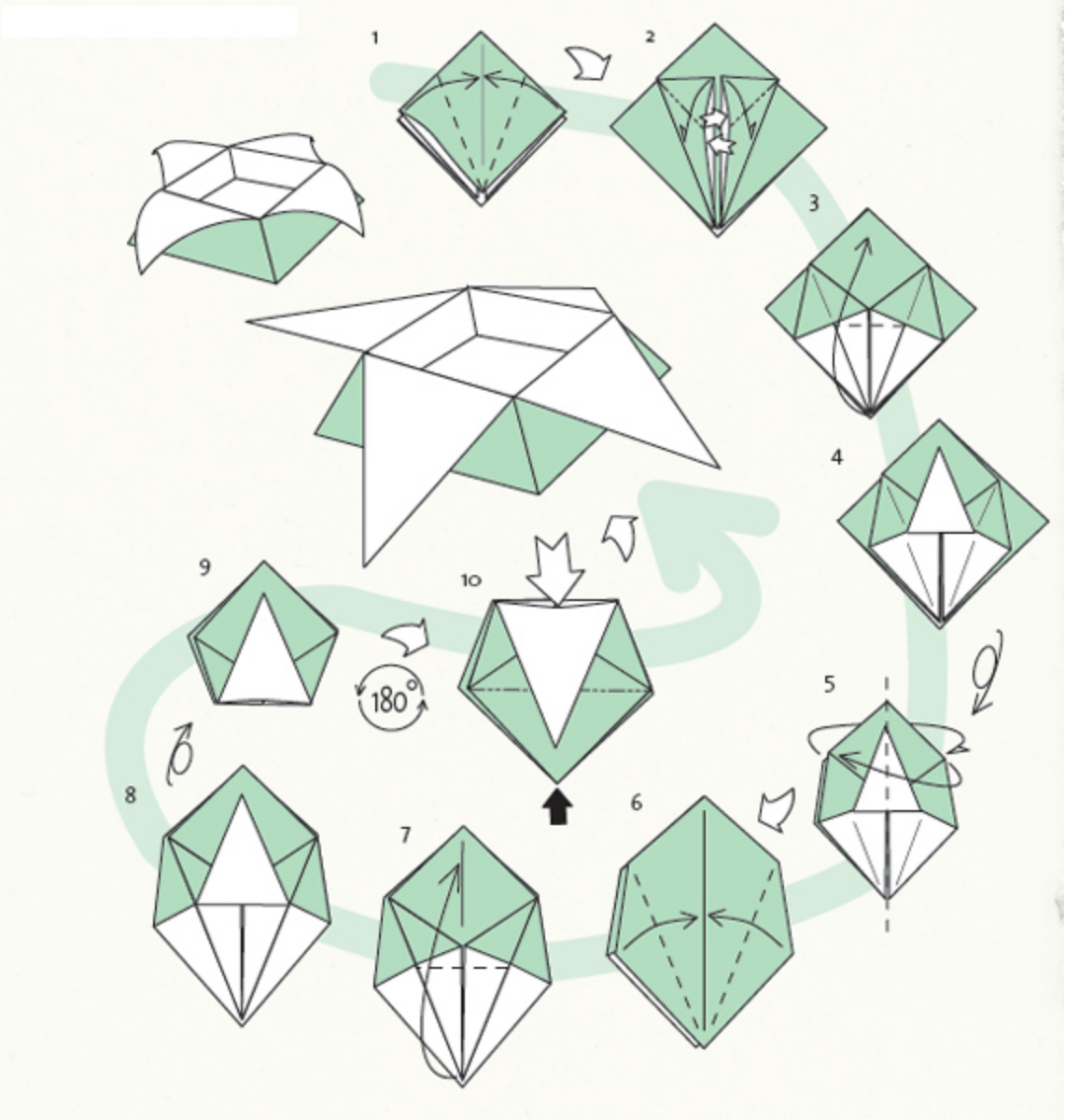
From frog base, see p.17

1. Fold the flap down. You are now left with three flaps that point upwards in the exact same manner. Fold the model on its middle, flip the flaps out and fold them down as well.
2. Fold the top right flap towards the left as illustrated. Then fold the lowest right flap towards the right. Turn the model.
4. Flip the flaps like you did in step 2 and repeat steps 3-4 on the three remaining diamond-shaped flaps.
6. Flip and repeat steps 5-6 three more times. Shape as you please.

STAR BOX

This fold really seems magical. You take the almost completed model, push it out from the inside—and get a perfectly shaped box. It's a classic that has thrilled generations of children. If you do it with a slightly stiffer and more resistant paper, you can keep candy in it for children's parties.

From square base, see p.16

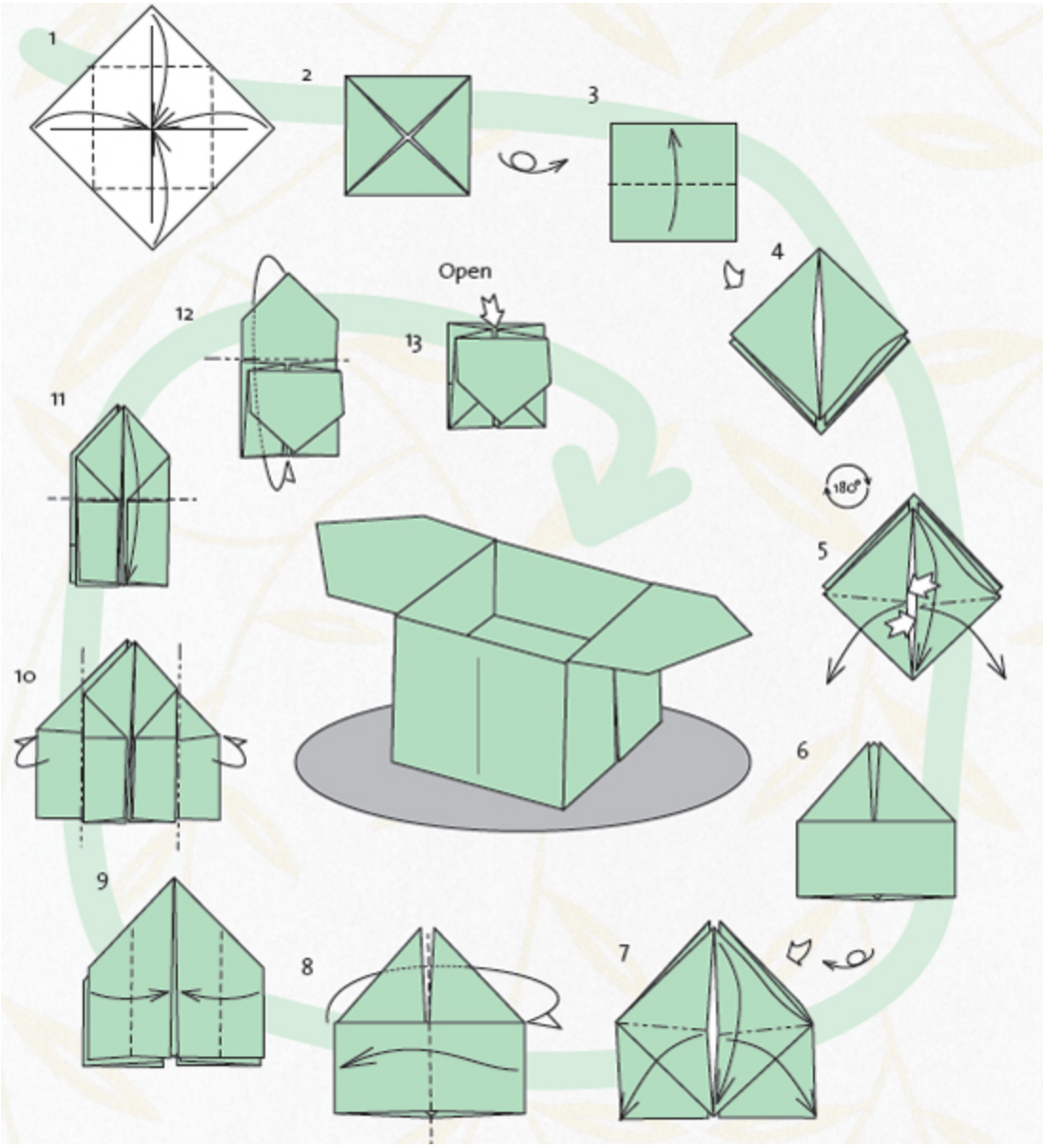


4. Turn the model around and repeat steps 1-4011 the opposite side.
8. Turn the model around and repeat steps 6-8 on the opposite side.

You may make many different varieties of the sanbo model. From the left: sanbo 3, sanbo 2 and sanbo 1.

SANBO 1

A sanbo is a traditional tray table consisting of wood (san) and leg (bo) that slowly became four. The table is used for ceremonial purposes. The sacrifice to God in a temple is placed on a sanbo.



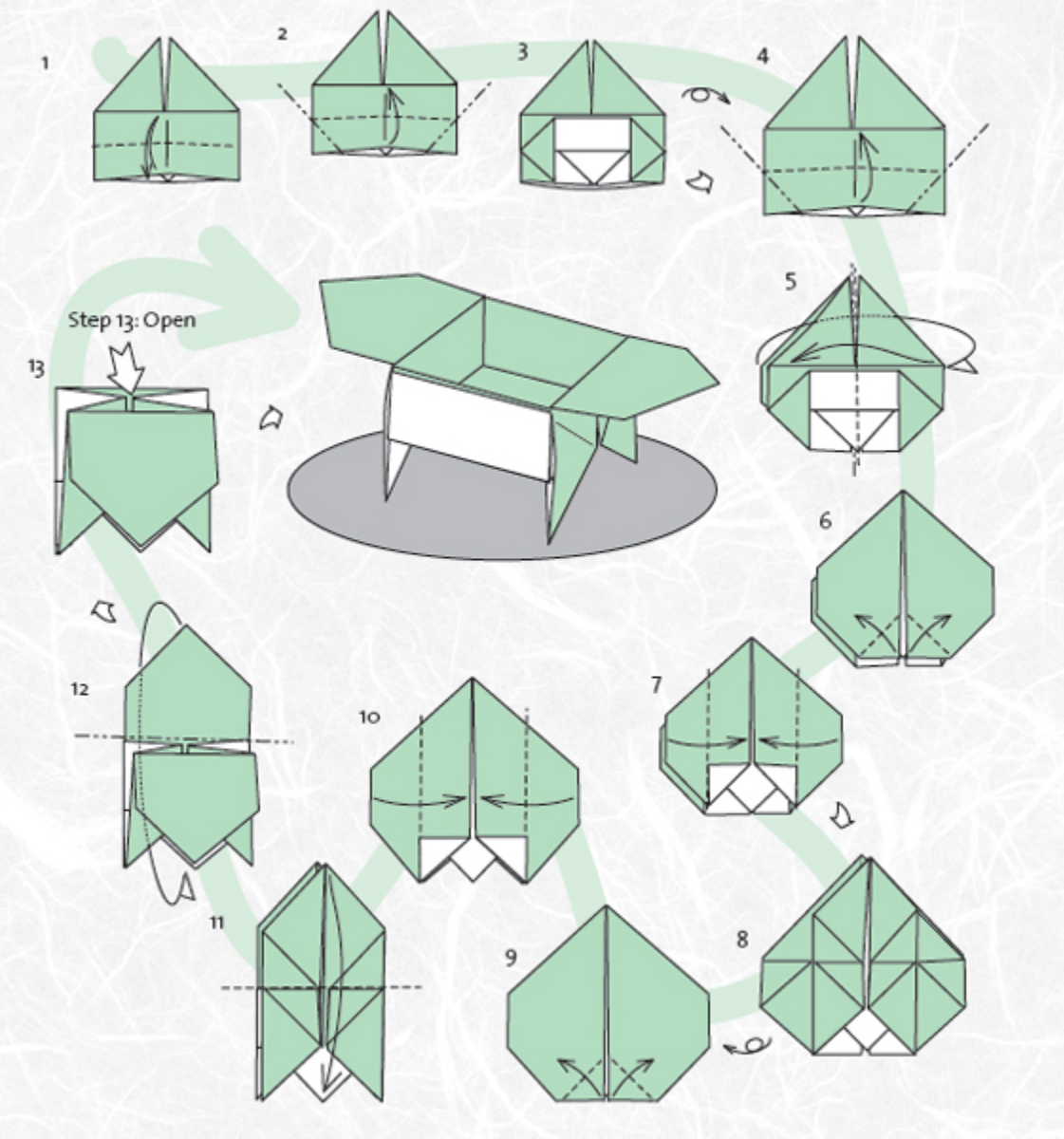
3. From here you fold a square base, see p.16.
7. Repeat steps 5 and 6.
8. Fold the top right flap at the middle. Turn and repeat on the opposite side.

10. Turn around and repeat on the opposite side.
11. Fold downwards.
12. Turn around and repeat on the opposite side.

SANBO 2

You can fold sanbo a number of different ways, depending on how you want it to look. Norio uses the sanbo model as a base for many of his own creations so it might be a good idea for you to know some different varieties of sanbo.

From Sanbo 1, step 8, see p.33

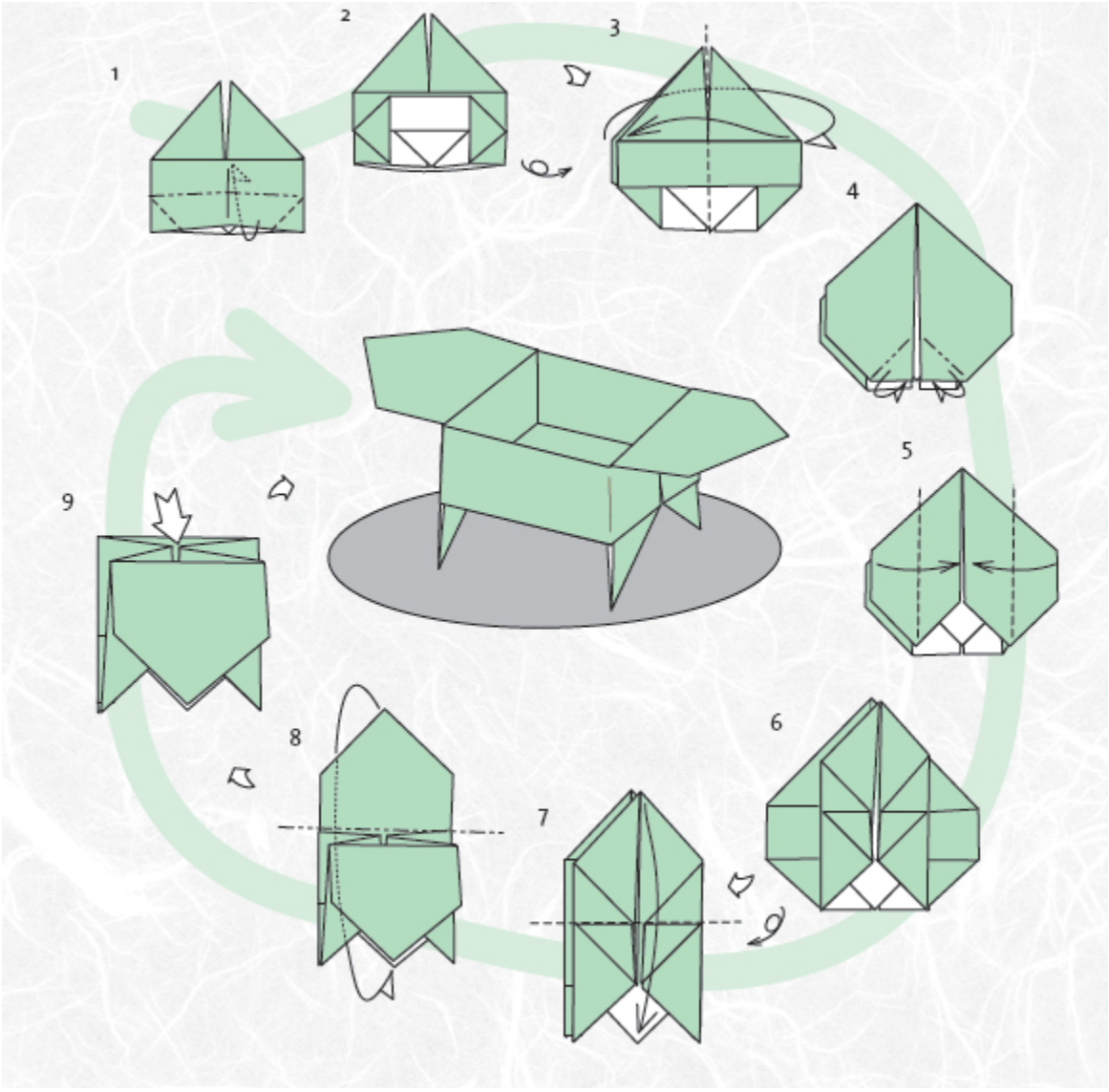


4. Repeat steps 1-3.

SANBO 3

Here's another variety of sanbo, which Norio often uses when he is creating new origami models. This model is useful to know.

From Sanbo 2, step 2, see p.34.



1. Fold the upper flap inwards.
2. Turn around and repeat on the opposite side.
3. Fold the right flap over the middle. Turn the model around and repeat on the opposite side.
4. Fold the inner corners.
6. Turn around and repeat on the opposite side.
9. Open.

The elephant is playing with the* Tyrannosaurus *rex, while the Torimotosaurus is searching for leaves on the ground.

NORIO’S MODELS

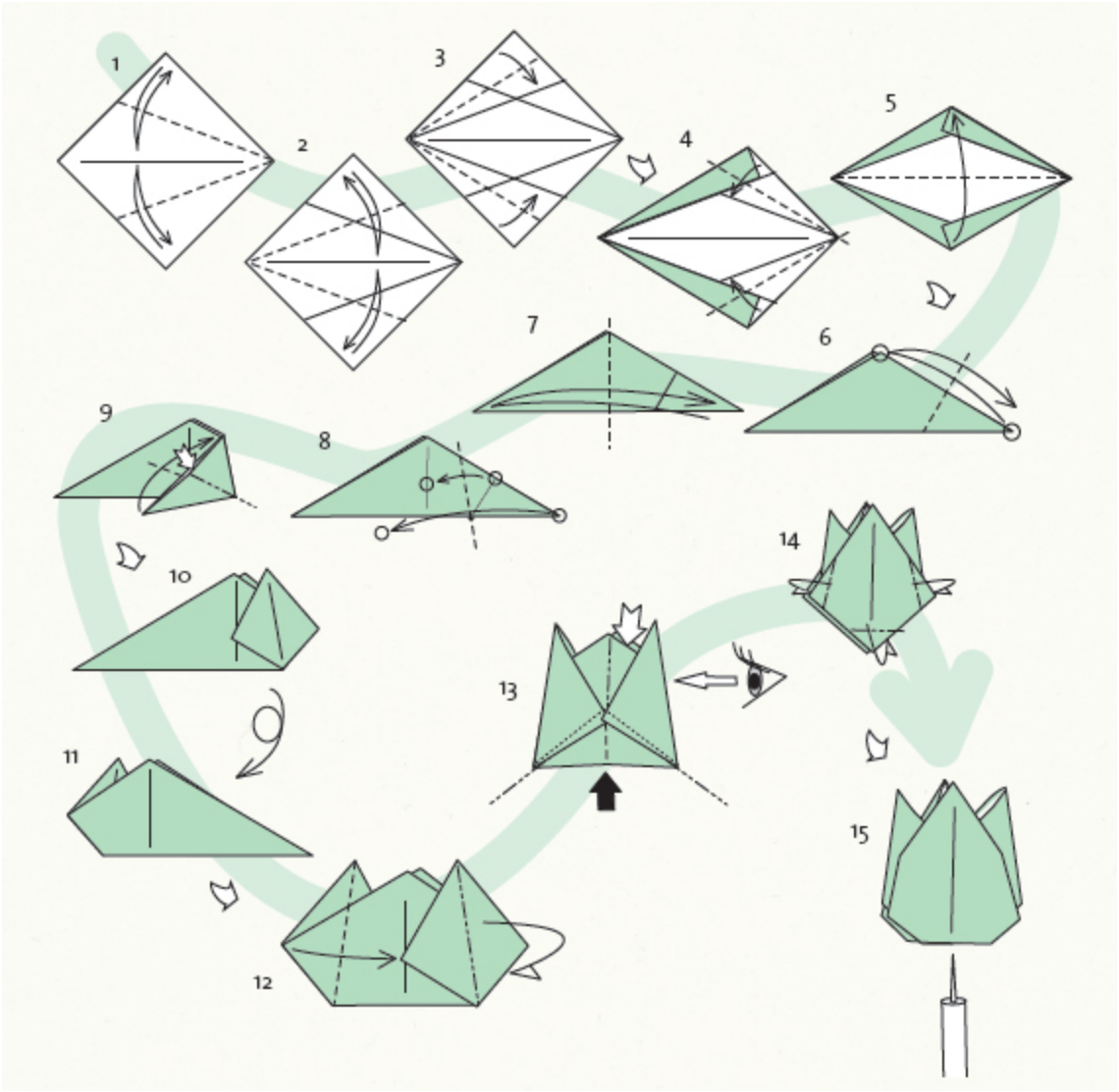
Norio Torimoto has been constructing his own origami shapes since he was a teenager. Most often he will use traditional

origami models as a base, and then change them into a variety of shapes.

Who would have thought that models such as the turtledove, elephant, dove and swan family were actually all based on the same form—the fish base? Or that a simple crane base hides behind the finished armchair, city hall or bird nest models? Not to mention that the frog base can be transformed into a *Tyrannosaurus rex* or a Toriniotosaurus with just a few manipulations? Fold and try to discover how Norio has used the classic base forms.

NORIO'S TULIP

Norio has always thought that the traditional tulip is too open and therefore looks overly flourished. He contemplated how he could create a newly sprung tulip—and came up with a simple solution.

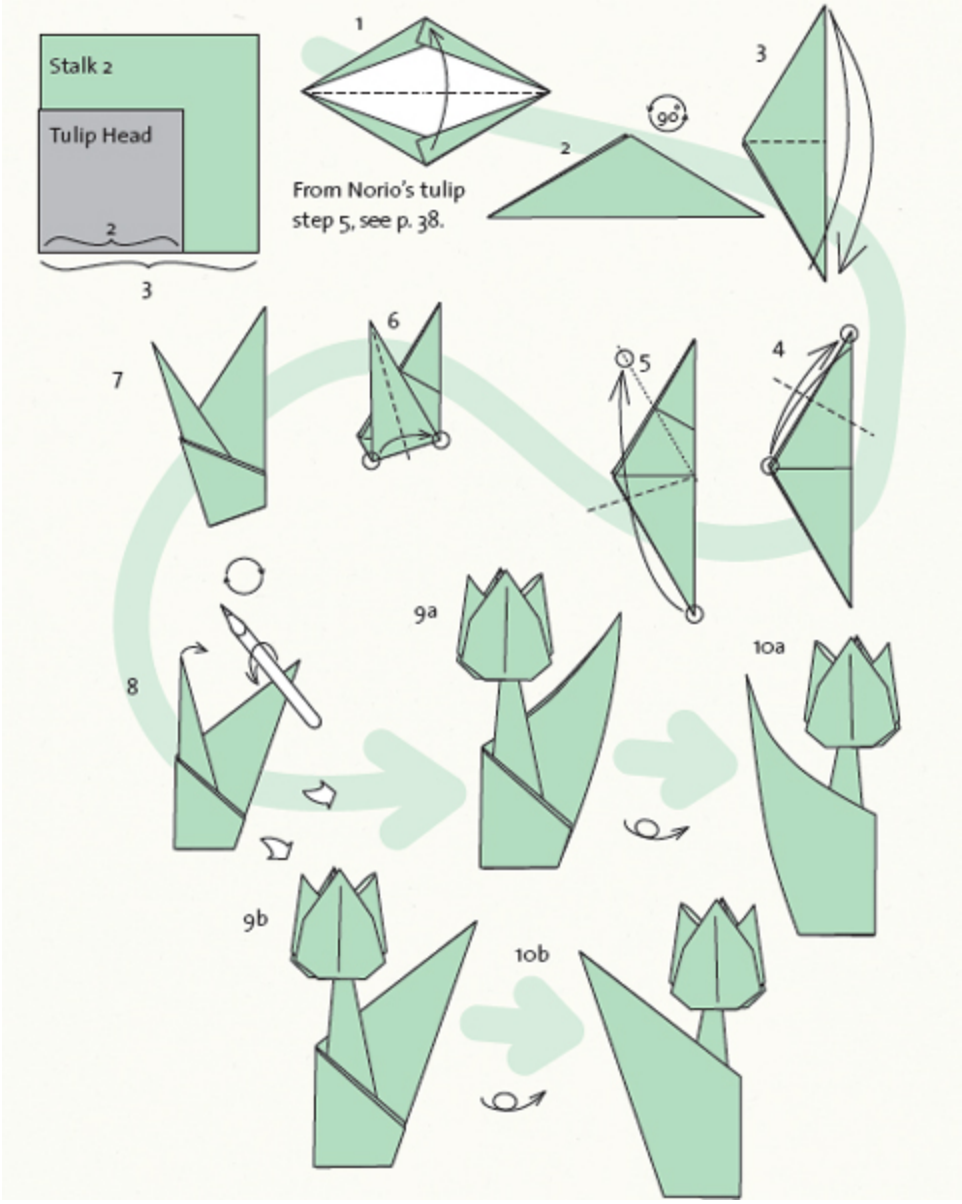


1–2. Fold creases as illustrated.
6. Fold the right corner of the triangle up against the top of the triangle, and unfold.
7. Fold the right corner so that its tip meets the left corner, and unfold.
8. Fold so that the points meet as shown in the illustration. The further down the tip you get the tighter the final tulip head will look.
9. Insert your index finger in the pocket as shown. Move the lower tip against the right as you see in the illustration.
11. Repeat steps 6-10.
12. Fold both of the tulip petals on the middle.

13. Carefully make creases at the foot of the petals. Widen the tulip at the top, while at the same time carefully pushing the bottom of the tulip upwards.
14. Fold the side edges, and bottom tip inwards.
15. Make a hole where you can insert the stalk.

STALK 1

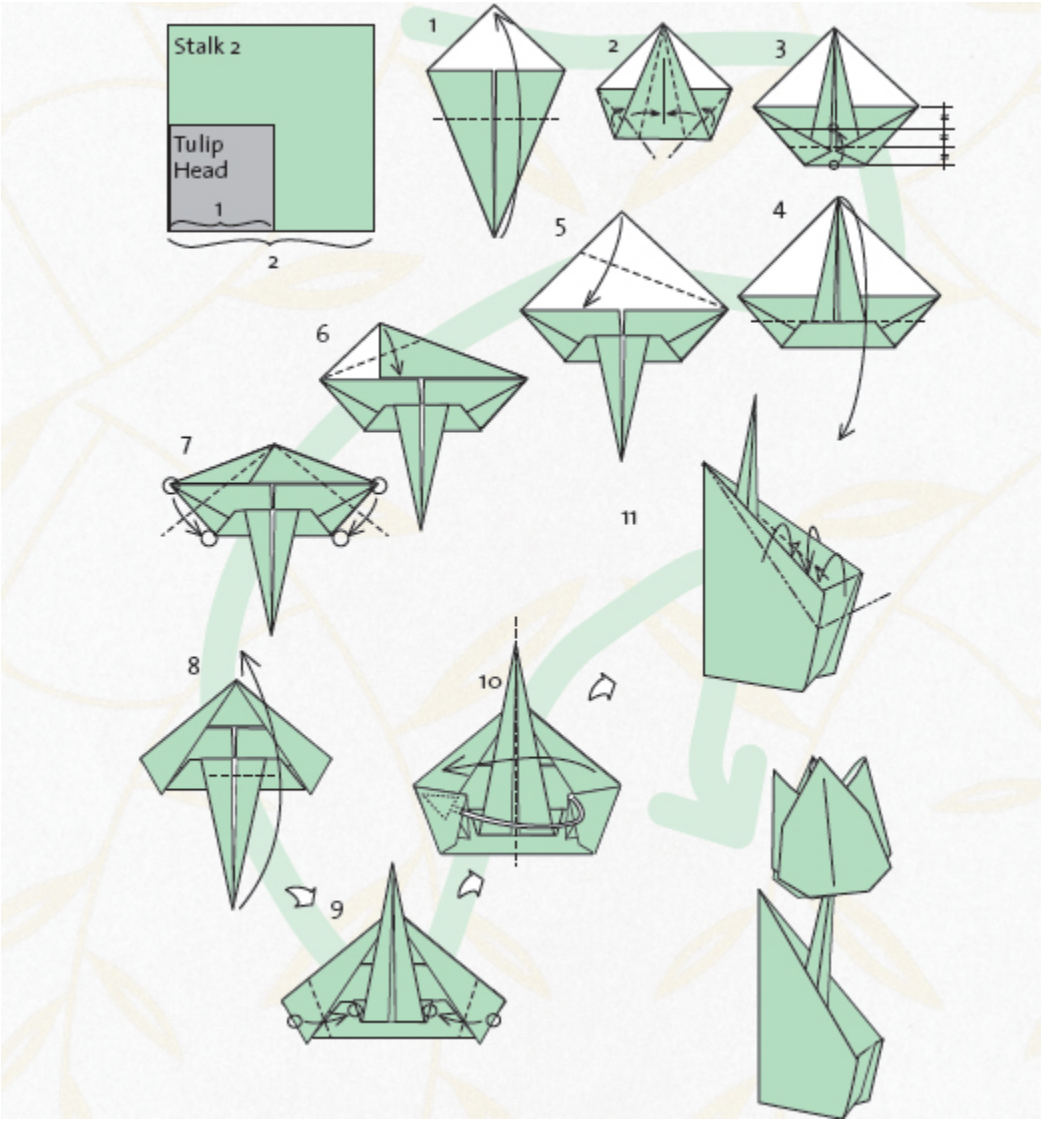
If you want the balance between the tulip and the stalk to look as realistic as possible: Make the stalk out of a piece of paper that is one and a half times longer on the sides than the tulip square.



1. First do steps 1-5 of Norio's tulip.
4. Fold the upper tip down so that the tip meets the middle corner, and unfold.
5. Fold the lower tip against the circled point illustrated on the drawing. The folded flap will be aligned with the crease you made in step 4.
8. If you wish you may shape the leaf with a pen.

STALK 2

This is a stylized version of the tulip stalk, but it is steadier than the first stalk. If you want the balance between the stalk and tulip head to look as realistic as possible: Make the stalk out of a piece of paper twice the length as the tulip square. You may experiment with a variety of proportions.



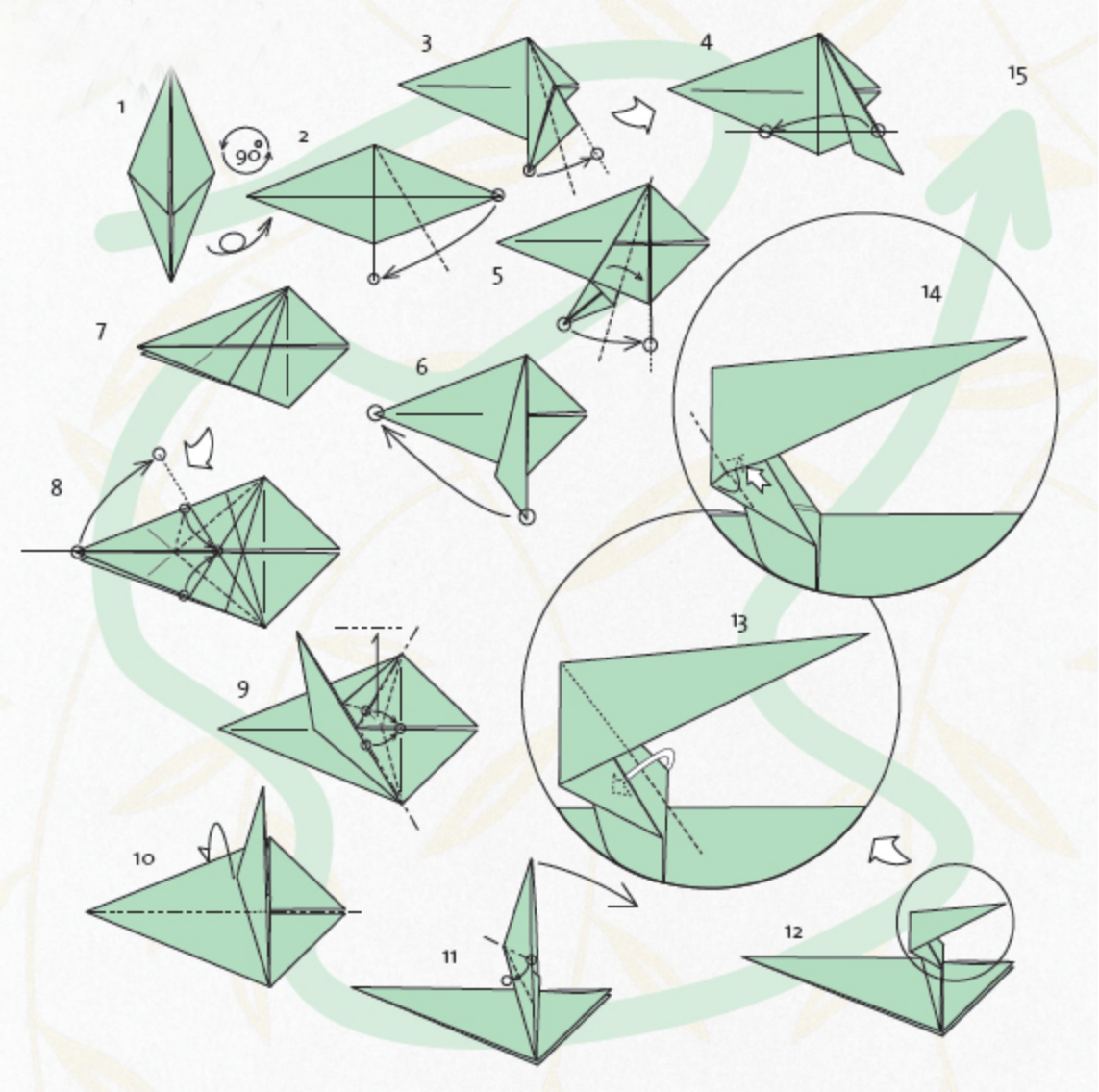
1. Fold your way to step three of the fish base, see p.16.
2. Fold both the right and left flap of the middle triangle towards the middle. Start from the top and push. Insert your index finger in the pocket that appears on the bottom left. Now you will see an edged flap on the left

side. Shape this so that the model looks like the illustration of step 3. Repeat on the opposite side.
7. Fold the flaps on both sides down, so that they meet the lower circled points.
9. Fold the edges as illustrated.
10. Move the ends so that they meet.
11. Fold a flap down over the meeting point and make sure that it locks the model together.

ELEPHANT

A completely irresistible little fellow! The finished model may look very complicated, but it is surprisingly easy to fold. It is Norio's little details—like the folding of the ears—that make this so true to a real elephant.

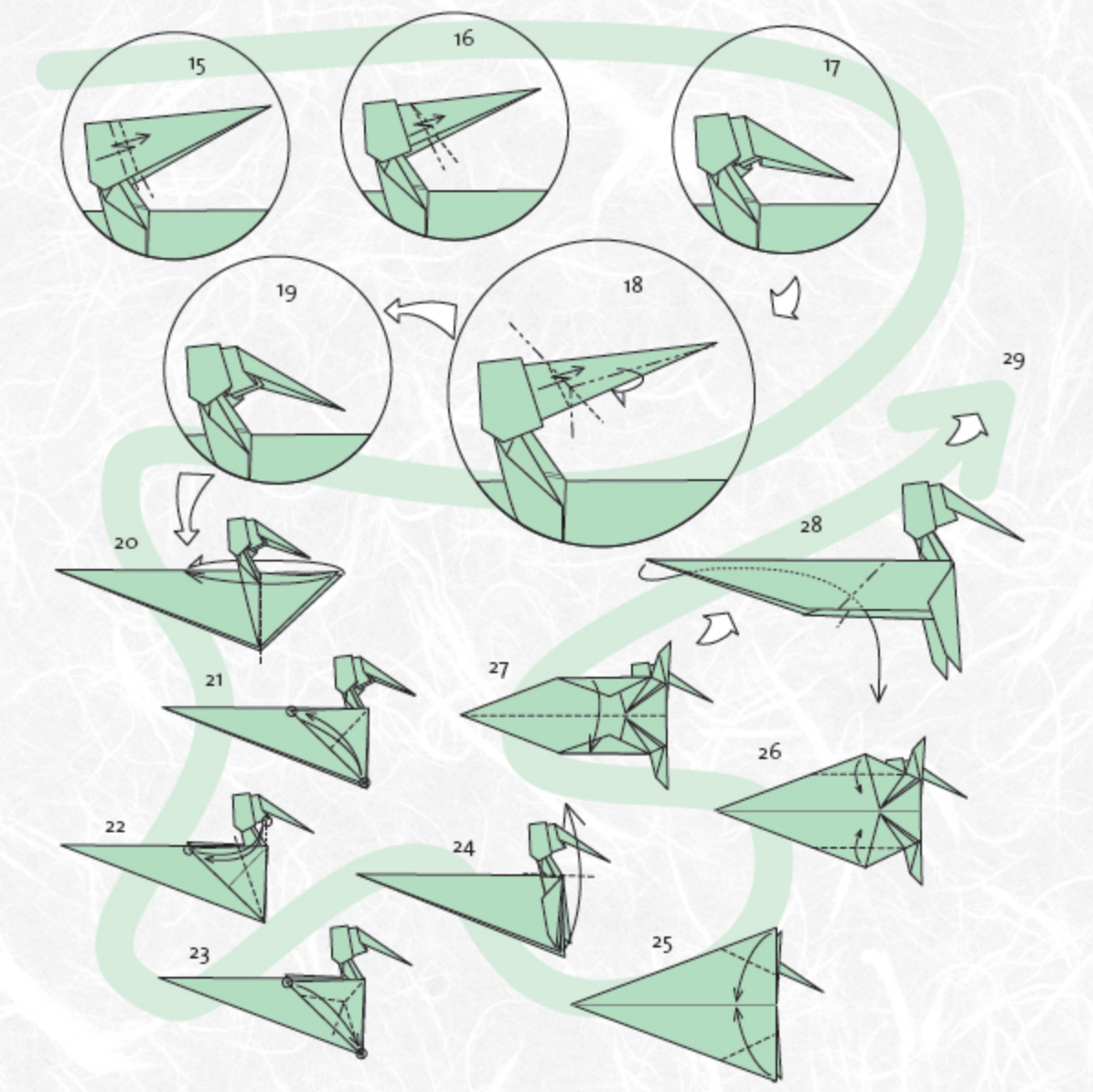
From fish base, see p.16



1. Turn the model around and flip it so that it's sideways.
7. Fold the top flap back so that the model looks like illustration 2. Repeat steps 2-7, but fold upwards this time around.
8. Grab the tip and fold it on the middle so that it slims to half the width. At the same time, also move the tip upwards. You should then see one edge on each side of the tip.
9. Take hold of the point where the tip releases the two side edges. Move the tip to the right so that an accordion fold appears. Fold so that the tip is pointed as shown in step 10.
11. Fold down to create what will be the head.

13. Fold the middle flap down. Hide it under the outer flap that will become the neck.
14. Fold to round the shape.

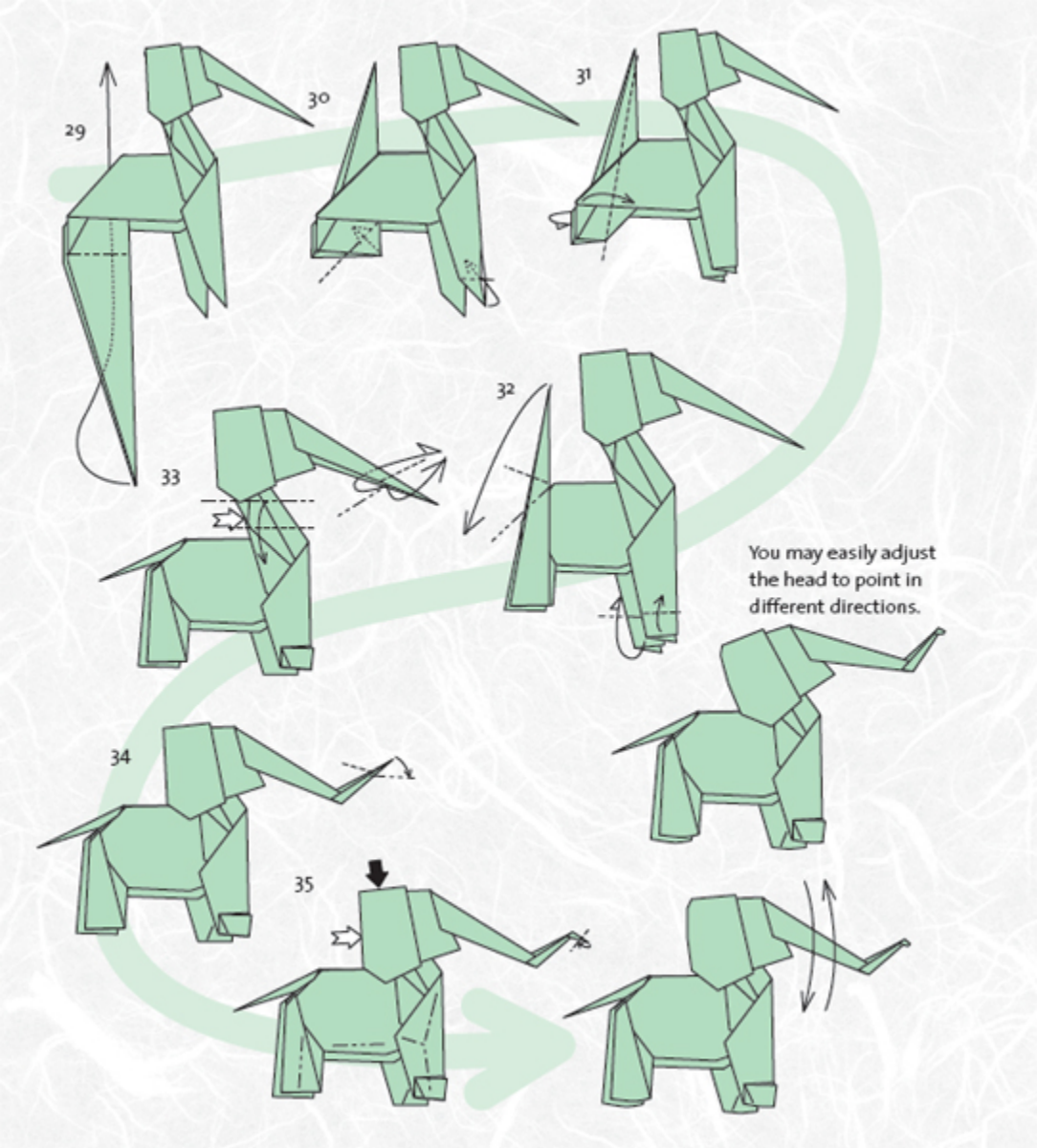
Elephant



17. In order to make the trunk slimmer, you are now going to unwrap the last fold. The head should look like the illustration in step 16.

18. Fold the front part of the trunk and then do the pleat you did in step 16. Turn around and repeat on the other side.
20. Fold the flaps that are to become the front legs backwards on both sides of the body.
21. Fold the front part of the front leg down to create a crease. Turn around and do the same on the other side.
22. Fold the front part of the front leg upwards toward the elephant's chin in order to create another crease.
23. Fold the front part of the front leg down against the front of the body. At the same time, fold an edge in the middle of the part that's to become the leg, as illustrated. Adjust the leg somewhat, so that it gains a little width. Turn around and repeat on the other side.
26. This is where you decide how chunky your elephant should be. If you want to make a calf then aim for a slimmer body. If you do that, the model will have a larger head in proportion to its body, which makes it looks small.

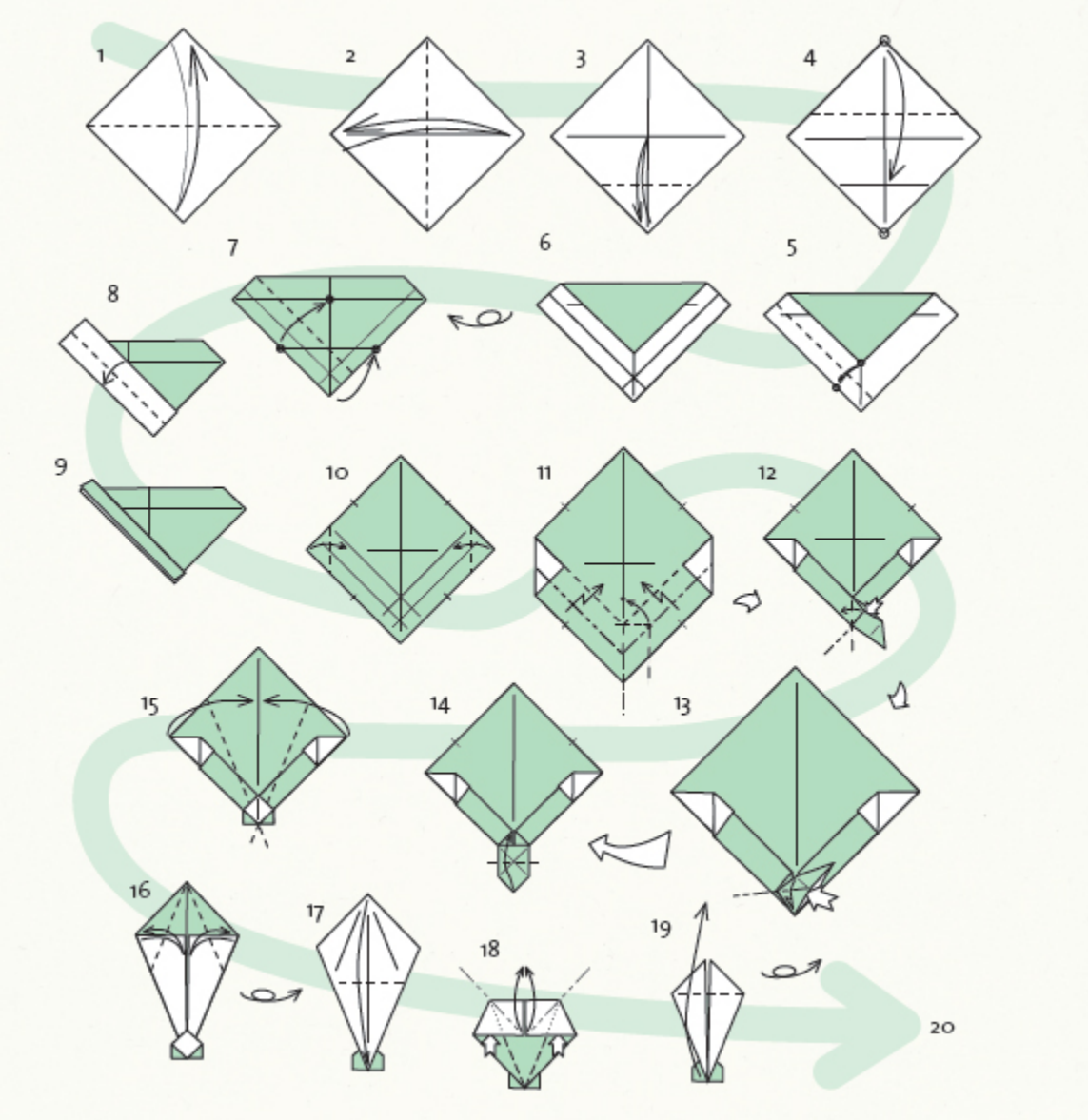
Elephant



30. Fold to create back legs. If you don’t, the legs will end up sticking together. Fold the flaps that will become the front feet, as illustrated. Spread the legs a little and move the tail down.
32. Fold the front feet up on both sides.
33. Shorten the neck by creating an accordion fold to fold the head downwards.
34. You may shape the trunk and tail, as well as move the head around, as you please.

FRIENDSHIP DOVE

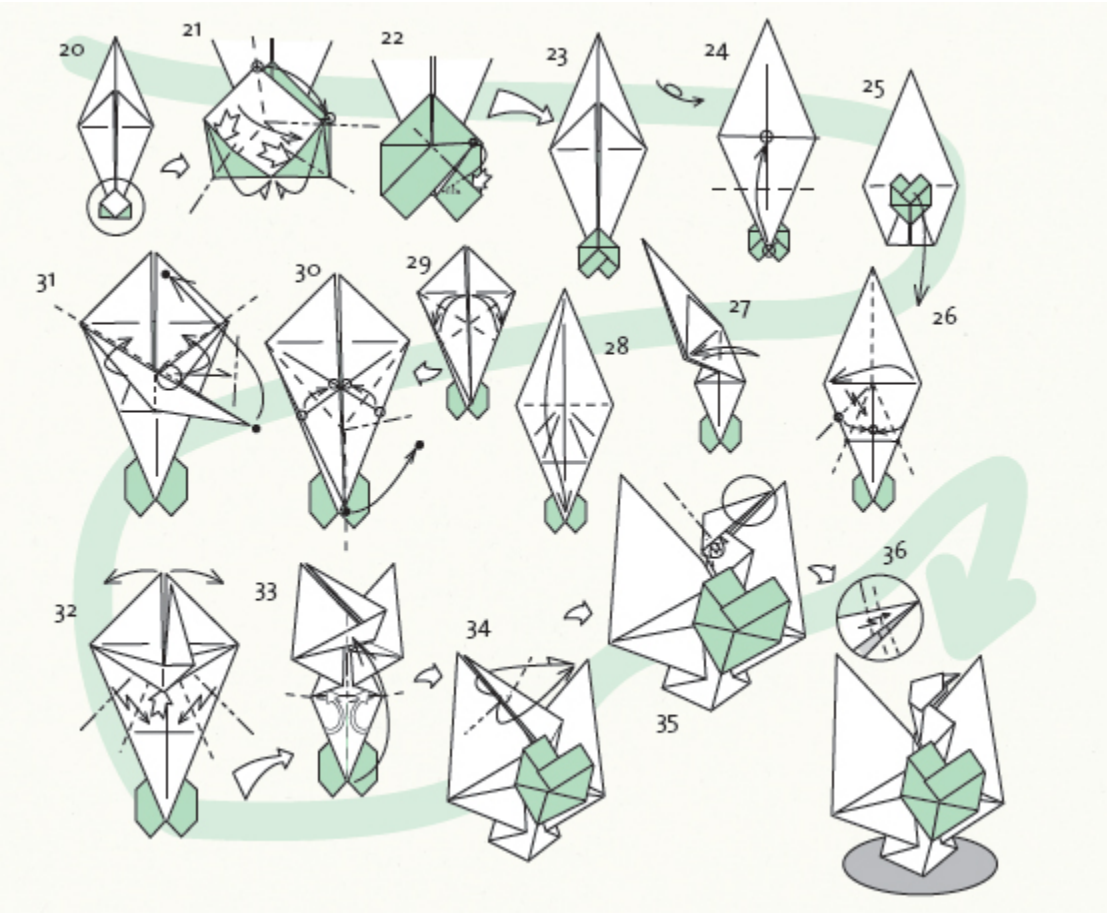
This dove is one of Norio's most internationally famous works. Our Swedish origami master created this perfectly shaped model on the threshold of the new millennium.



9. Unfold and repeat steps 7-9 on the right side.
11. Grip the lower tip of the paper, pinch both sides of the middle crease and guide the tip towards the right. Fold the right edge underneath the left.
12. Place your index finger in the pocket that appears in the lower flap.

14. Move the whole flap towards the left. A small square should appear in the base. The flap's tip should be pointing straight up. Insert your index finger in the flap and carefully pull downwards, making sure that the paper does not tear. Flatten the flap.
15. Fold away from you behind the bottom shape. Steps 15-20 fold as the fish base, see p.16.
17. Fold down so that the two tips meet.
18. Move the flaps showed in the illustration upwards, and push.

Friendship Dove



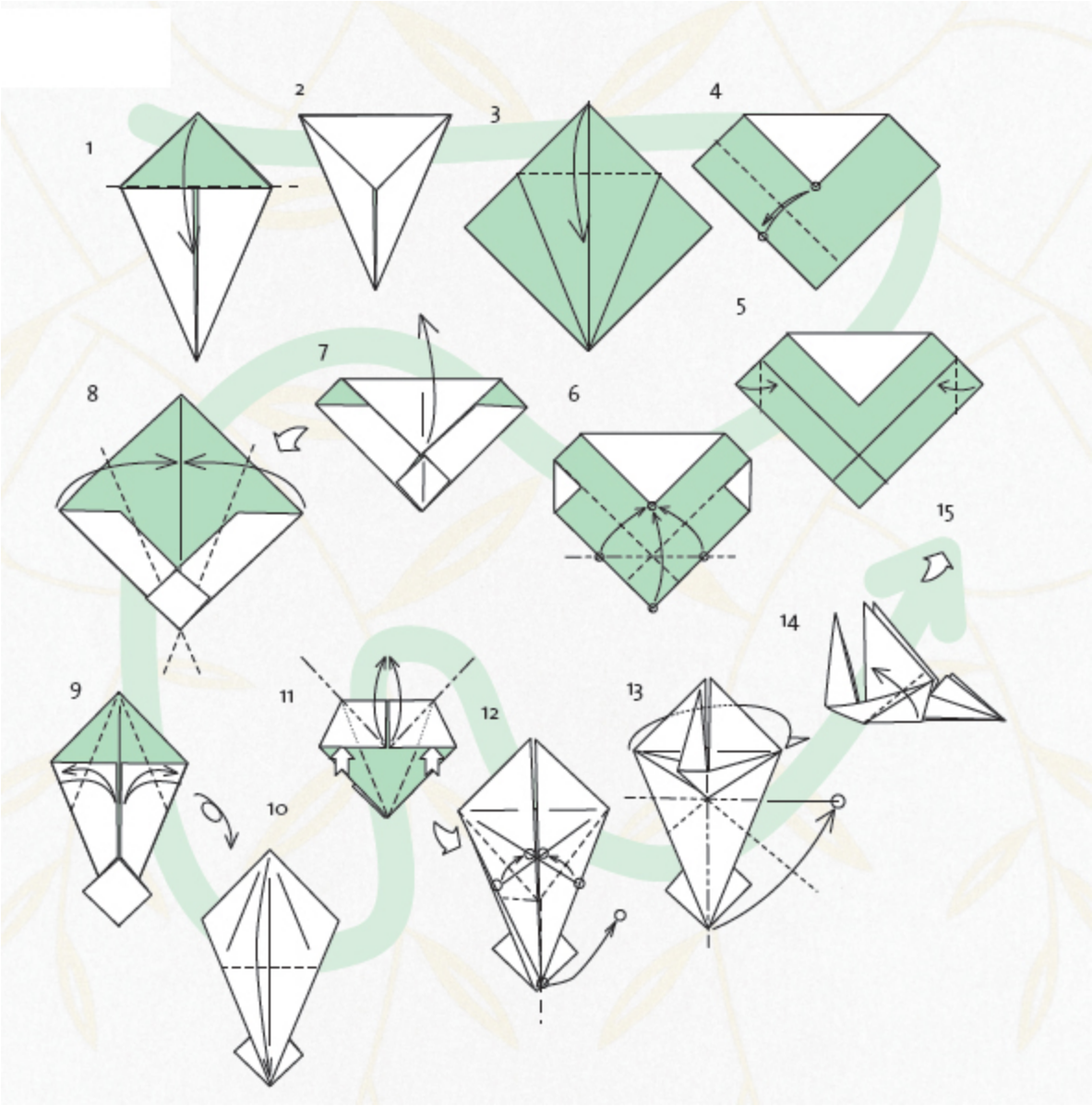
21. Carefully place your thumb in the little triangle to the left and press down so that a rectangle appears. Repeat on the other side. You will then end up with a tip.

22. Fold the tip down behind the lower rectangle.
24. Fold so that the white tip behind the heart meets the marker crease. While you're folding, make sure that you hold the flap underneath the heart together. If you don't, colored lines will show.
25. Fold back to step 24.
26. Fold marking creases in the shape of a triangle right below the diamond shape's middle. Take hold of the point that's marked with the upper circle, move it towards the middle of the triangle and fold. Take the flap on the right and fold it on top as a lid.
27. Unfold and come back to the shape in step 24.
28. Fold down.
29. Fold the upper flap up towards the left so that its side is aligned with the marking crease. Do the same on the other side.
30. Fold so that the illustrated points meet. You will then get a tip that's pointed upwards. Fold the tip down towards the right.
31. Pull the tip up so that it is standing. Grab the edges on both sides and fold open. Press the standing tip towards the right, while also folding a flap underneath it.
32. You now have four lines underneath the tip. Fold so that the lines are parallel with the middle crease.
33. Fold the heart shape upwards. Make sure that you fold so that you get a proper V-format fold as illustrated. If not, the heart will end up too close to the actual dove.
34. First fold down the thin tip that will become the head and neck and make a marking crease. Fold and insert your thumb in the tip itself. Open a little bit and fold outwards to create the head.
35. Do an accordion fold to create a beak. Then fold the neck inwards a bit and fold the cheeks over.

FLAPPING DOVE

The world of origami contains a multitude of bird models. This simple dove model captures the bird's character nicely.

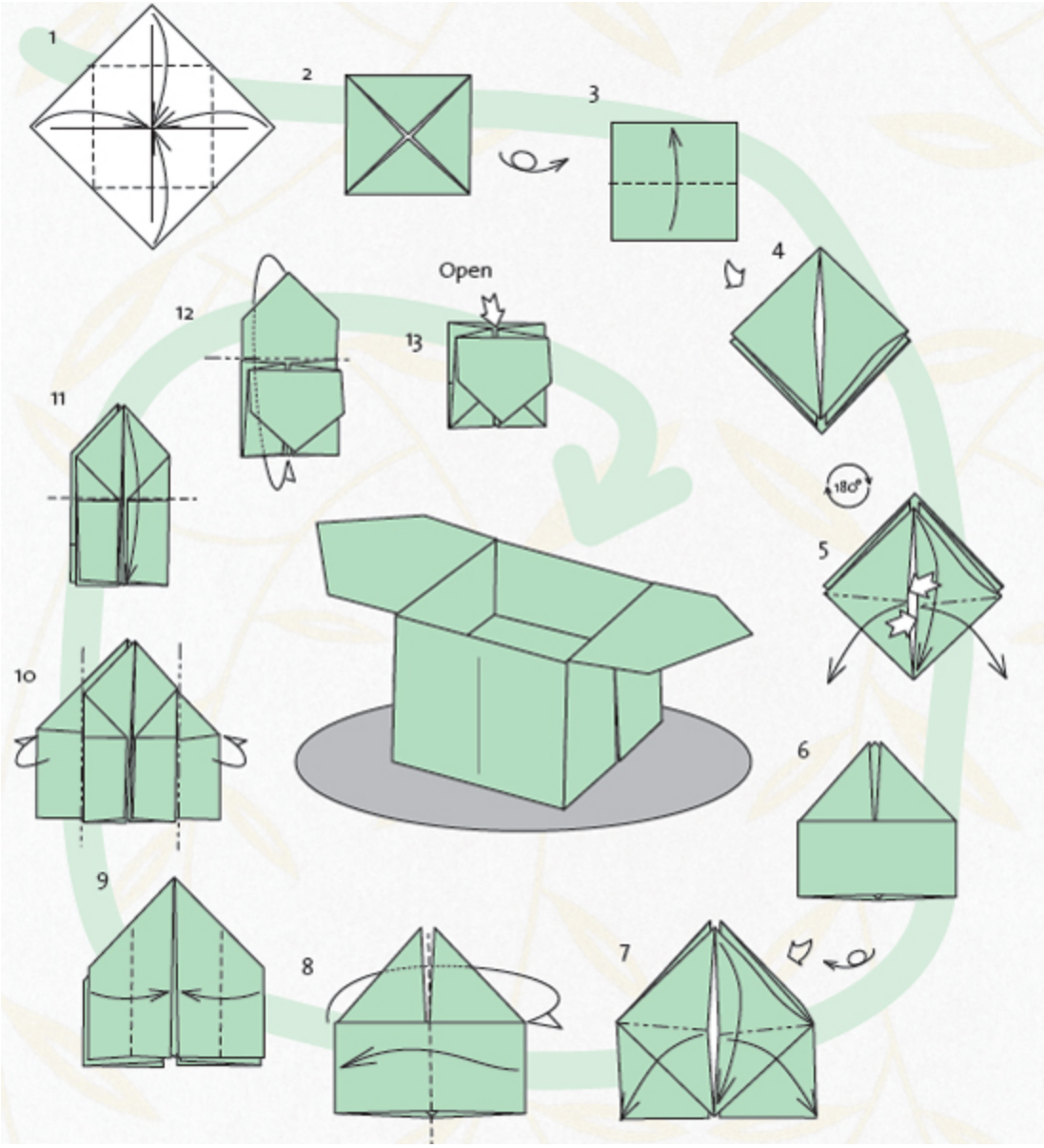
From fish base, step 3, see p. 16



1. If you want a dove with color, fold with the colored side of the paper facing outwards.
2. Unfold.
4. Fold a crease and fold back. Repeat on the other side.
6. Fold the lower tip into the square base 2, see p. 16.
8. Fold inwards, underneath the square base.
10. Fold so that the upper and lower tips meet.
11. Fold the side flaps in towards the middle.

12. From here you fold steps 30-32 of the friendship dove, see p.45. Note: The shape in the middle will be reversed.
13. Fold the lower tip on its middle and carefully steer towards the right. Fold as illustrated. Fold the other wing shape over.

Flapping Dove

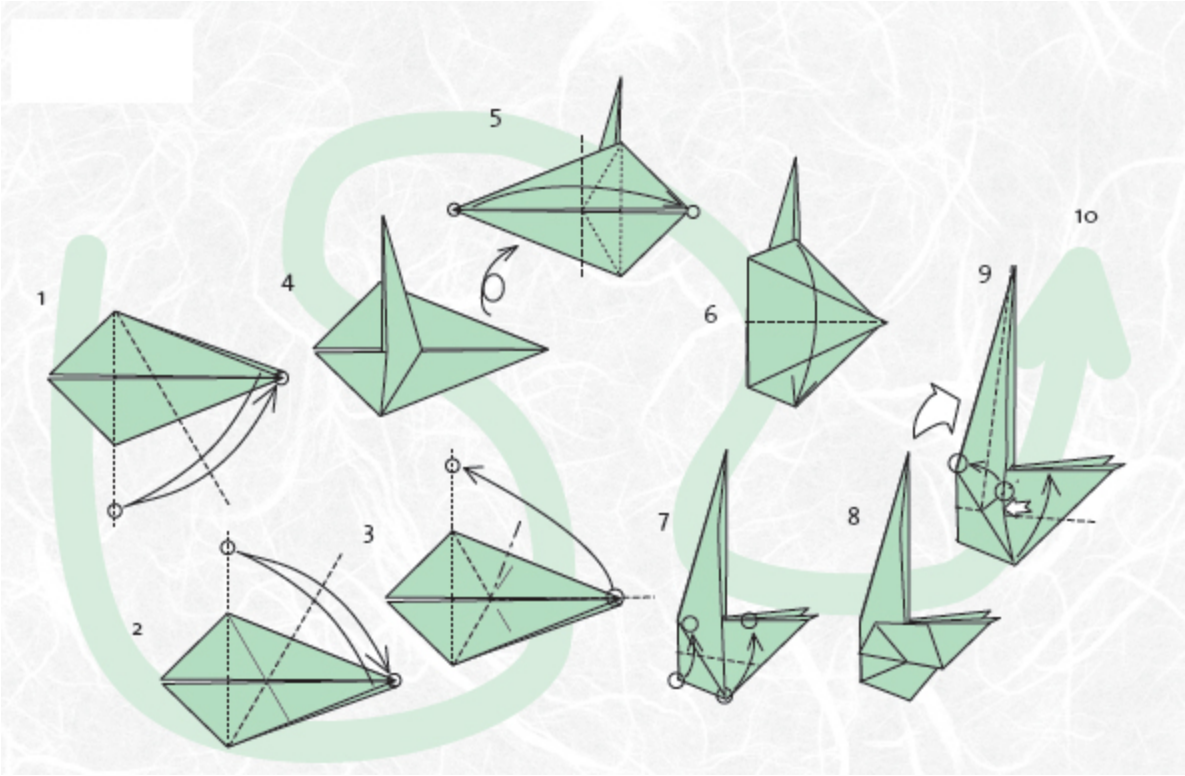


15. Fold along the entire tail part. Fold the wing over. Repeat on the other side.
20. Fold the back of the head inwards to create rounded cheeks. Fold the wings downwards a little on both sides.
22. The dove will flap its wings if you pull on its tail. If you carefully turn the tail in a circle, it will fly!

SWAN FAMILY

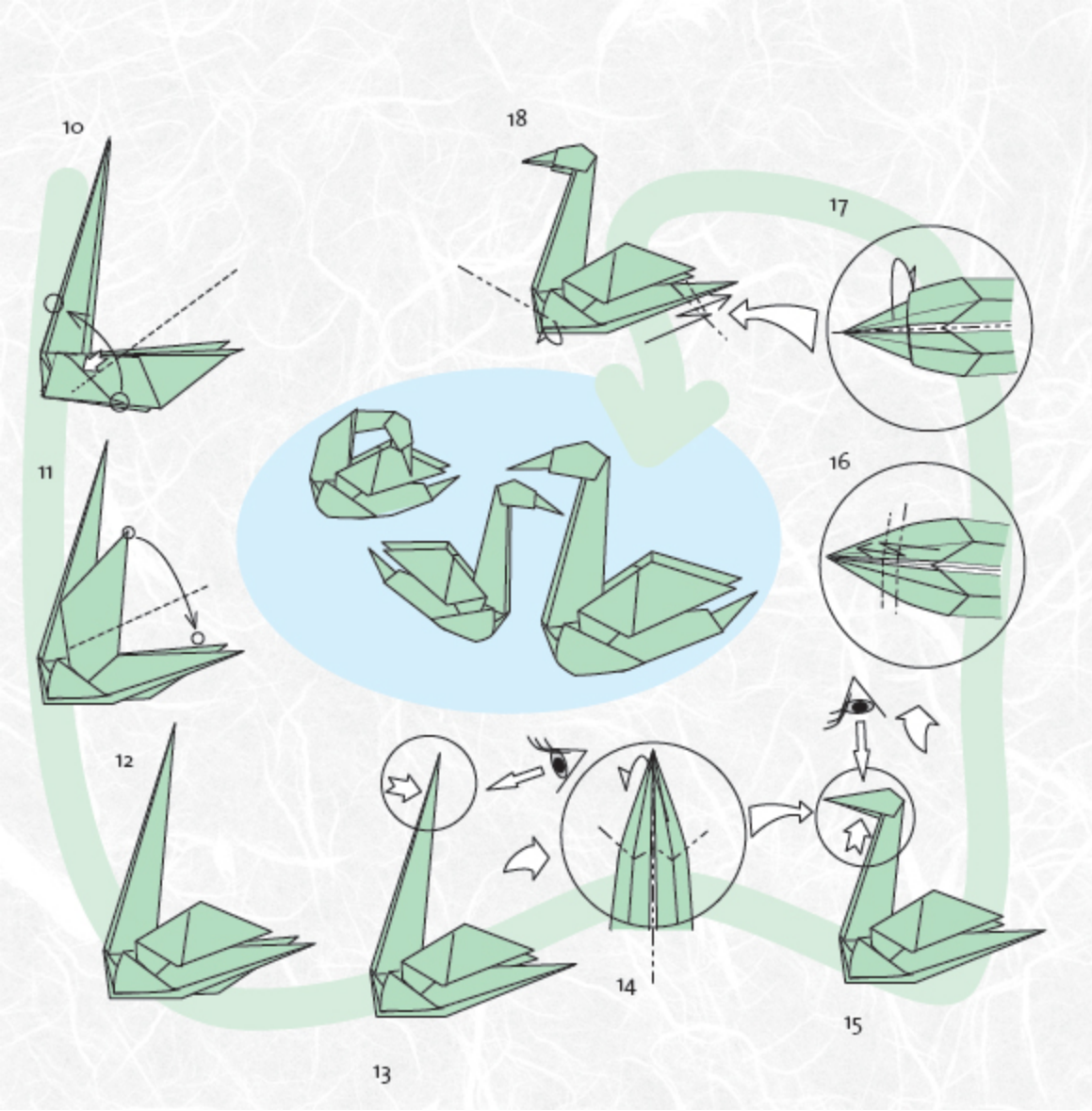
This simple and refined swan model can change its outlook based on how you bend the neck. It can drink water, sail forward with its head held high, or rest its head on its wing. By making multiple swans in different sizes and giving them different positions, you can create the impression of a herd or family.

From fish base, step 6, see p. 16.



1. Take the top flap and fold it so that its tip touches the point marked with a circle. Then unfold.
2. Repeat in the opposite direction; this leaves two marking creases that form a cross.
3. Grab both sides of the top flap and push the middle inwards. Steer it upwards and to the left.
4. This should give you a pointy tip at the middle of the paper. Flatten this as illustrated.
5. Turn the paper and fold the left flap against the right. The folded edge on the left should be aligned with the tip of the flap underneath, as the illustration shows. (This means that the left flap's tip won't end up exactly on the right, but will be a tad bit on the outside.)
6. Fold together over the middle.
7. Fold what will become part of the left wing as the illustration shows. Make a crease.
9. Fold the swan neck. Take the upper flap and fold it on the middle, so that it's half as wide as it was. Fold from the tip down to the base. When the wing starts to aim upwards, insert your index finger between the wing and the body. Fold the wing. Turn and repeat steps 7-9 on other side.

Swan Family



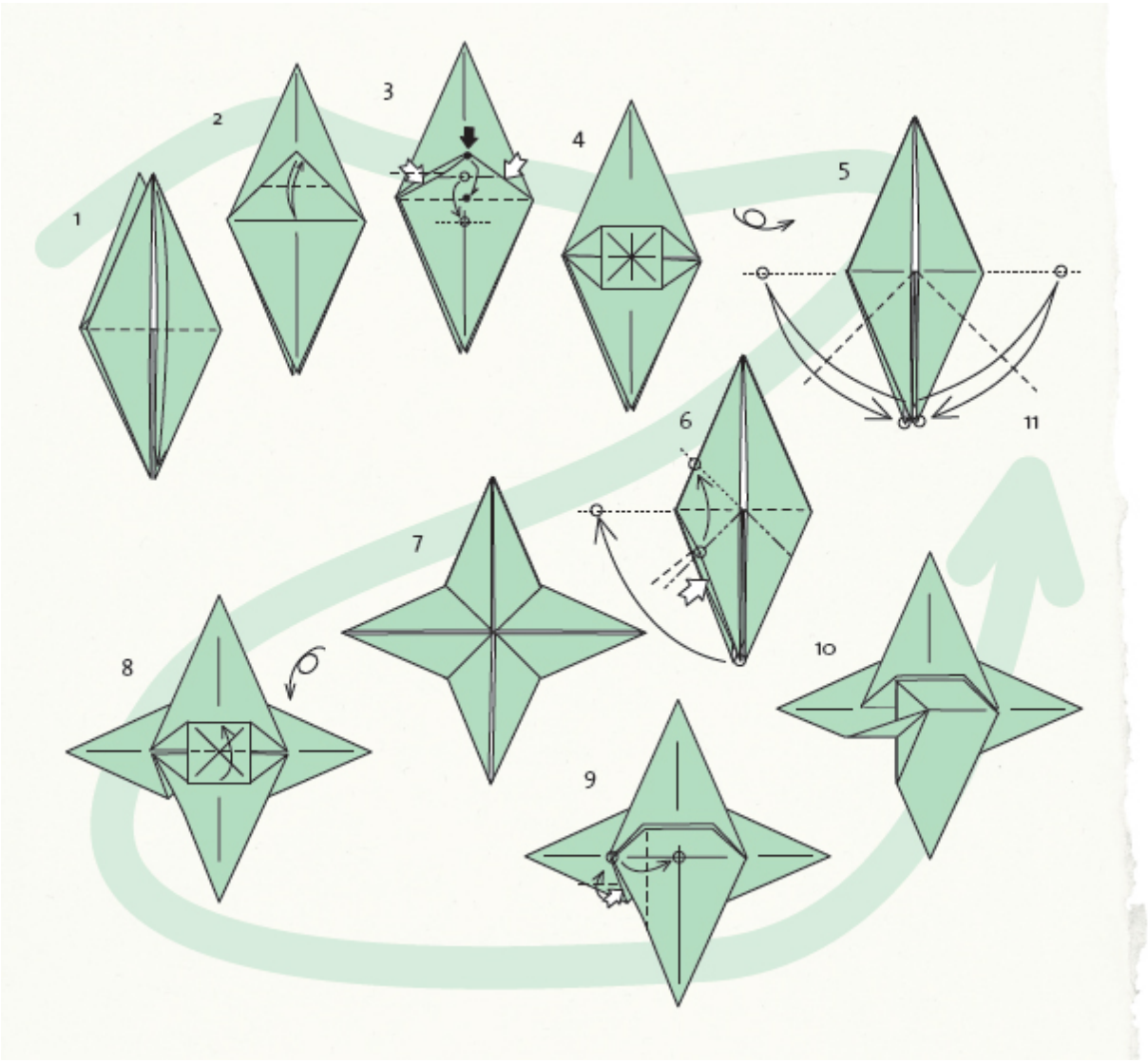
10. Insert your index finger into the small triangular pocket. At the same time, steer the top flap upwards as illustrated. Turn and repeat on the other side.
11. Fold the wing down.
12. Turn and fold the right wing the same way you did the left.
14. Turn the model so that you have the tail facing towards you. Carefully pull out the folds for the head. Fold the cheeks down over the neck. (If this is hard you may draw out the guide lines and fold in accordance with the lines.)
16. Do an accordion fold.

18. Do an inwards fold and an accordion fold on the tail to get it to point upwards. Round the chest by folding inwards on the left and right side.

ARMCHAIR

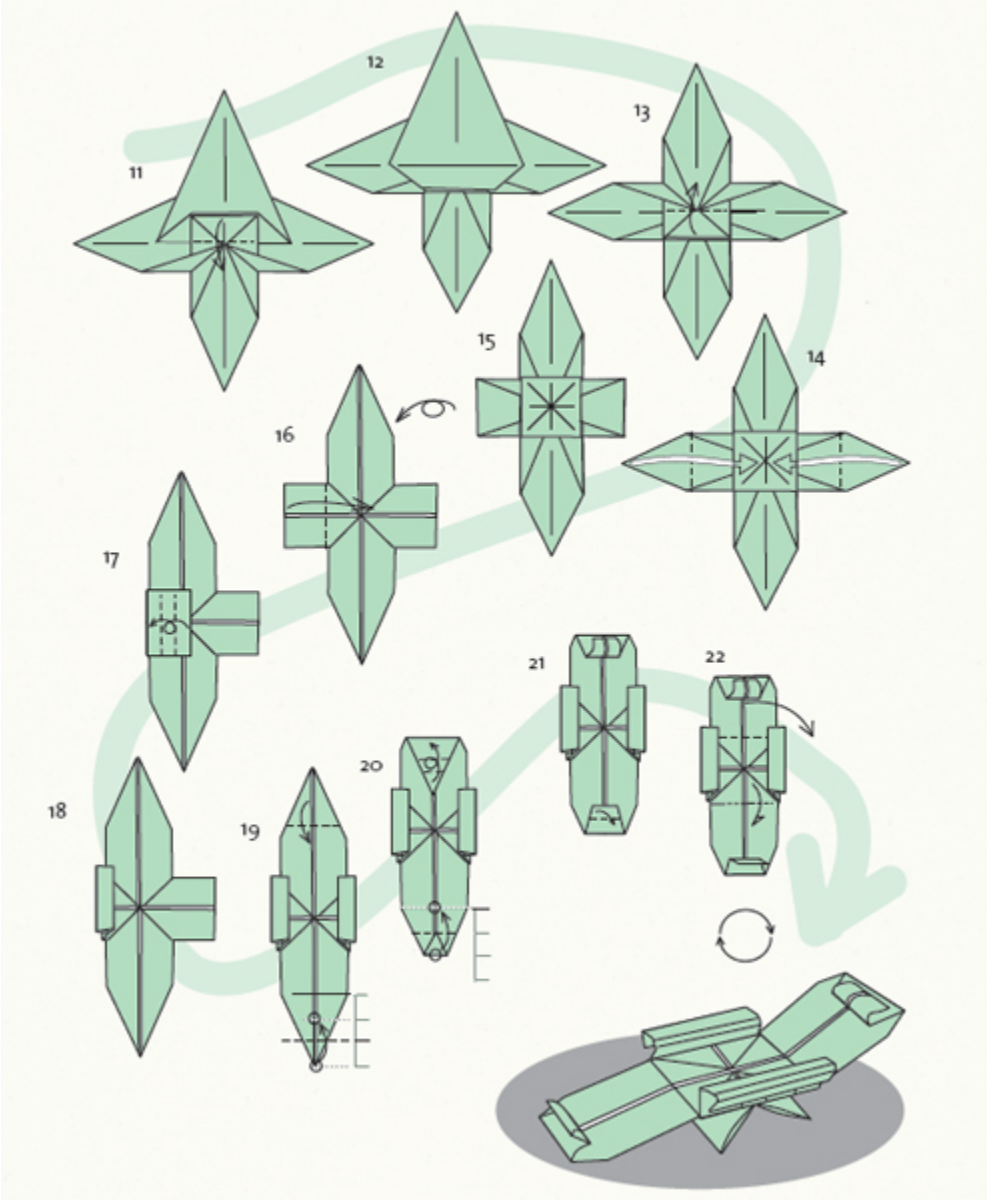
Who wouldn't want to lean back in this charming armchair? It is hard to believe that this model is actually a well developed crane base.

From crane base, see p. 17



1. Fold the top flap down.
2. Fold a crease, and unfold.
3. Push the small triangle upwards so that it points straight up. Set both of your index fingers in the small pockets that appear. At the same time, push with your thumb from above.
5. Fold creases as the illustration shows, and unfold.
6. Steer the upper left fold so that it points straight up. Insert your middle finger in the pocket that appears in the flap. Push from the outside with your thumb, and flatten. Repeat on the other side.
9. Fold a crease, while at the same time inserting your index finger in the pocket that appears. Fold in place.
10. Repeat on the right side.

Armchair



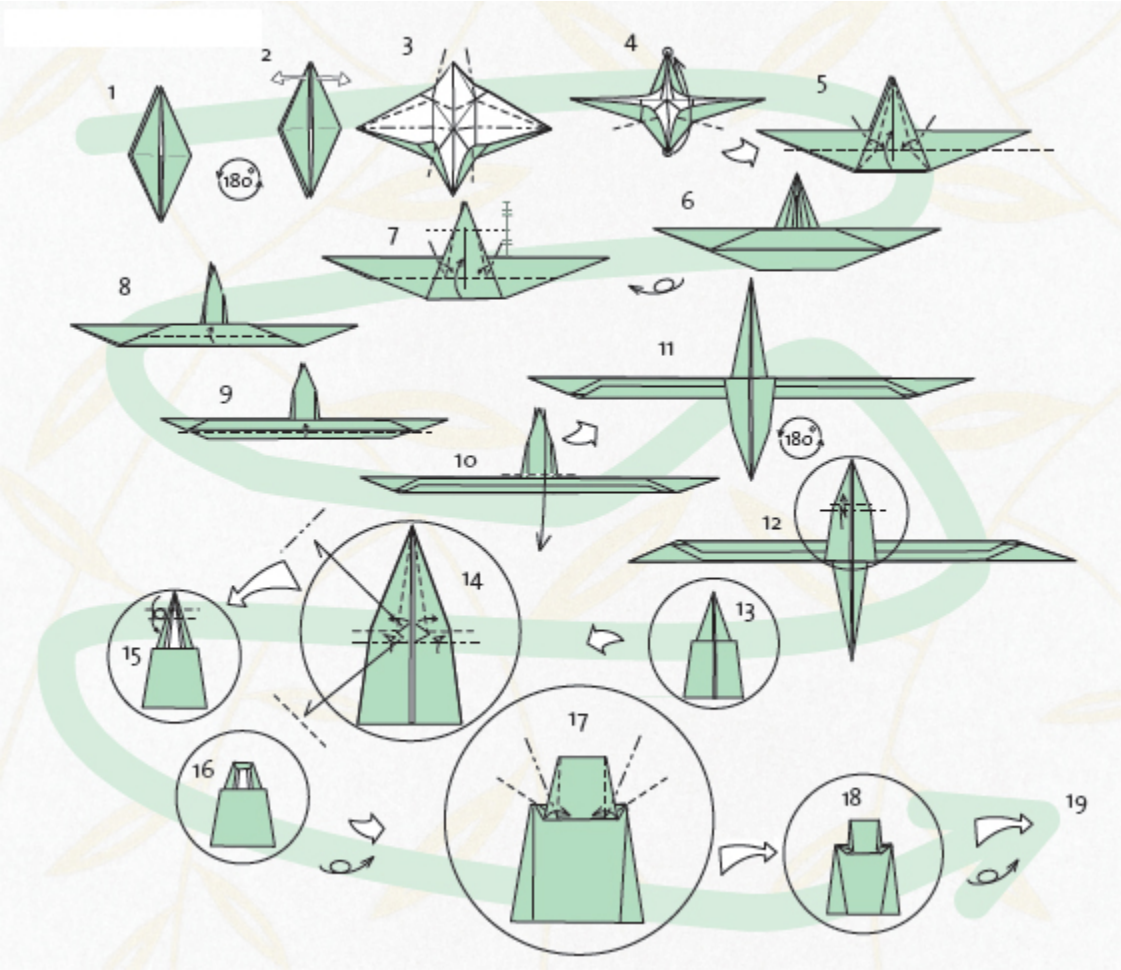
11. Fold down both of the upper flaps, as the illustration shows.
12. Fold the part that will become the armrest in under the future legs.
14. Fold the part that will become the armrest in under the future legs.
17. Fold twice, see symbols, see p.14.
18. Repeat steps 16-18 on the right side.
19. Fold the lower tip inwards a bit, and then fold the footrest.

A swan family gliding on the lake with the city hall in the background.

THE CITY HALL FROM THE CRANE BASE

In Japan the City Hall of Stockholm is known as "the house where the Nobel banquet takes place. " Norio's model of the City Hall was once sold as a tourist souvenir in the form of a placemat. It became greatly popular among Japanese tourists and quickly sold out.

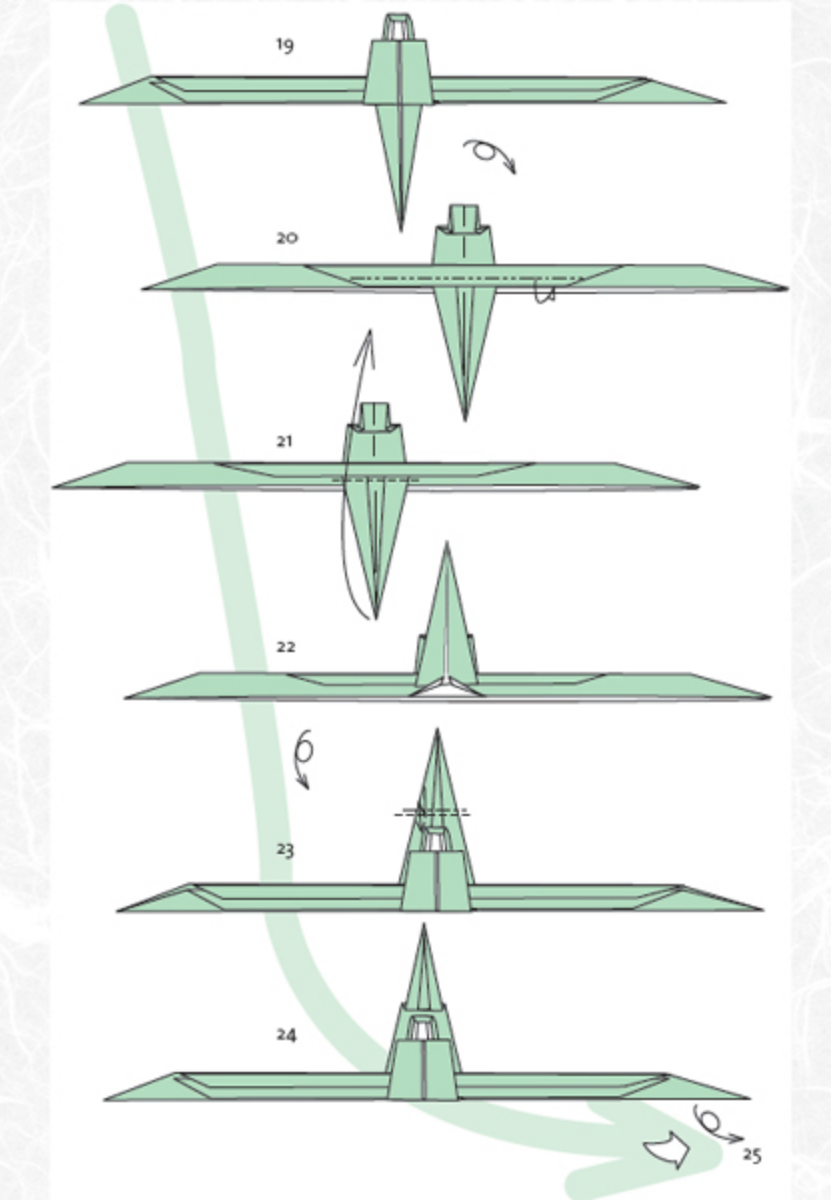
From crane base, see p.17



1. Turn so that you have the part of the model that's split pointed upwards. Unfold.
3. Create an elevated edge of the middle crease, as illustrated. Grip the left and right flaps and fold them as close to the middle line as possible.
5. Fold the bottom that will become the actual building. At the same time fold the spike's sides backwards a little. When you fold the lower flap upwards, lock the side flaps at the same time.
7. Make sure to make the front slimmer as well, as illustrated. (The measurement stick on the right illustrates how much you should fold inwards.)
8. Fold the upper flap.
9. Fold the lower flap as well.

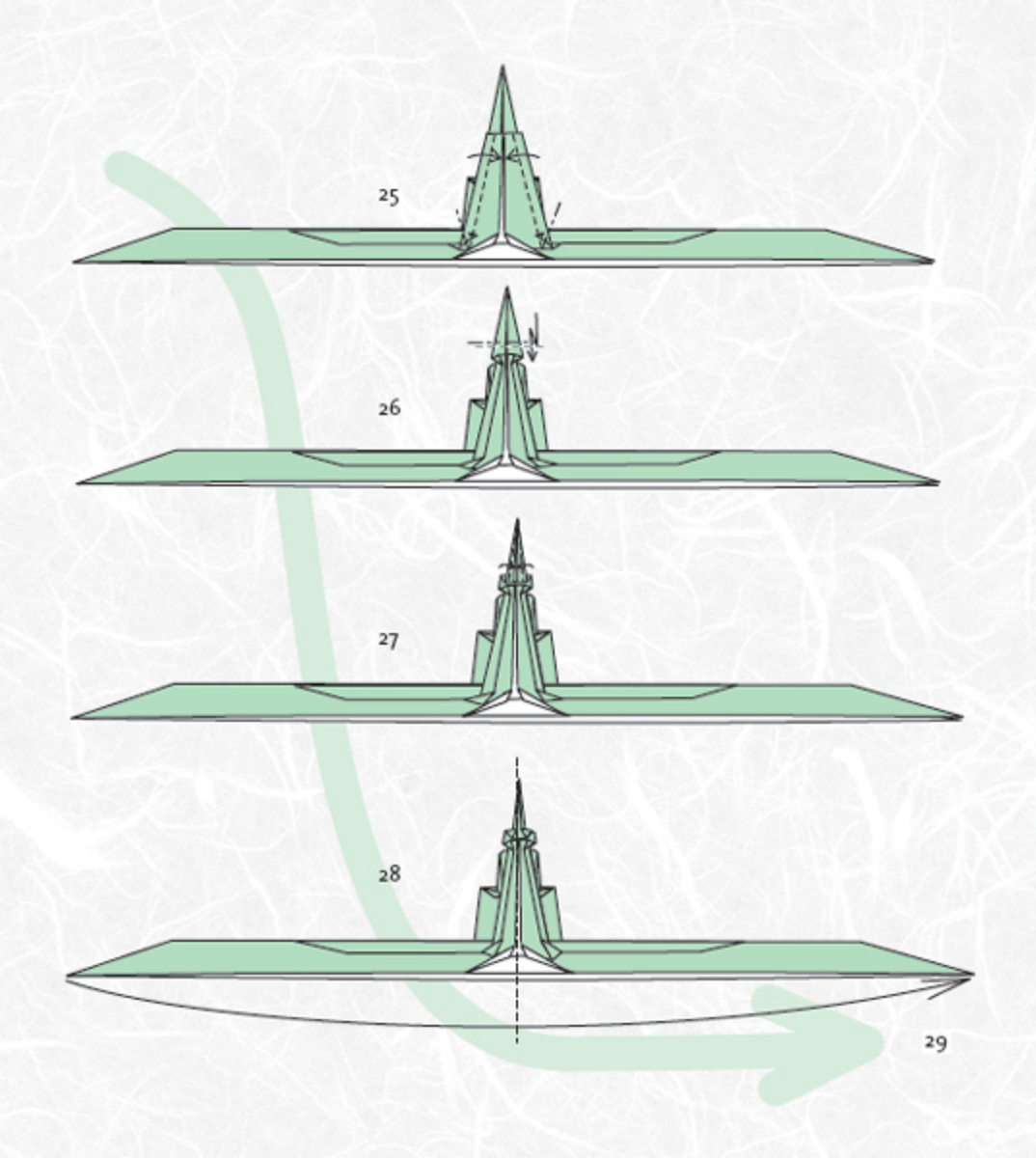
10. Fold the spike's front part down over what will become the actual building.
11. Turn half a circle and fold the upper part of the spike's front.
12–13. Fold an accordion fold and unfold.
14. Fold open the left flap of the spike's upper part, so that the white side of the paper shows. Repeat on the right side and lock by repeating the accordion fold from step 12.
15. Fold the tip of the spike down towards you.
16-17. Turn and fold the spike's upper part making it slimmer.

City Hall from the Crane Base



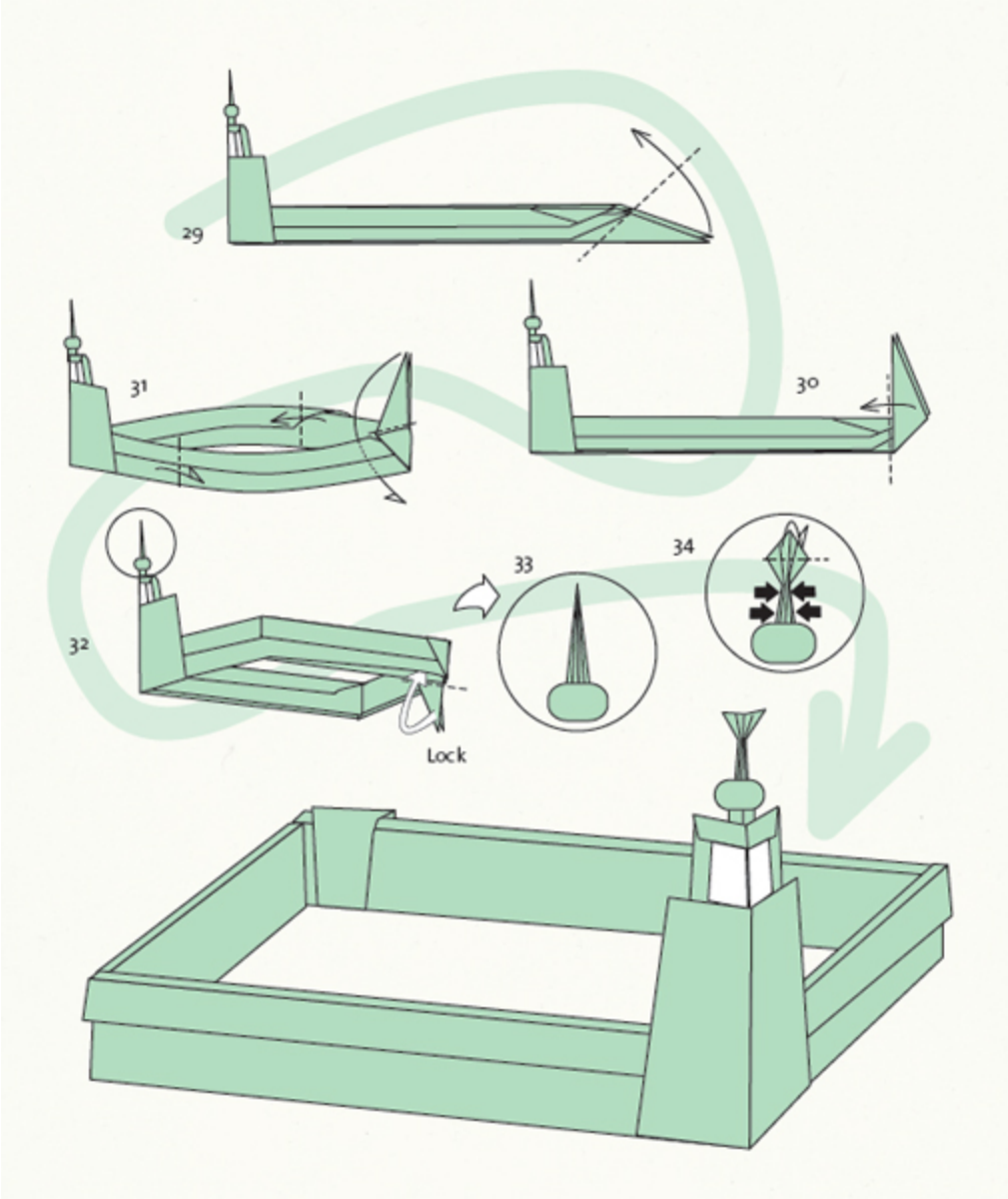
20. Fold in the top flap of what is to become the building.
21. Fold the spike's backside upwards.
23. Do an accordion fold.

City Hall from the Crane Base



25. Make the backside of the spike thinner.
26. Do an accordion fold in order to make the roof emblem. Pinch under the tip so that you can form a bulb.
27. Fold to make the upmost tip slimmer.
28. Turn the model and adjust so that the backside's roof decoration fits the front. The backside should not be so wide that it shows from the front. Fold the model over the middle.

City Hall from the Crane Base

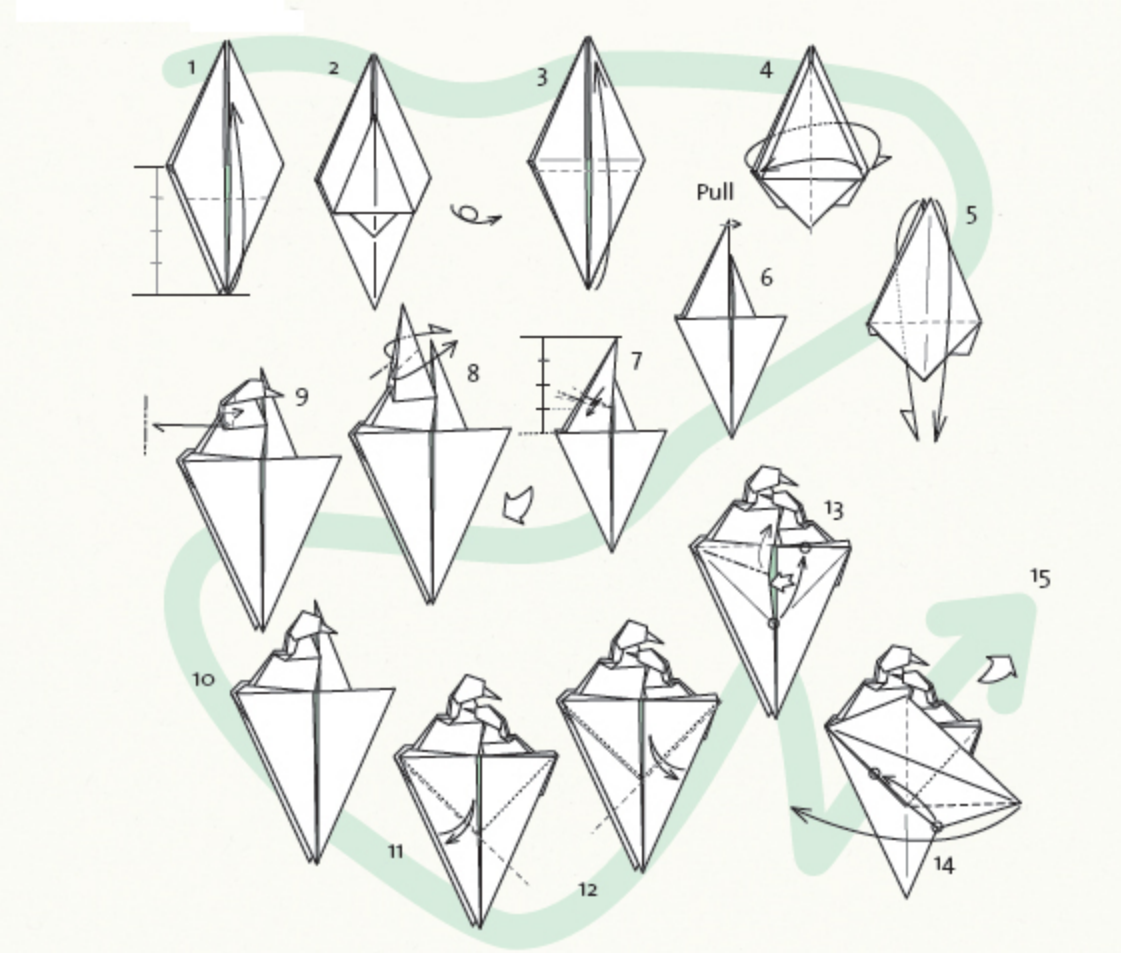


31–32. Fold down, and around, to lock the model.
33–34. If you want, you may carefully open a little bit of the tip-like shape that tops the spike. This will give an illusion of the three crowns.

BIRD NEST

This nice bird nest may be varied in a number of ways. You can either fold two birds in the house and one heart on each side, or you can transform one of the hearts so that you get three birds in the house.

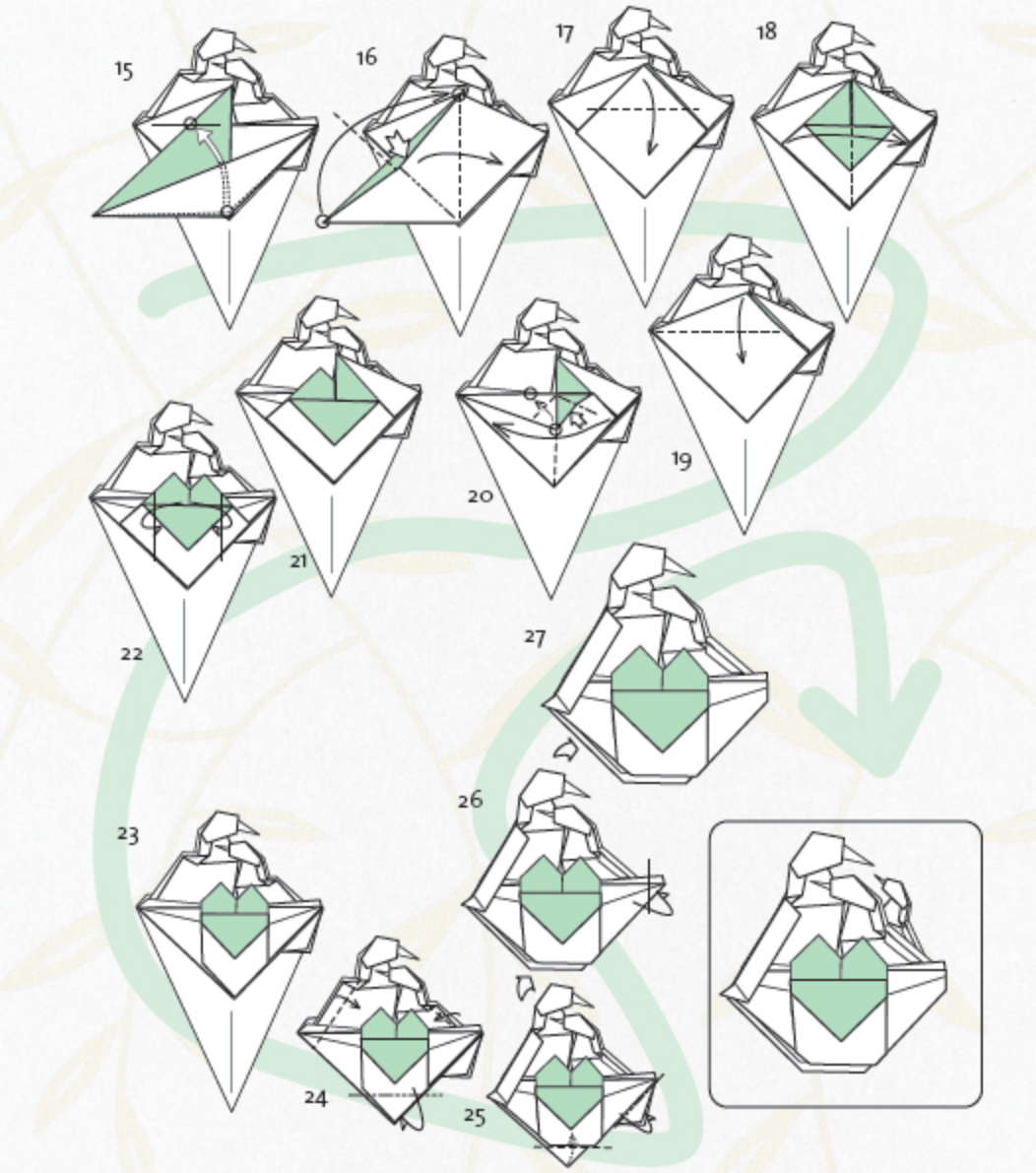
From crane base, see p.17



1. If you wish the heart to have color, you have to remember to fold with the colored side of the paper inwards. You should have the split part of the model pointing upwards. Fold as illustrated.
4. Fold the upper right flap towards the left. Then fold the bottom left flap towards the right.
5. Fold both the front and back flap down.

6. The two tips are to become the female bird and the baby bird. Pull the longer of the two tips towards the shorter one, this way the female and chick come closer to each other.
7. Fold the two creases as illustrated. Fold the upper crease over the lower. After this, fold the female bird's head as you folded the head of the friendship dove, steps 34-35, p.45.
9. Fold inwards to create a more delicate neck. Then fold the head over the neck. Repeat on the backside.
10. The chick is folded in the same way as the female bird, except it is done in the opposite direction. You now have the opportunity to adjust the distance between the female and the baby. 11. Fold creases on the upper flap, based on the triangle below. The lines should look like a cross.
13. Insert your index finger where the white arrow on the illustration is pointing. Grip the cross point of the two creases, illustrated by the circle on the left side, between your thumb and index finger. Carefully guide the paper towards the upper mark, illustrated by the circle.
14. Insert your index finger in the new shape that now appears. Grip the edge marked by the circle and steer it towards the left so that it meets the upper circle marked on the illustration.

Bird Nest



15. Carefully pull the folded flap.
16. Insert your index finger in the little boat-like shape to the right you just made. Open and let the two illustrated point meet so that a square appears.
20. Fold the tip of the left flap upwards, so it is aligned with the bird nest. Place your thumb on the edge and at the same time, fold what will become the heart backwards. You will now see the shape of a heart emerging.
21. Repeat steps 18-21 on the right side.

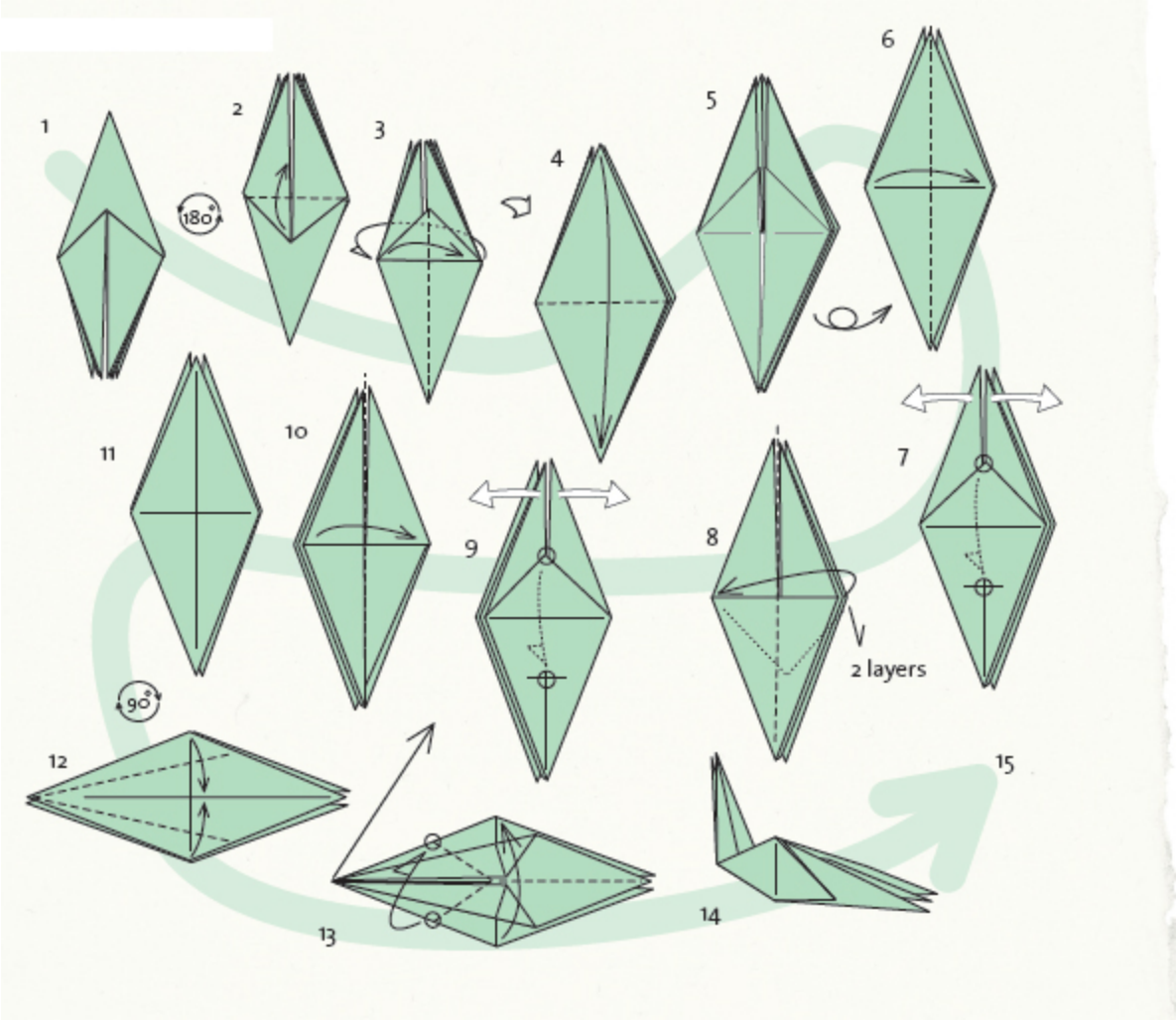
22. Make the heart shape even more visible by folding the flaps behind the heart away from you.
23. Fold the large flap upwards, turn, and fold a second heart shape by repeating steps 14- 22. (Or try to figure out how to make another bird instead of the heart.)
24. Shape the birds by making them slimmer and fold the heart shape inwards so that the bird house can stand.
26. Fold the right flap away from you.

The female bird is lovingly feeding her little ones in the bird nest. In the description, we only illustrate the base form with one chick; see if you can figure out how you would fold this variety.

TYRANNOSAURUS REX

Norio has managed to transform a lily base into the Cretaceous period's most feared animal; the terrifying Tyrannosaurus rex. *The real dinosaur could be up to forty feet tall, but here weft it into a small squared paper.*

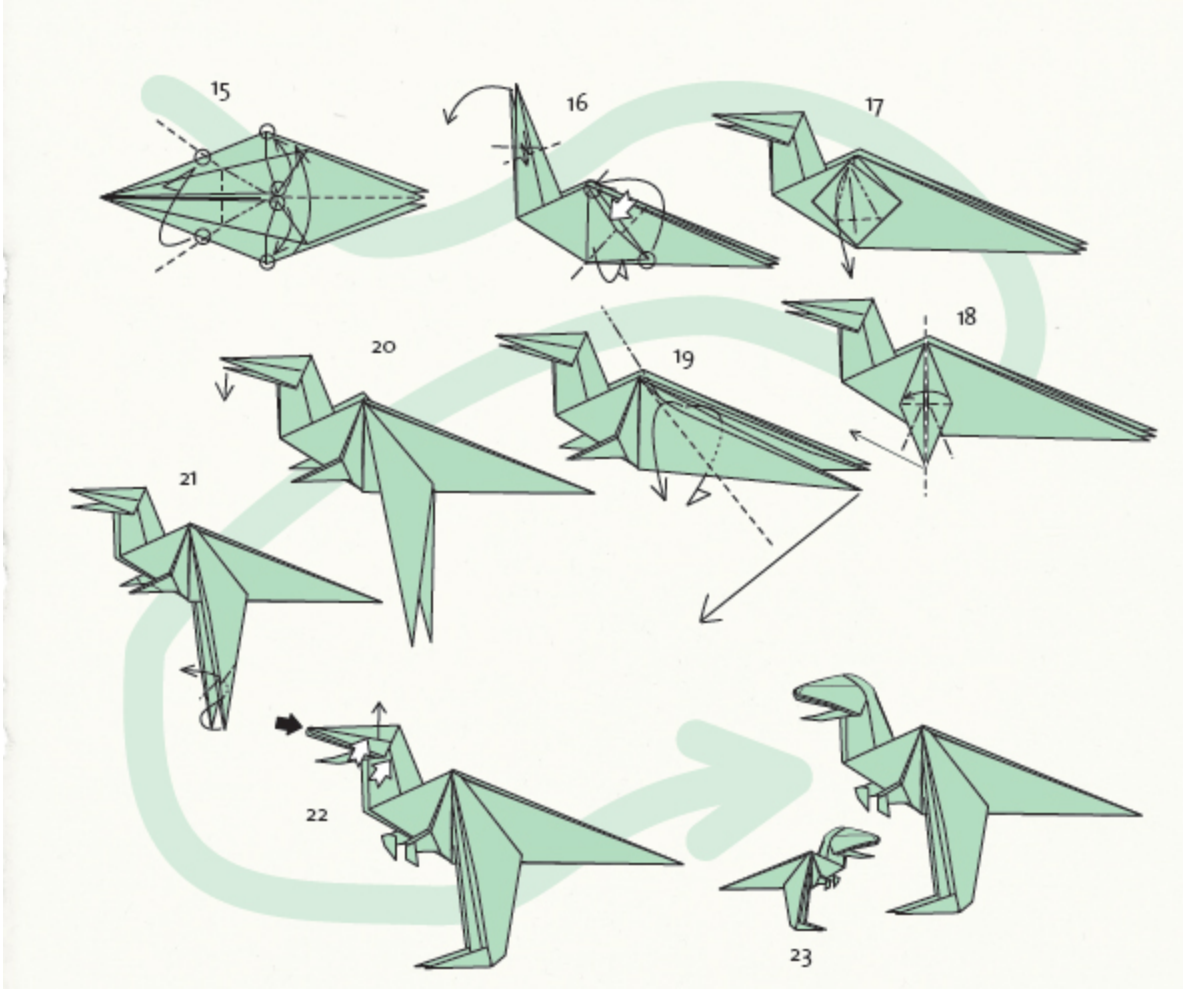
From frog base, see p. 17.



2. Turn the model and fold the small triangle upwards. Take the other three triangle shapes and fold them up as well.
3. Make sure that you have four layers of flaps on the left side, and four layers of flaps on the right side. Steer the right top flap towards the left and the bottom left flap towards the right.
4. Fold down.
5. Turn the model.
6. Take the top left flap and fold towards the right.
7. Grip the two tips and divide them so that the shape widens. Fold the little triangle down and steer back.
8. Fold two layers of flaps from right to left. Repeat steps 7-8.
10. Fold one flap from left to right.
12. Fold the top layer of flaps towards the middle.

13. Grip the left tip and steer it up towards the right.
14. Unfold back to step 13.

Tyrannosaurus rex

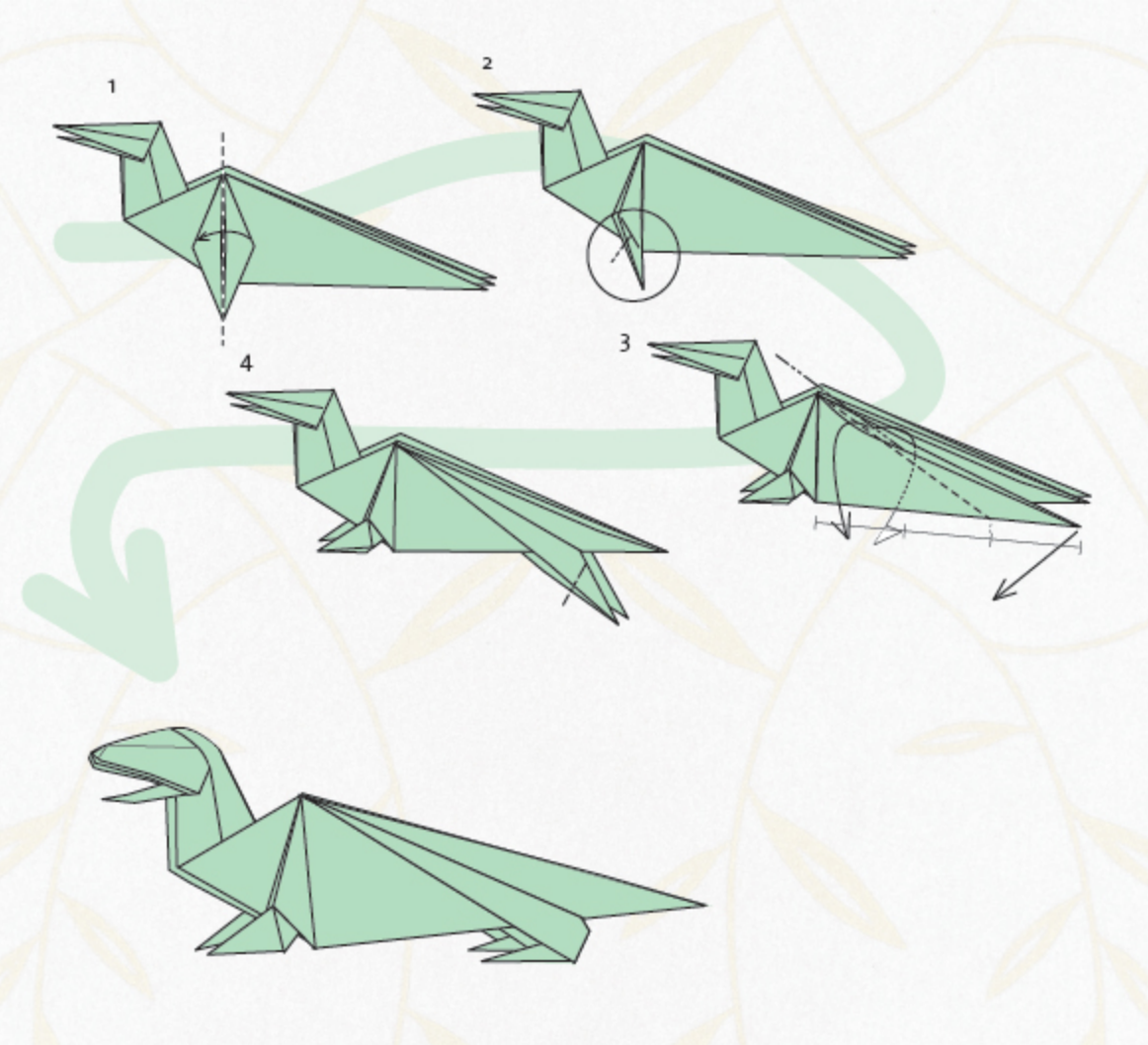


15. Hold down a piece of the flap that's pointing upward. At the same time, unfold the small inner folds, so that two edges appear on each side of the tip.
16. Fold the head down over the neck. Now you will fold the front legs. Insert an index finger, where the white arrow suggests, and fold a square. Out of the square, fold steps 1-4 of the crane base. Repeat on the right side.

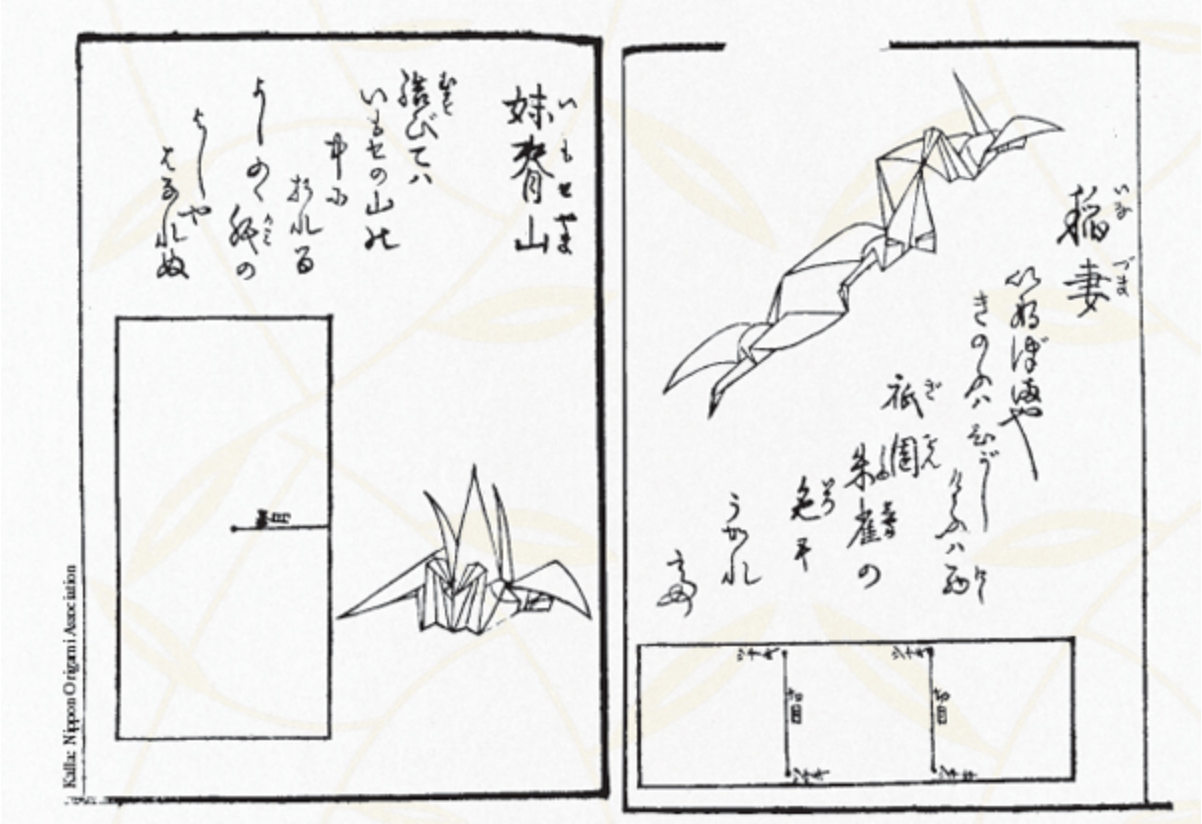
18. Pinch the lower tip of the crane base together and steer it towards the dinosaur body. At the same time, place your thumb behind the base, and push. You will then end up with a foot.
19. First, fold down and make a crease. Then unfold and make an outwards fold.
20. Repeat on the right back leg. Open the mouth and shape it.
21. Do the feet with an inwards fold. Do the front feet with an outwards fold.
22. With a few small tweaks you can easily make the model more realistic looking. Shape the upper fold on the head, so that it doesn't lie as flat against the skull. This gives an illusion of eyes. Experiment with angles, and the dinosaur will end up with a variety of expressions. Push the nose inwards a little so that it becomes a bit blunt.
23. If you want to make a baby dinosaur it is not enough just to change the size—you must also change the proportions of the body. Make the neck shorter and the head bigger.

TORIMOTOSAURUS

Meet Torimotosaurus, a somewhat more tranquil cousin of the Tyrannosaurus rex. *The peaceful, vegetarian dinosaur was often seen folding leaves into small origami artworks before consuming them*.



1. Fold like *Tyrannosaurus rex* until step 18.
2. Fold the front feet with an inwards fold. Make sure the feet are in line with the back of the body.
3. Make the back feet slim with an outwards fold.
4. Fold the back feet with an inwards fold the same way you did the *Tyrannosaurus rex*.



The first books with origami instructions were published in Japan at the end of the 1700s. Here you see instructions for how to fold three attached cranes from a square piece of paper.

Homemade party kit: an envelope with a decorative heart for the invitations, a chopstick rest, and a party hat with a bird attached.

PRACTICAL USES

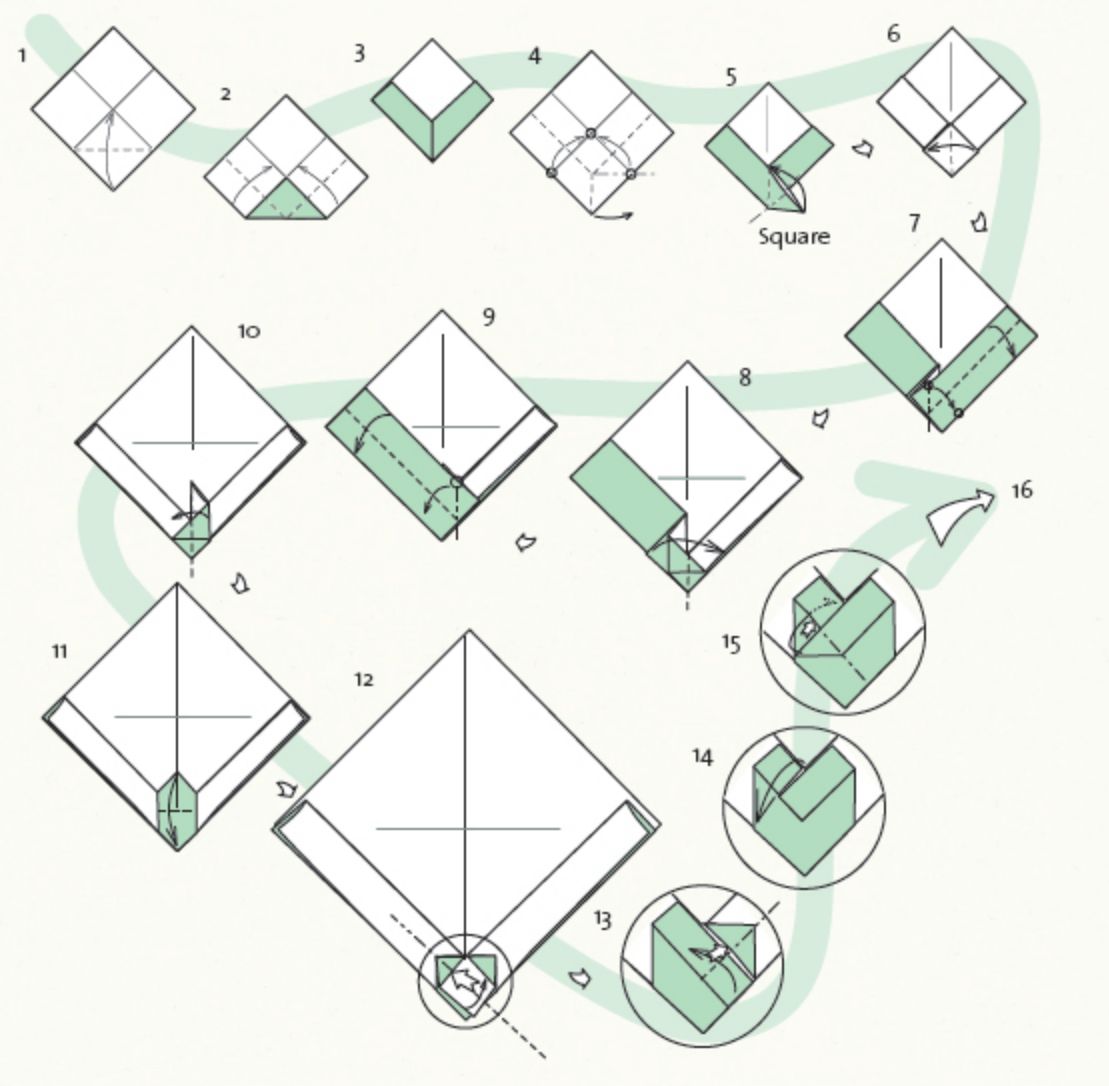
When you know the basics of origami, it is quite easy to fold origami for specific uses. Why not decorate a gift or a card with origami? This is not only decorative and festive, but it is always happily received. Origami is great for decorating a table setting or creating Christmas ornaments. In this chapter Norio presents six origami shapes that will make festivities a bit more festive.

Going to a birthday party? Take a card in an envelope with a decorative heart and a present in a matching gift wrap.

ENVELOPE WITH A DECORATIVE HEART

This is a light-weight envelope model that you may have to glue a little at the edges. It's a great envelope for a gift or flower bouquet, or for a card for Mother s day Father's day or

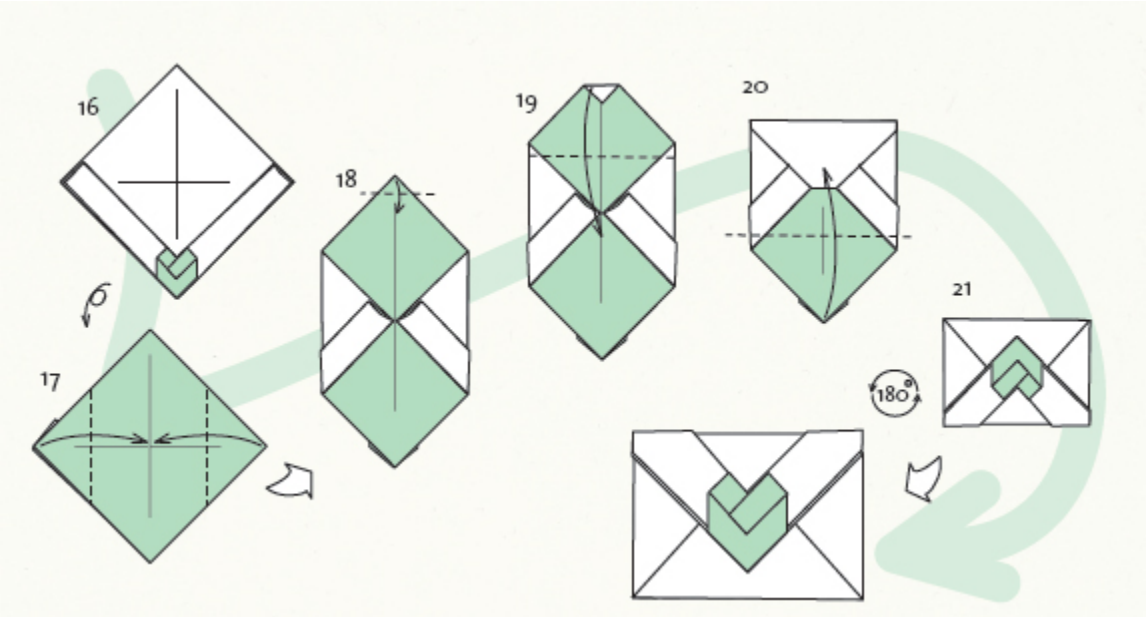
Valentine's Day (It is best suited for personal delivery as the heart might tear off during mailing).



1. Fold the square in half and unfold. Fold it in half again the other way so you end up with two creases. Then fold the little triangle as pictured.
3. Unfold everything.
4. Fold the two lower points, signified with circles on the picture, towards each other so that they meet at the upper circled point.
5. Fold a square base out of the small pointed flap.
7. First fold the upper flap of the square base down towards the middle of the paper. Then carefully fold the right rectangular flap down.

8. Fold the left corner of the square base to the right.
9. Fold as in step 7.
12. Insert a finger in the small flap as pictured and gently pull upwards to reveal a rectangular square.
13. Repeat the process on the right side.

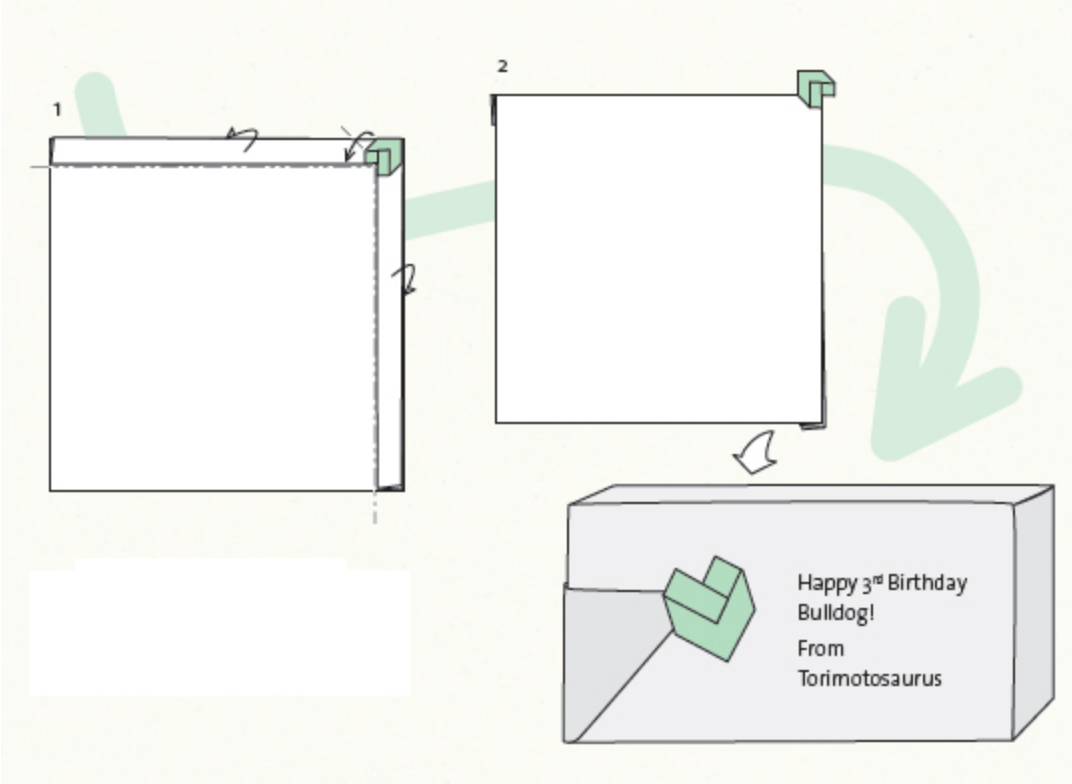
Envelope with a Decorative Heart



GIFTWRAP WITH DECORATIVE HEART

If you know how to fold the envelope with a decorative heart, you can use the same base with a heart (see previous page) to make some great gift warp. You can move the heart up, down, right, left, forwards, and backwards. This provides the opportunity to shape the gift the anyway you want. The heart will end up wherever you want!

From envelope step 16, see p. 68



1. Fold the edges away from you. This way the heart will be attached to one flap, and may be moved around freely.

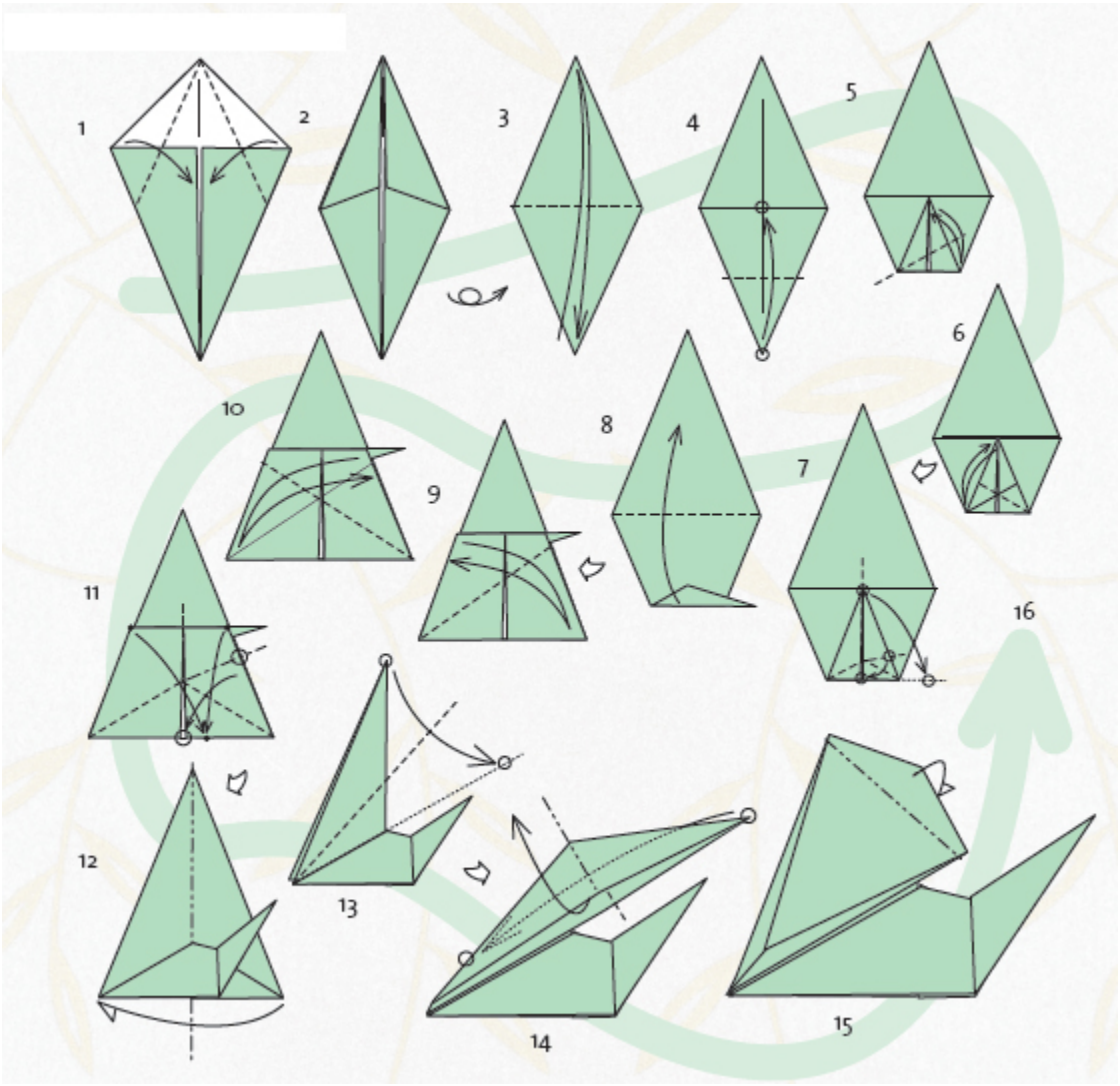
All ready for the party! Give the guest a dog party hat dog, and rest the chopsticks on a small cat.

DOG—PLACECARDS OR CHOPSTICK REST.

Norio usually folds this dog model quite small and uses it as a chopstick rest. (When you set the table in Japan, the chopsticks should be placed below the plate and the tips should be resting

on a small stand, which is usually ceramic.) However, you can just as easily make the dog a bit larger and use it as a place card —or even just a table decoration.

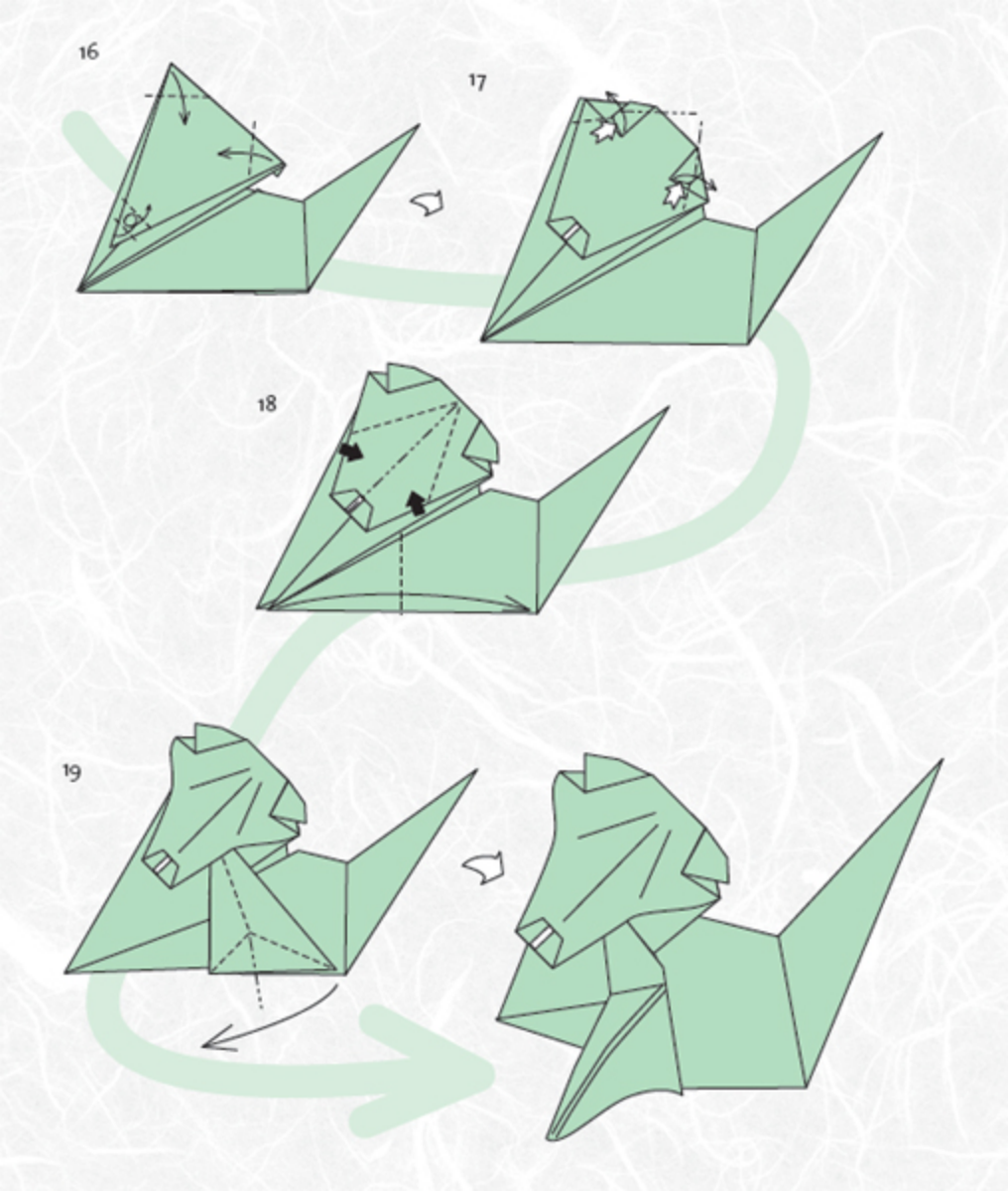
From fish base, step 3, see p. 16



1. Fold a crease in the middle and continue folding as the illustration shows.
5. Fold the triangle shape askew, so that the left side of the triangle is aligned with the base. Unfold.
6. Now fold the triangle shape in the same way on the left side.
7. Fold the triangle together over the middle and steer down to the right.

9. Fold the left edge of the front flap down, so that it rests against the triangle's lower edge. Unfold.
10. Repeat on the right side.
11. Fold the two points, marked by circles, together. Fold the upper shape that is now showing downwards (the pointy flap on the right side.) Steer the fold down towards the middle crease of the triangle. Hold tight in place. At the same time grip the fold that's marked with a circle and steer that to the far left. Then, steer towards the middle.

Dog—Place Cards or Chopstick Rest

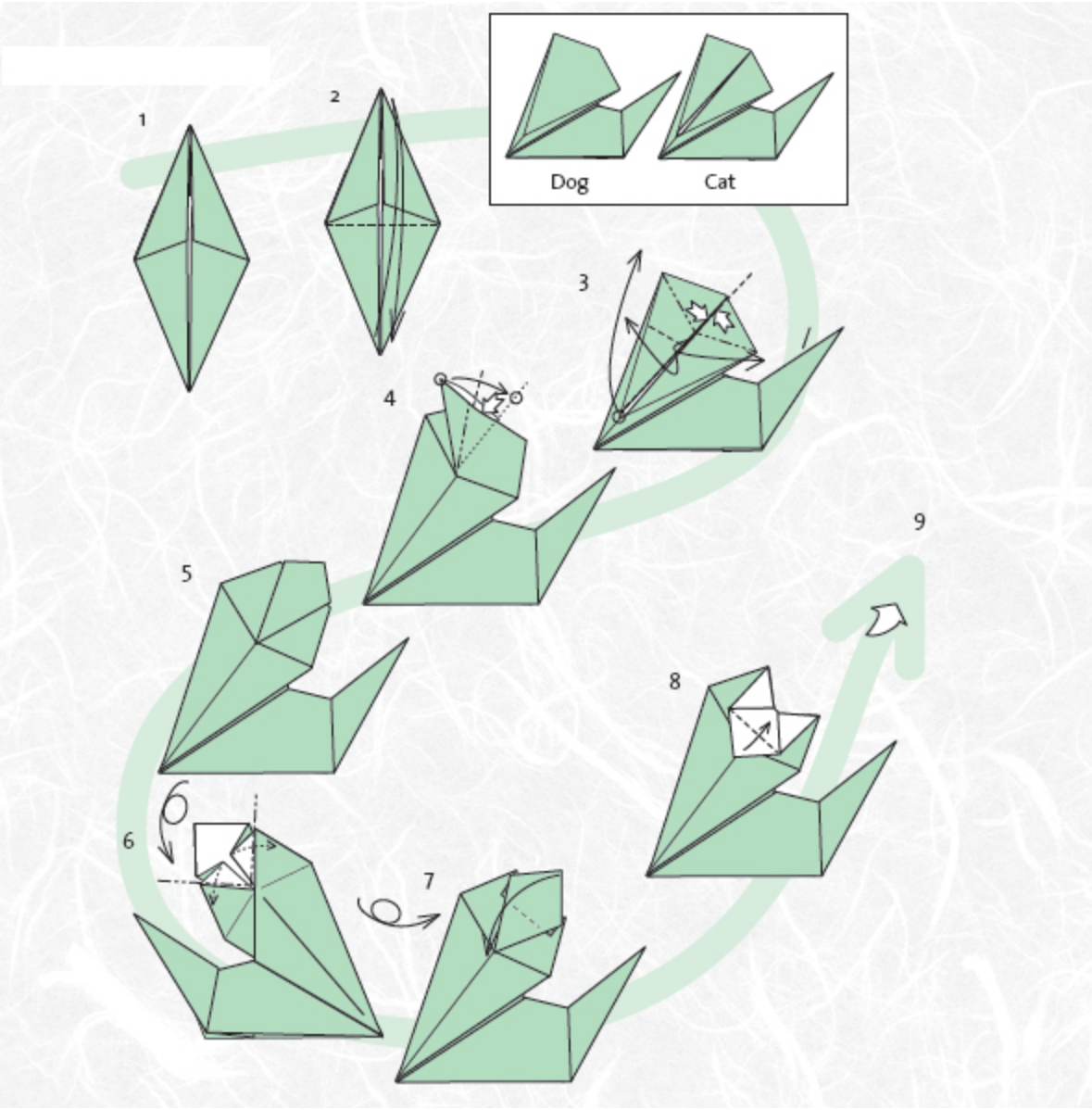


18. Fold to give the face a bit more volume. If you will use this as a placement card or chopstick rest, you are now done.
19. If you want to make the dog look a bit more realistic, you may bend and shape the front leg a little more.

CAT—PLACE CARDS OR CHOPSTICK REST

This cat model is folded very similarly to the dog on p. 71. Norio usually alternates between using the dog or cat as a chopstick rest at his parties. But the cat works just as well as a placement card or table decoration.

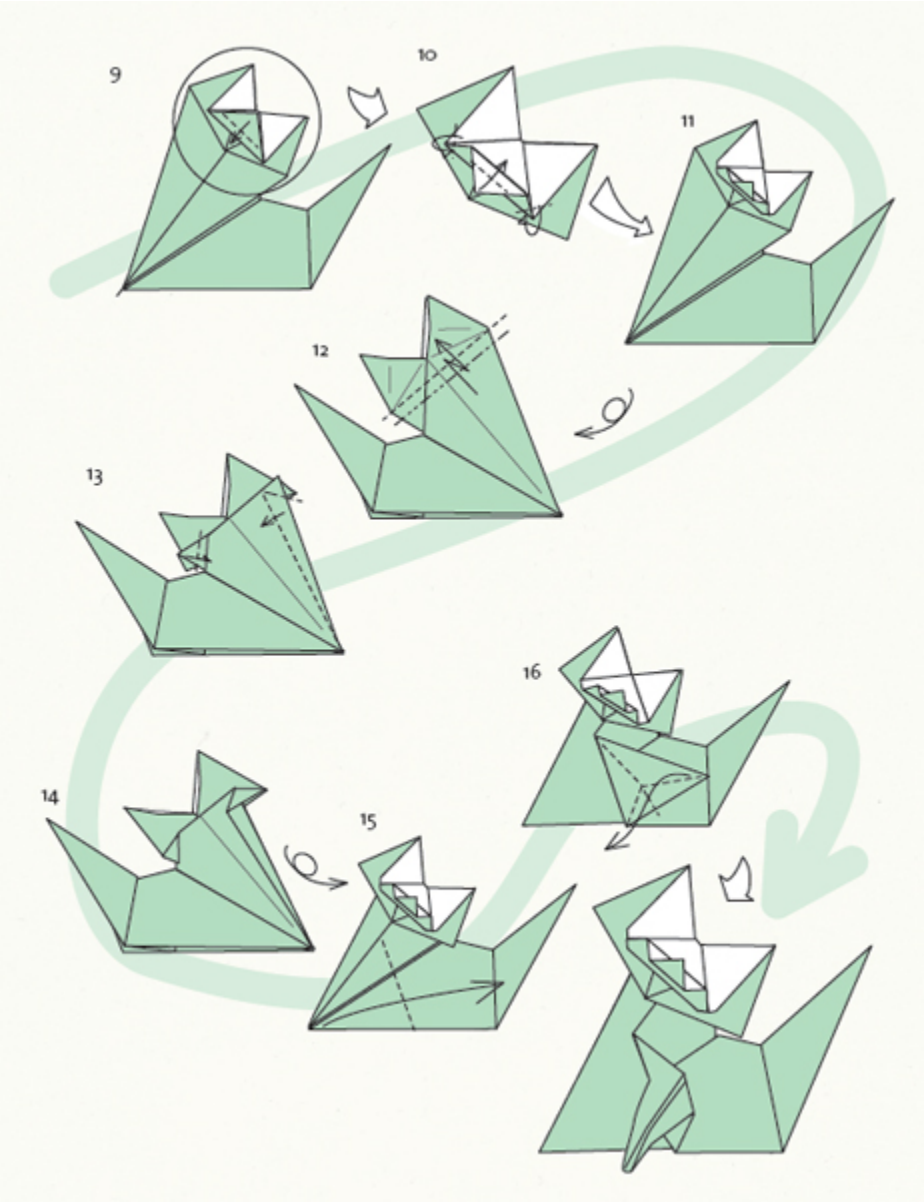
From dog, step 2, see p.71



1. When you fold the cat, don't turn the model. Fold steps 4-15 from the dog instruction, p.17.

3. Fold a crease. Then carefully wrap as the illustrations show.
4. Fold the two points, marked by circles, towards each other. Then fold the appearing flap down towards the right.
6. Place your index fingers on each side of the head shape and bend backwards.
7. Grab the paper by the top tip and carefully pull out.

Cat—Place Cards or Chopstick Rest



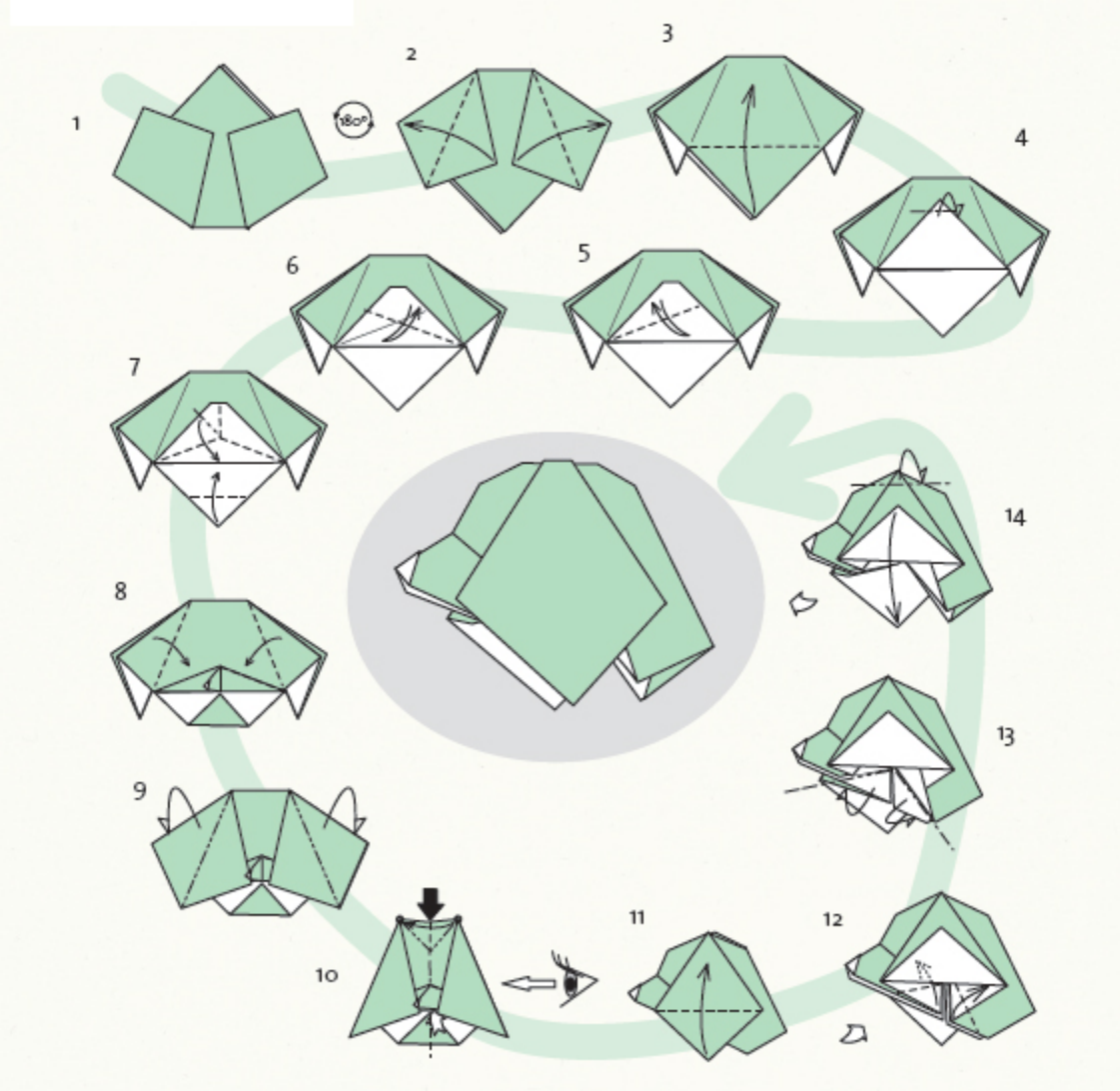
9. Fold the upper flap downwards over the middle and flatten.
13. Do an inward fold behind the ears.

PARTY HAT—DOG

One of Norio's colleagues was once invited to a party where everybody was asked to wear something unique on their heads. He couldn't find anything worth wearing in the stores and therefore asked the origami master to fold him some sort of party hat. The hat was a great success—Norio's friend won the award for funniest headpiece.

This party hat is usually a favorite at children's parties as well! As long as you make sure to lock it properly, as directed by Norio's instructions, this hat can survive many a wild game! Try to draw some eyes on the dog as well!

From traditional tulip, see p.23

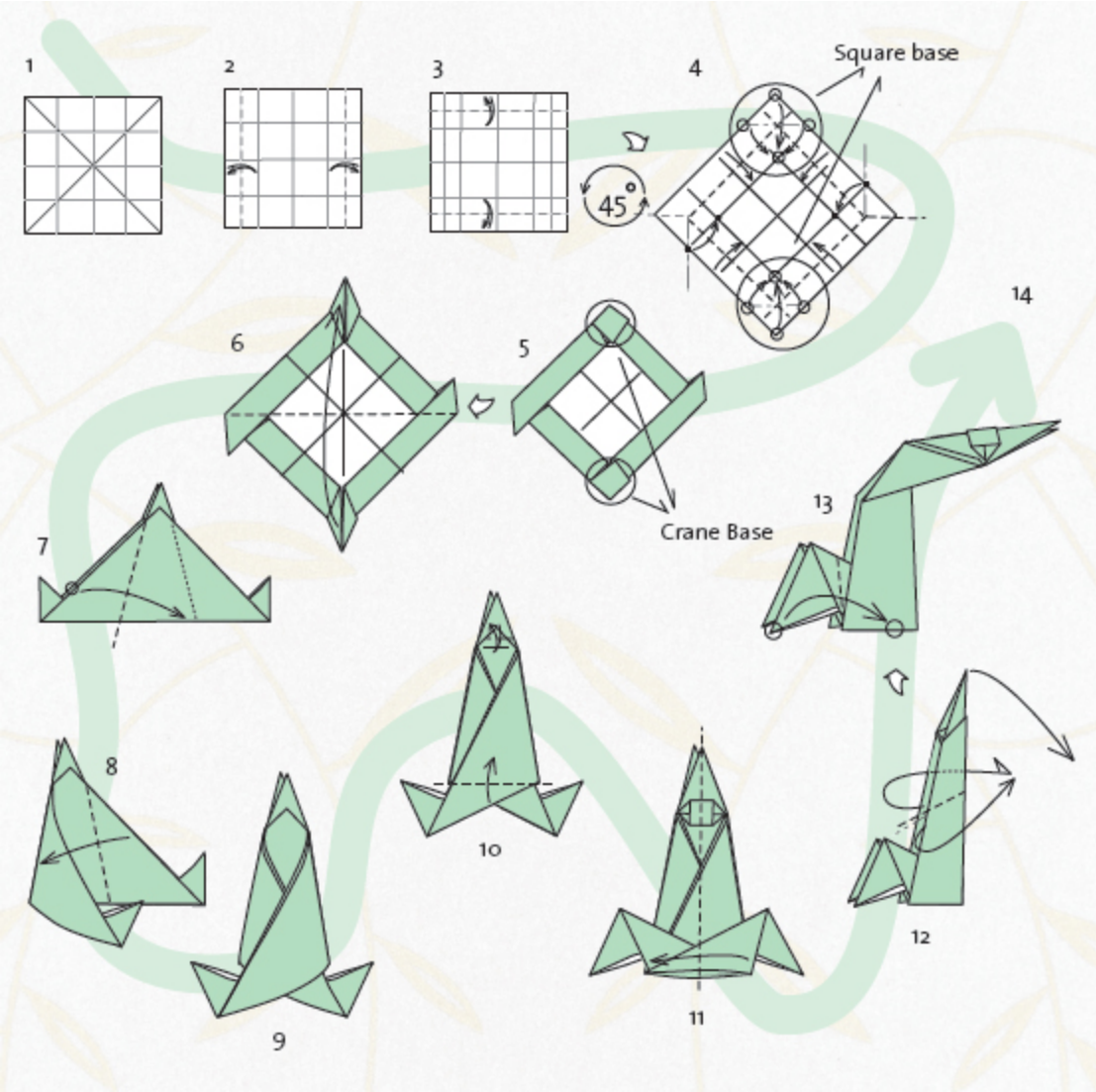


1. Fold the ears.
5–7. Fold creases to make a cross. Grip the white nosetip; Pinch both sides of the middle line and steer upwards.
12. Lock by folding the inner flaps inwards on both sides. Turn and repeat on the other side.

PARTY HAT—BIRD

Norio was asked by an acquaintance if he could possibly make some sort of beanie or hat. He was showing a collection of knitted attire at Beckman University of Design's fashion

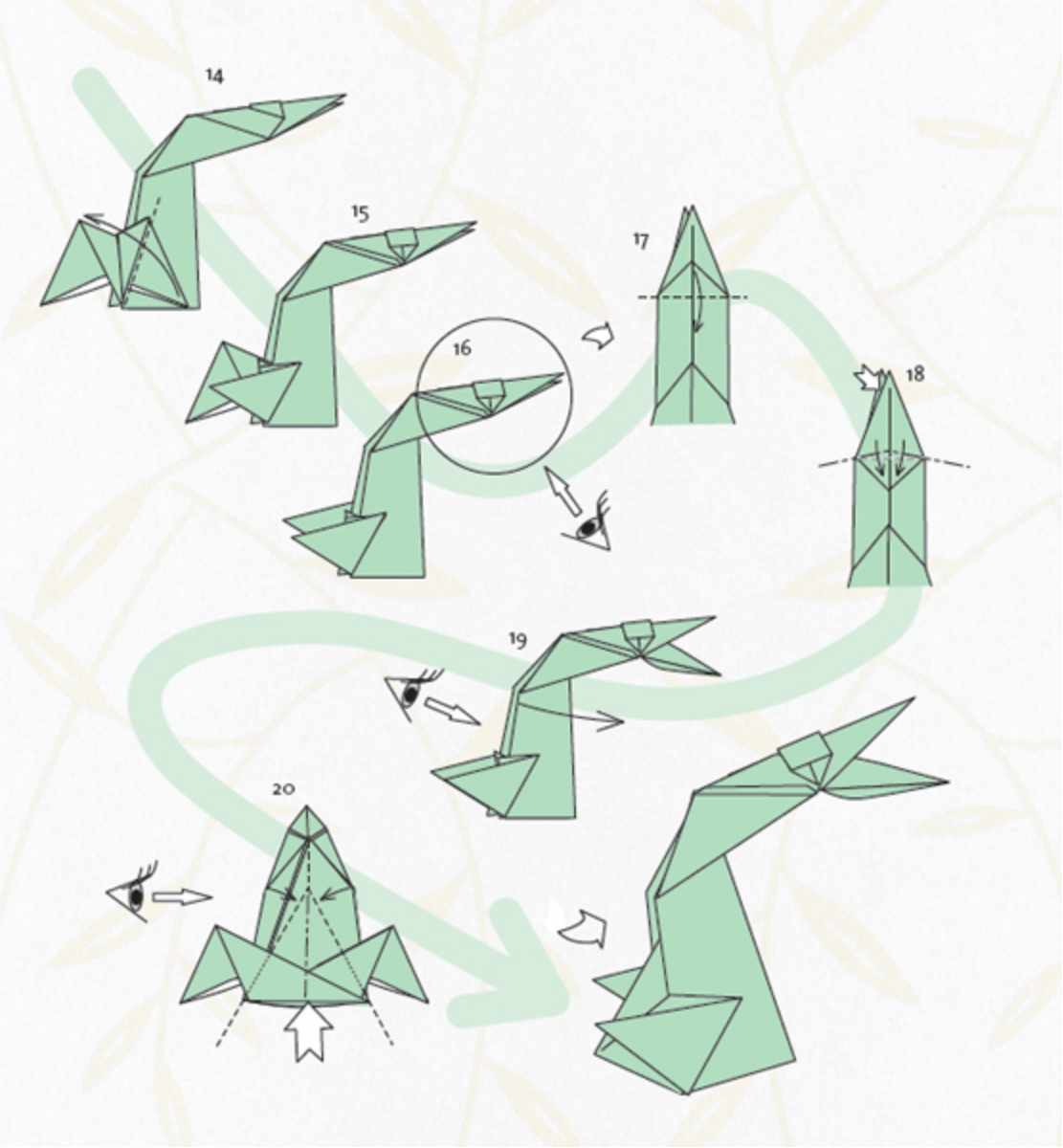
showcase and needed accessories for the clothing The hat went perfectly with the avant-garde collection and was a huge success!



1–3. Fold the paper as illustration shows. 4. Fold two square bases, see p.17, in opposite corners. Then fold two windmill bases, see p.17, in two opposite corners.
5. The square base should now be transformed into a crane base, see p.17, steps 1-4.
7. Fold the marking crease carefully.
10. Flatten the small triangle on top, like the armchair on p.50, steps 2-3.

12. Fold the crease and later do an outwards fold.

Party Hat—Bird



15. Repeat steps 13-14 and fold the left wing.
17–18. Open the beak.

The dogs—based on sanbo and sanbo a—are so busy with each other that they don't even notice the cat, made from sanbo b (see pg. 80–93).

DO YOUR OWN ORIGAMI

You have now learned how to fold a variety of bases, a few traditional origami models, and also some of Norio's creations.

You may have noticed that certain bases and folds are repeatedly used in many of the models.

As the years have passed, the Japanese have used their fantasy—and a limited number of bases and folding techniques—to transform origami paper into everything imaginable. It is the combination of possibilities and limitations within a squared piece of paper that makes origami so alluring.

Using this book you may, for instance, create the swan family, elephant, dove, and turtledove out of a single base. This seems almost unbelievable considering how different all the models turn out.

Many of these finished shapes have also evolved into completely different models over time. While folding one model you may suddenly realize that if you take a different route—fold something differently than planned—the shape will become something else completely. Through this process the number of origami shapes and models has grown significantly over the years.

In this chapter Nori Torimoto explains how an origami maker thinks as he or she is creating their own origami models. He takes us inside the mind-set of an origami master, and shares his philosophies and experiences—all things that are usually kept secret.

SANBO A

What model do you suggest as a base for a beginner that wants to make his or her own origami?

To begin with, we will base our creations on sanbo. Many known origami masters use this base. Koya Ohashi, for instance, has repeatedly used the sanbo model.

What makes sanbo so special?

Look at the sanbo shape—already in the early stages of folding this model has four legs. To me, being someone who has had some practice in the art of origami, it almost looks like an animal. If you let the model collapse, you will have at least four different options from which you can begin your folding—like you can see in the pictures on the right. Depending on what you would like to do, you can collapse the model in different ways, which will provide an array of opportunities.

If I start with the A model which has a longer body, what are the advantages?

A long body is an advantage if you wish to be able to vary the pose of the animal. You can make it sit, stand or run. In practice this is because you have more paper left over, which gives you greater margins with which to model the body.

If I want to do the B or C, two models with a shorter body, what are the advantages?

This model allows for greater freedom to manipulate the animal's face because the model is oriented in a different direction. With B you can work on small details that you can't with the A, such as making ears that point upwards.

What is the difference between the B and the C?

There is no difference at all. The only question is which direction you want the head and tail to point.

What can you make out of the D?

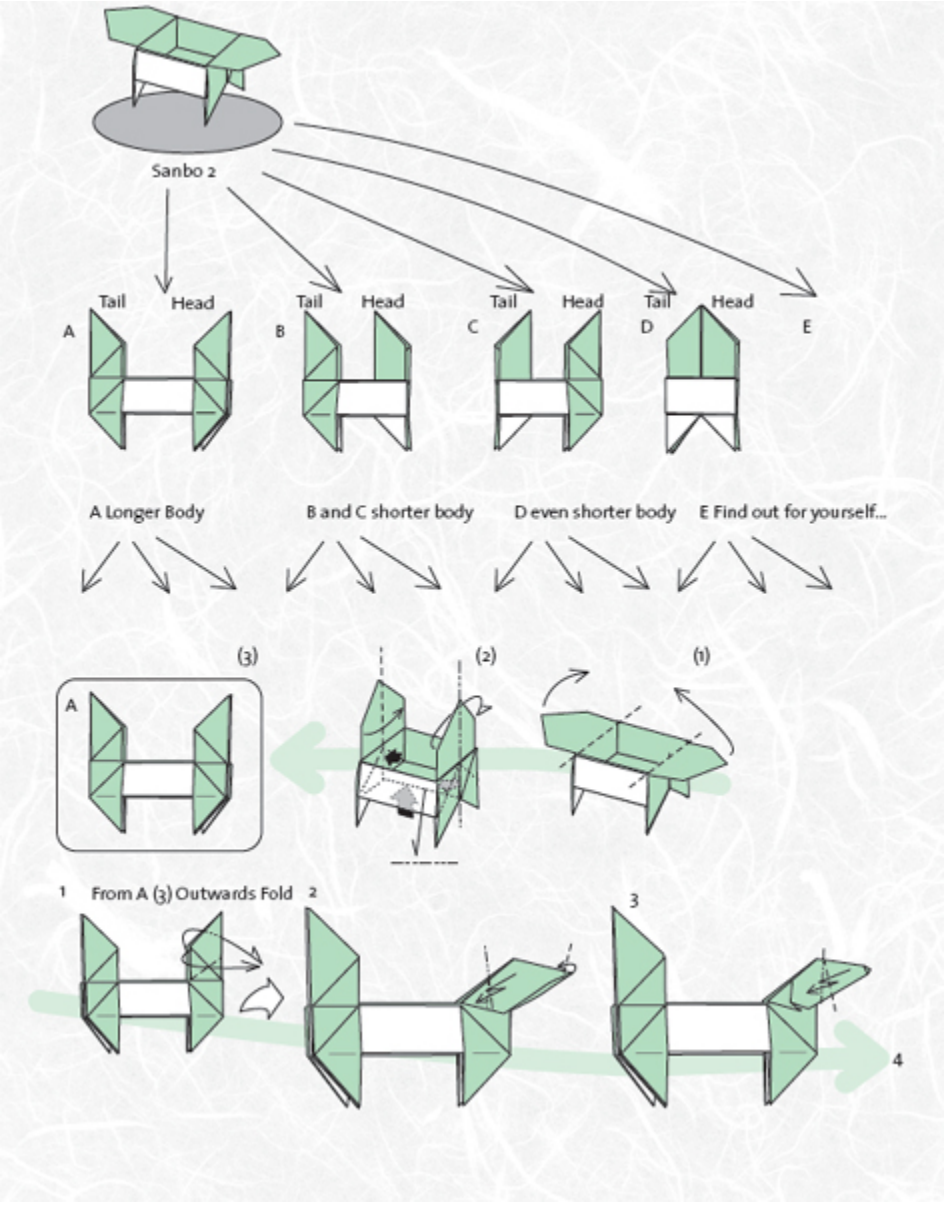
The D makes compact, and a bit more stripped, simplistic models.

Can you specifically show me how I can create a new model out of A?

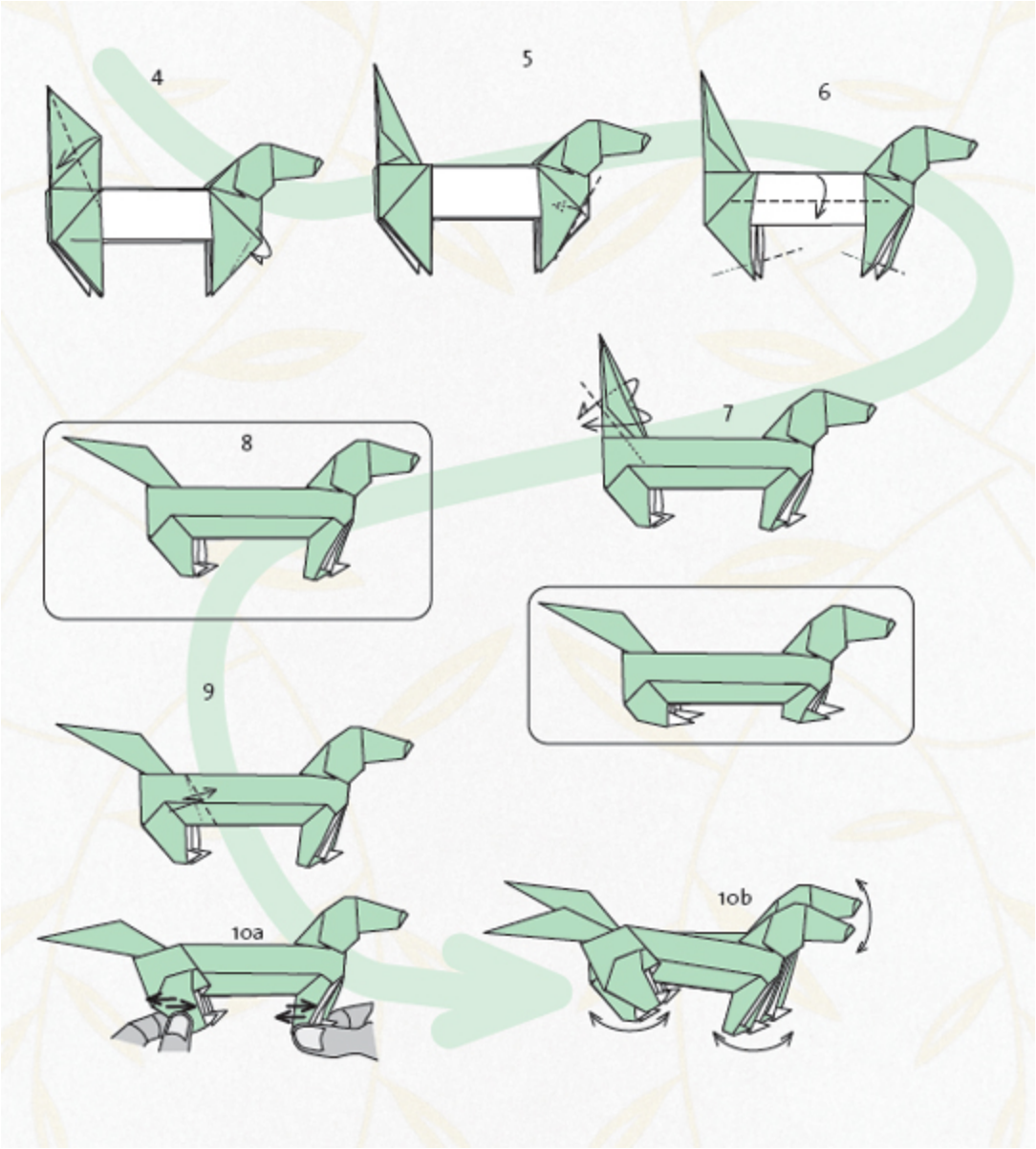
I can show how I fold a dog—and how it becomes a dachshund! Take special note of two things: how you can make the whole dog in one single color and how many different poses you can create. (There are, of course, other ways to go about this, you

should experiment and find your own way!) If you give the dog longer legs it is suddenly a different breed all together, and you can even make it run!

Sanbo A

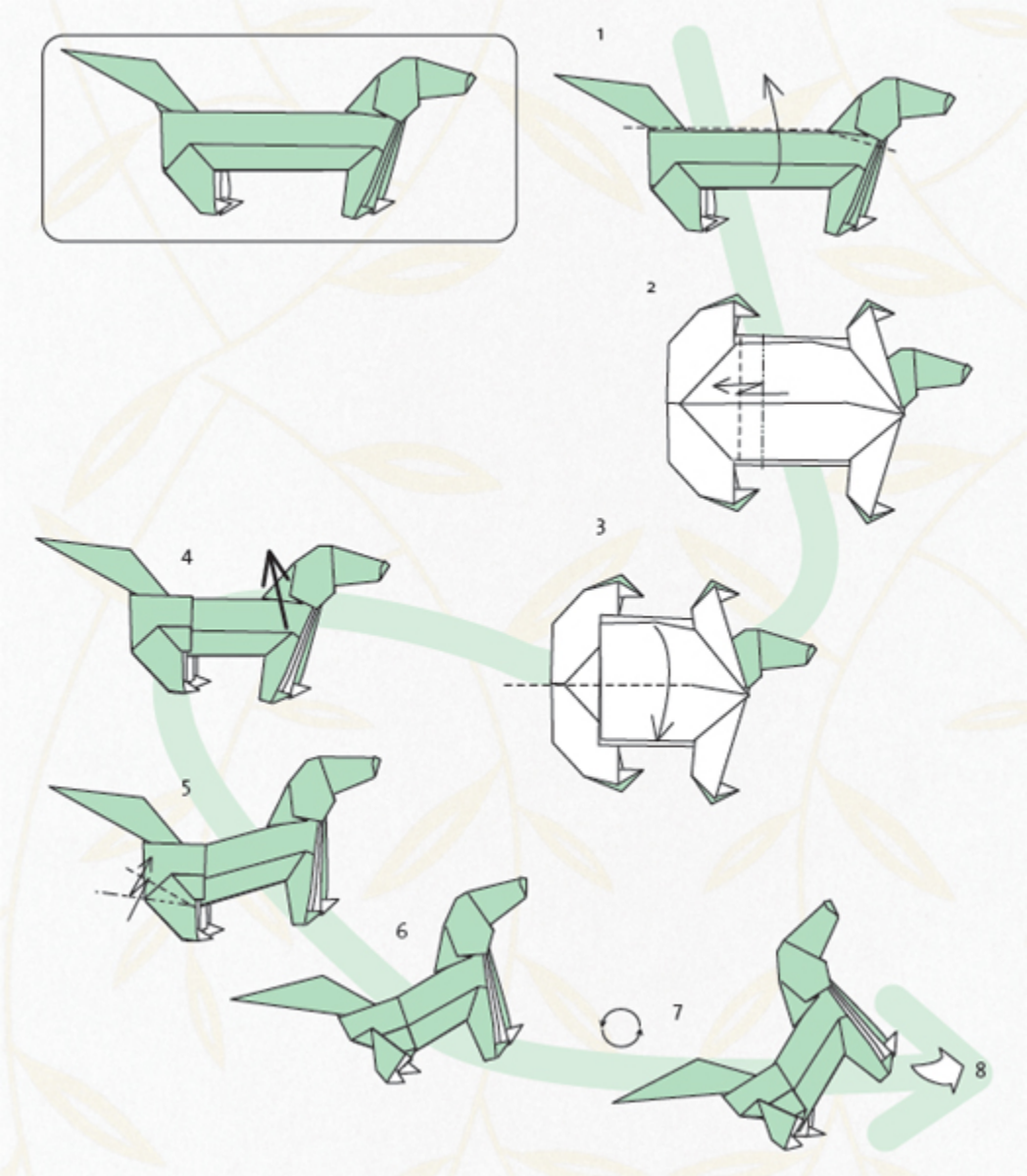


Sanbo A



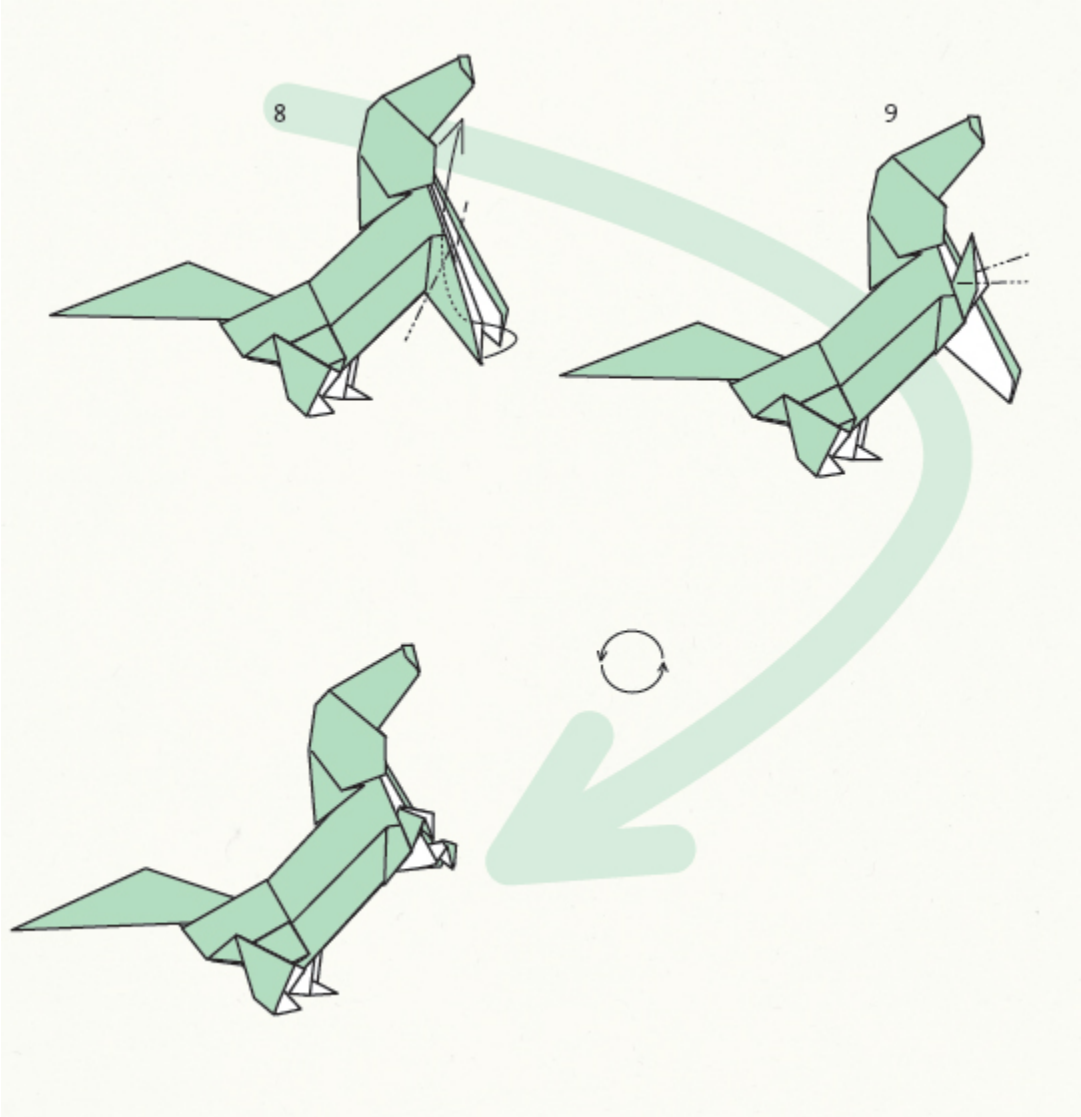
4. Repeat on the other side.
5. Repeat on the other side.
6. Do an inwards fold on all four legs. It is possible to turn the paper so that the white on the legs will disappear. Try to figure out how this may be done! You may also keep the white as a charming characteristic. If you are making a dachshund, make large paws, which will make the legs shorter.
9. The dog is now ready. If you make it with sanbo 3, see p. 35, as a base, the dog will automatically end up in one solid color. Try it! If you want it to be able to run, fold a pleat as illustrated.

Sanbo A



2. By folding a simple pleat, you can make your dog assume many different poses. The back of the body will be more easily adjustable and the proportions between head, body and legs also end up better.
5. Repeat on the other side.
6. The dog is now in a sitting position.

Sanbo A



8. Fold in and up. Repeat on the other paw.
9. Fold out and down. Repeat on the other paw.

SANBO B

How can you transform and develop the B model?

Steps 1-5. The large right flap on the B model is pointed in a different direction than on the A model, which means other

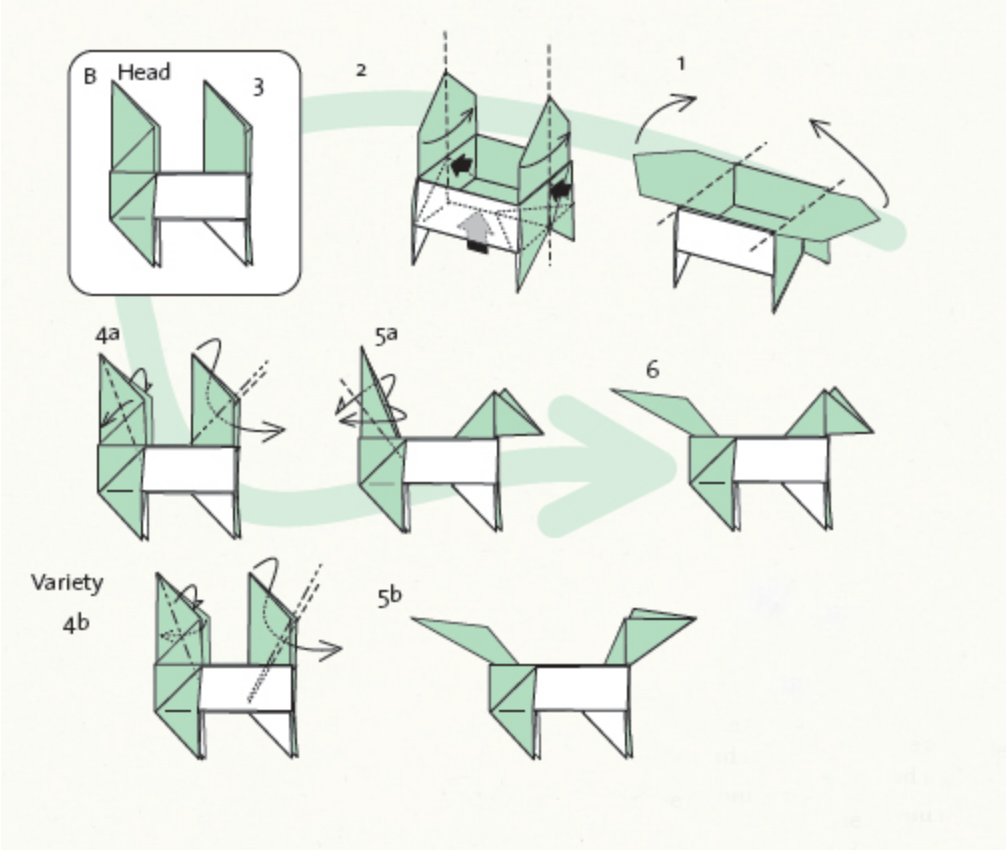
possibilities. This is a very good base model. Experiment with making some inwards folds on the legs and head. Try to figure out how you can create the specific traits of the different races.

How can you manipulate characteristics when using the B model?

Look at my variety of the B model. If you do the inwards folds the same way I do in step 1—and make a deeper fold on the neck than you've done before—the face becomes bigger and the dog will look upwards.

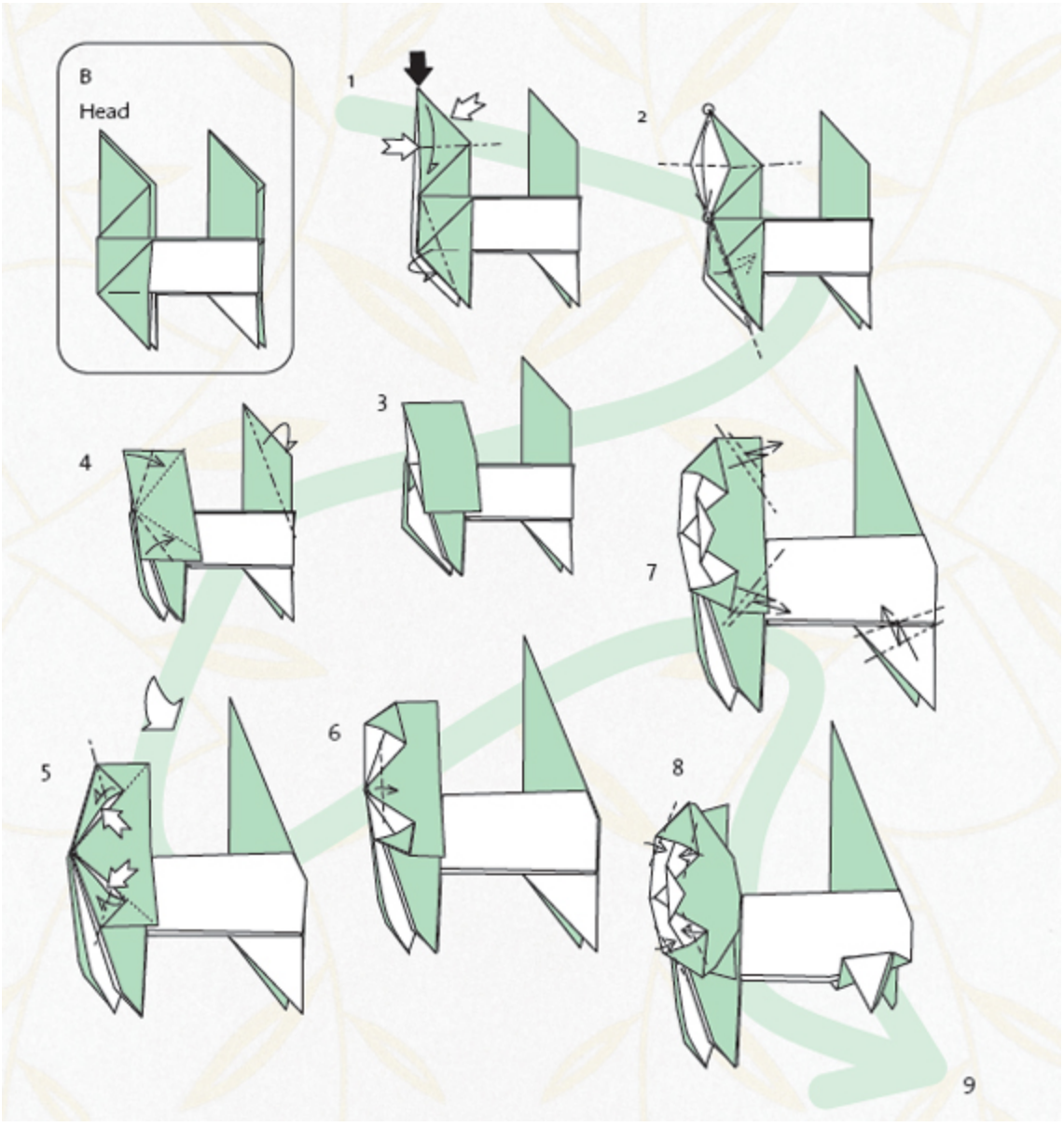
Can I make any other animals with the B model?

You can make a variety of animals with four legs. Next I will show you how you can fold a cat. You will now let what was the tail on the dog, become the head on the cat. That isn't so hard, is it? I wish to show you some of my models; you may learn a thing or two by studying them.



Depending on the angle you fold, the head may be turned in different directions.

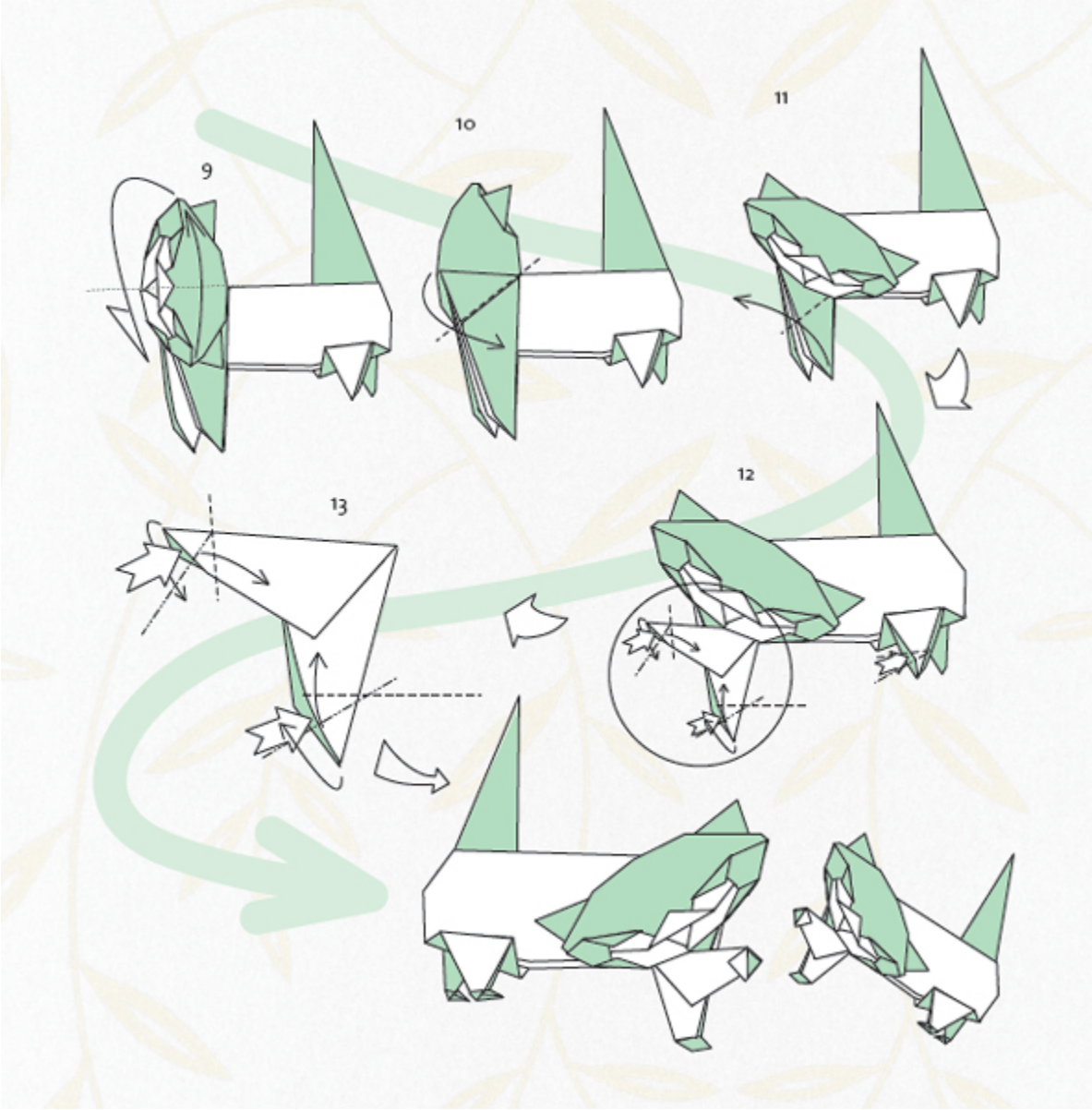
Sanbo B



1. Take a hold of both the flaps and pull them out. Flatten the future head. (It should look like a rectangle made out of two squares.) Fold the outer flap of the leg in.

2. Proceed to fold the other part of the leg, so the whole leg ends up slimmer.
3. Fold steps 1-3 on the front right leg.
4. Fold both sides of the cat's tail, as illustrated. Fold the top left facial flap so that its upper edge is aligned with the marking crease. Repeat on the right side.
7. Fold the leg according to the illustrations. Repeat on the other leg. (For some reason the cat looks far more realistic if its legs are really short…)
8. The cat will look sweeter if you round the face and the arc over the eyes.

Sanbo B

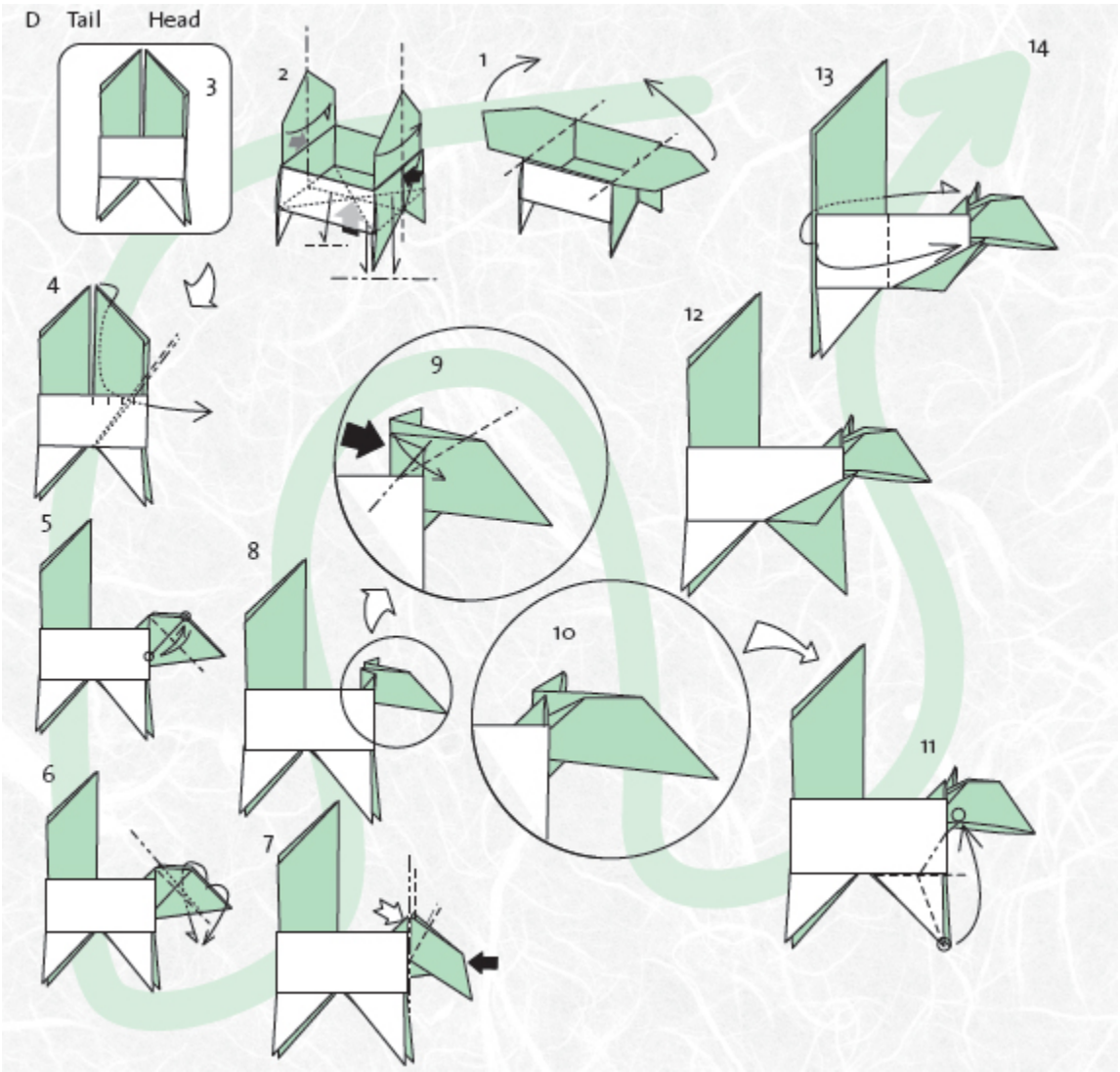


9. The model becomes even more realistic if its head is a bit tilted. Turn the head away from you.
10. Fold down. The head should now be turned back toward you.
11. Fold the front paw.
12–13. Fold the paw down over the front leg. Fold the tip of the other leg in. You may vary this model by altering the angle of the leg and tail. If you fold it from Sanbo 3, see p. 35, both the face and body will be the same color.

SANBO D

The cat and the dog have very similar body structures. Is it possible to make animals that look different with sanbo?

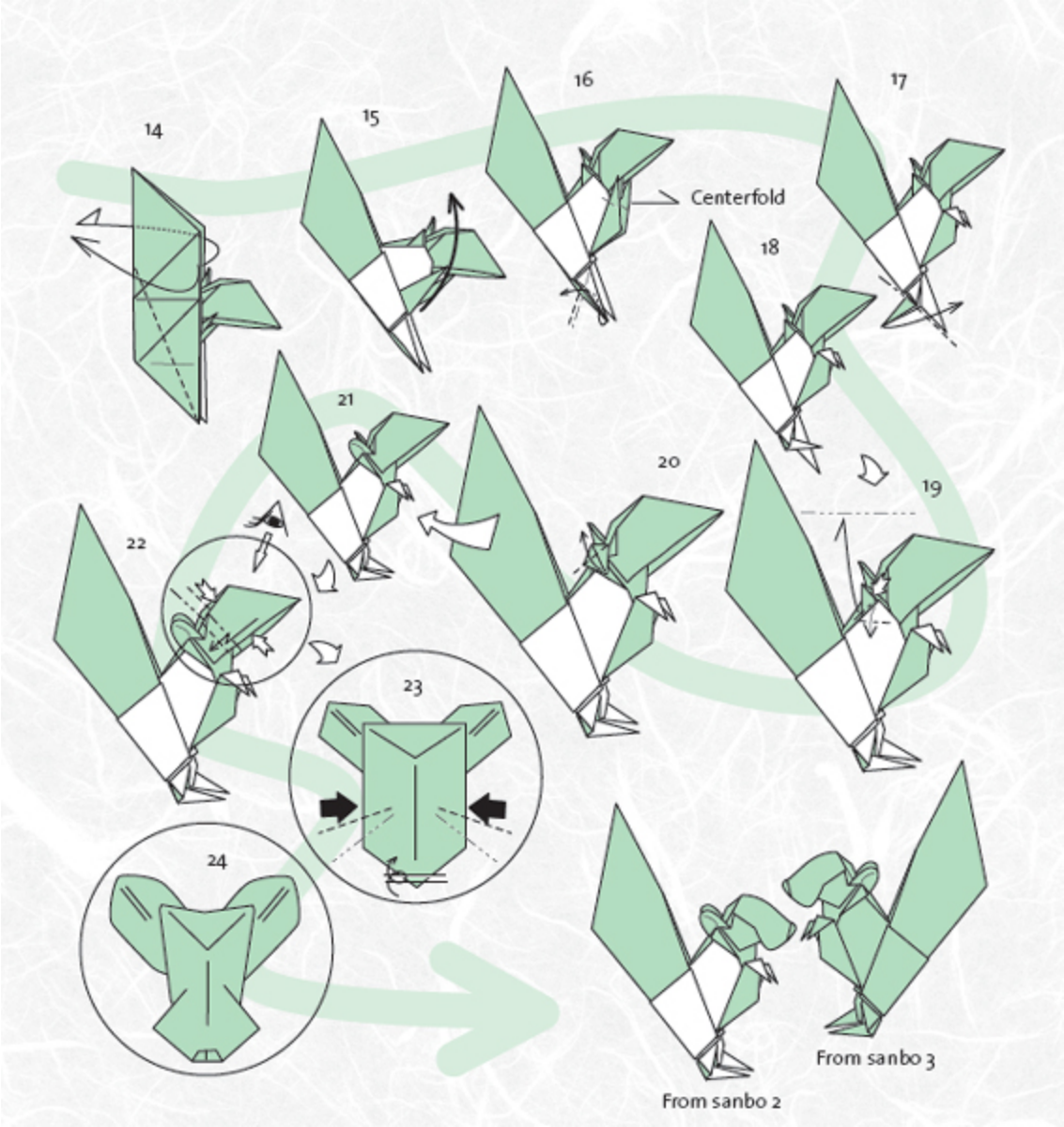
Yes it is! I will now show you how you can fold animals that stand on their back legs from Sanbo d. We will use the squirrel as an example. If you make the squirrel out of the Sanbo 3 model, it will be one solid color.



4. This time you will fold the pleat inwards and steer the head far down.
5. Make a crease, then unfold.
6. Do an outwards fold.

7. Fold as illustrated. Proceed by gripping the muzzle and steer the snout backwards. Ears should then appear.
9–10. Now look at the ears. It will look like they have a growth of some kind. Fold the flap down behind the ears and continue to fold a piece of the head.
11. Fold an edge. Fold the edge inwards and aim the flap upwards.
12. Repeat on the other front leg.
13. Fold the tail.

Sanbo D



14. Do an outward fold to create the tail.
15. Carefully pull the trunk upwards.
16–18. Fold the back leg with an inward fold in order to get a proper paw. Repeat on the other leg. 20. Place a thumb behind the ear. Open the ear and flatten. Repeat on the other ear.
22. Do an accordion fold to give the face more volume. Insert an index finger or thumb in the pockets at the top of the head and under the chin. Flatten. Shape the face to your liking.

Sanbo D

But what if I want to make the legs longer? Then there won't be enough paper!

You have previously made the head smaller and folded in a way that makes the body and legs seem bigger. Now I will show you how you can actually make the legs longer.

In order to do this, you have to know what part of the paper you will use for the legs.

First fold a sanbo and mark all the legs. Then unfold. Where will the marks be? Mostly in the four corners.

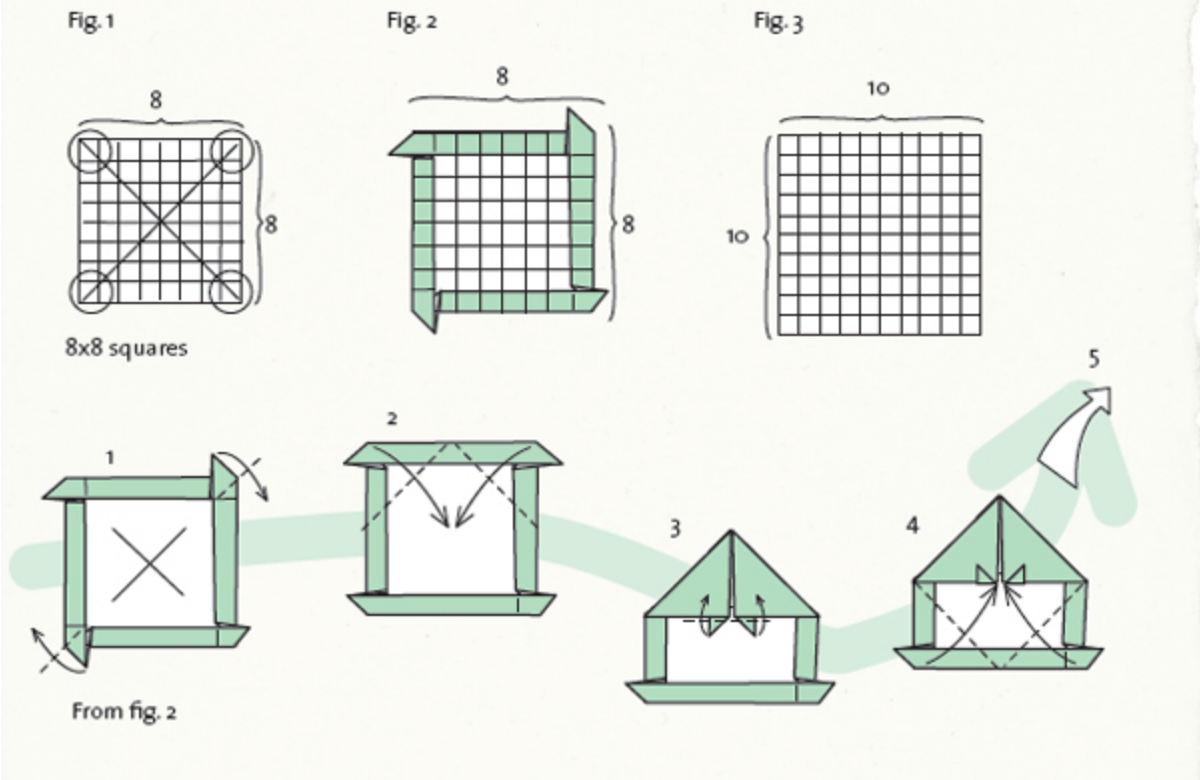
What does that entail?

It means that in order to create longer legs, you have to make sure that there's more paper in the corners.

But we are using a squared piece of paper. I can't change that!

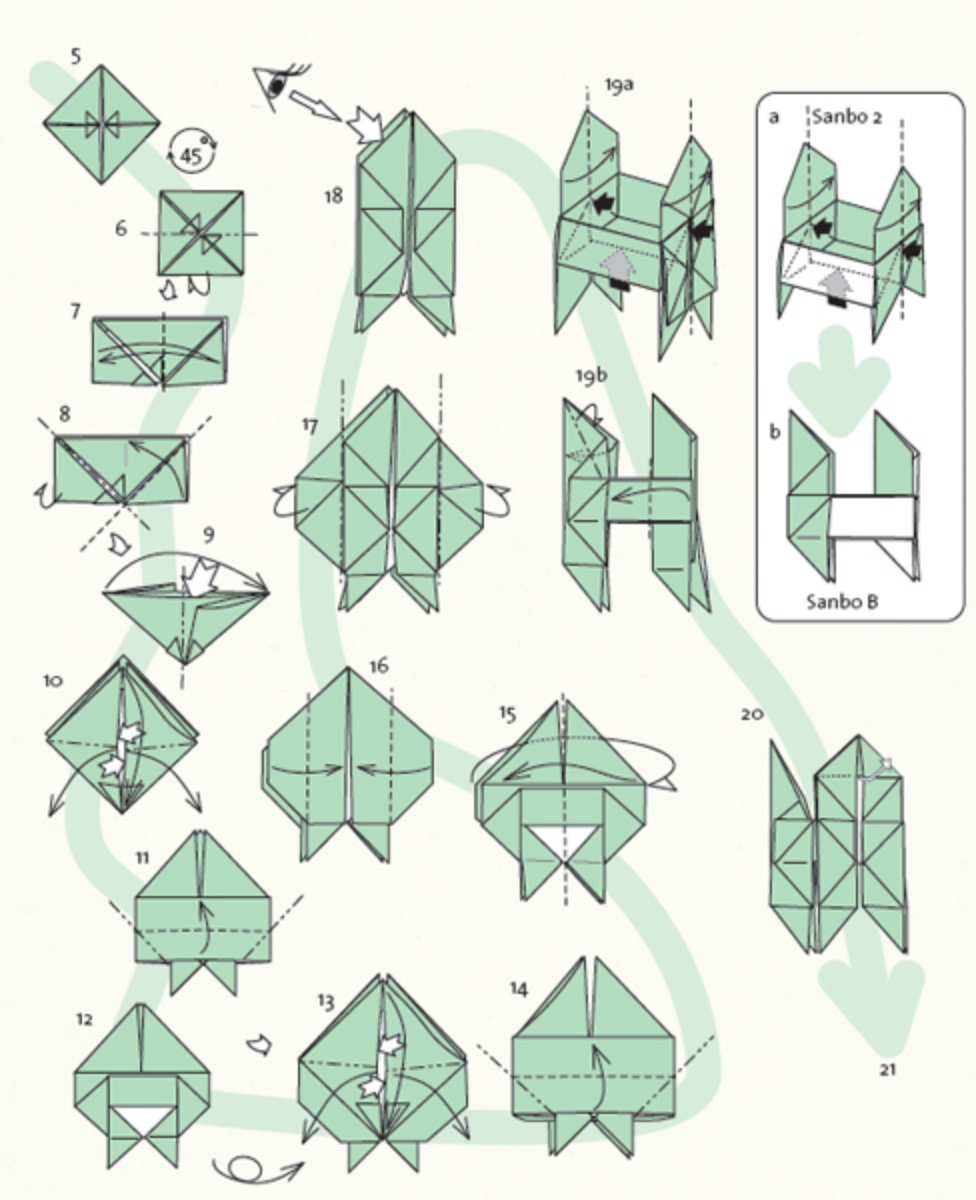
Of course you can! When you have unfolded the paper, you will have a checkered square of 8x8 squares. But now I'll do some magic to create more paper in the corners.

I fold a checkered pattern of 10x10 squares (figure 3). Then I fold so that the paper looks almost like a windmill (figure 2), see p. 17. This way I end up with a square of 8x8 squares in the middle of the windmill figure. In other words, I have a little bit less paper in the middle, and more paper along the edges.



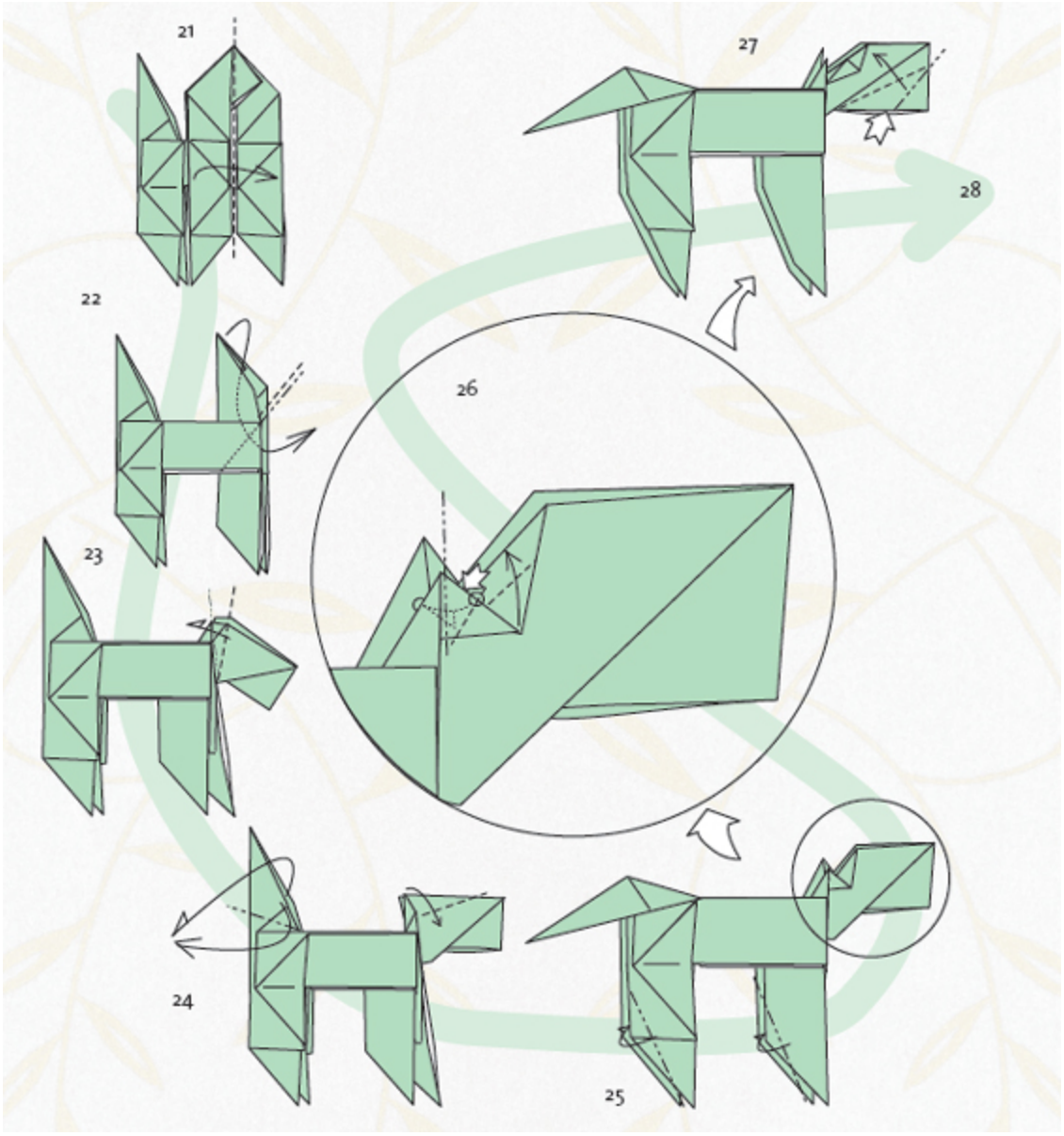
4. Repeat steps 2-4 on the lower half of the paper.

SANBO, FURTHER DEVELOPED



18. This is when you usually fold the sanbo legs, but not this time.
19. In the box on the right you can see the base you work out of when you fold a regular sanbo (Sanbo 2, p.34) and based on that, the Sanbo B (see p.81). At the left you see the long-legged variety. Fold the right flap. 20. Pull the inner flap upwards.

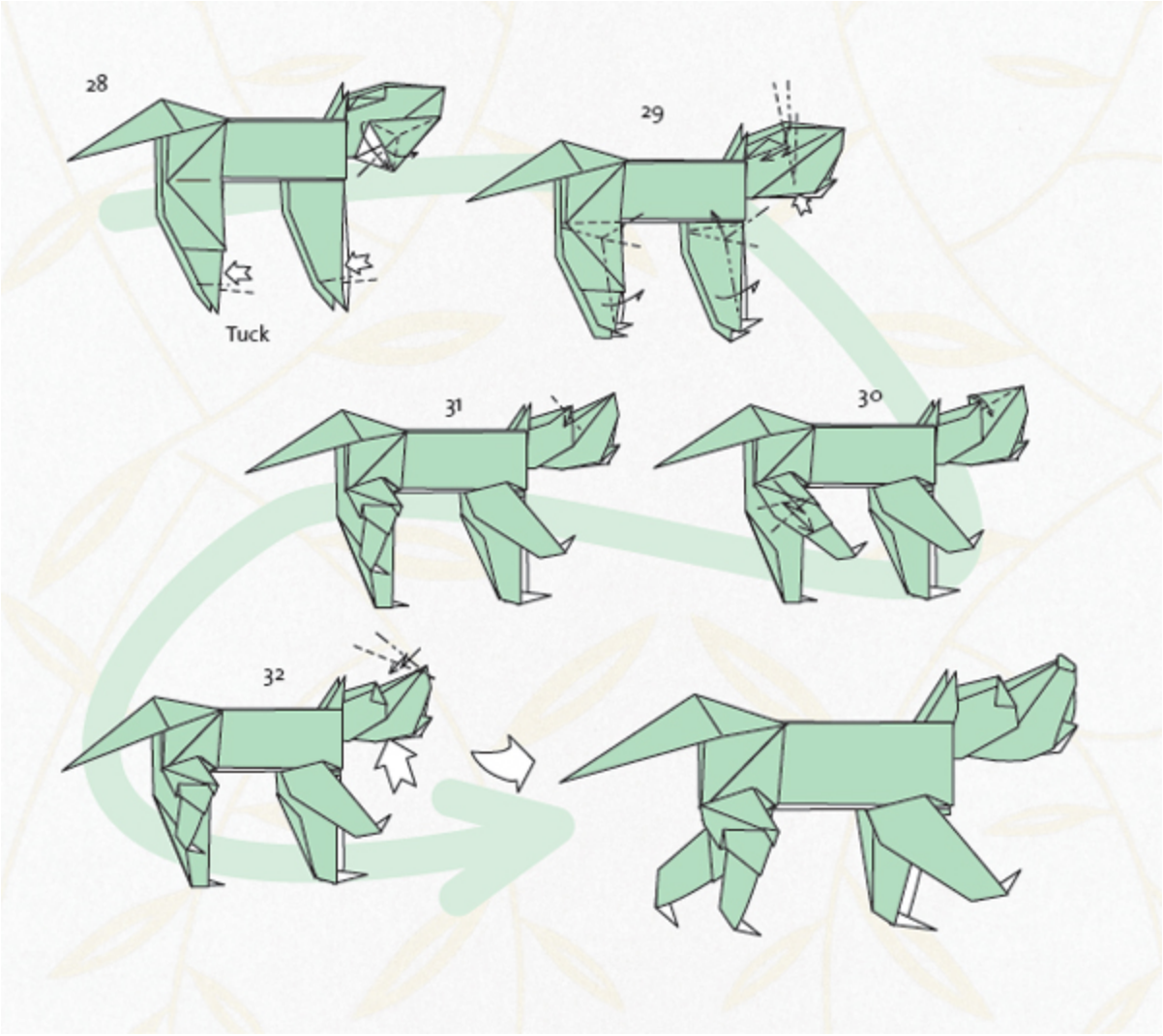
Sanbo 2



21-22. Fold back to the beginning, step 19b. Make an inwards fold to create the head.
23. Fold in at both sides of the head, as illustrated.
24. Make the ears with an inwards fold like the squirrel model, see p. 88, step 9. Fold the tail down, followed by an outwards fold.
25. Make the legs thinner by folding inwards.
27. Fold the lower part of the nose upwards on a diagonal so you make a chin, as illustrated. Then fold a small pleat in the middle, while at the

same time folding the upper flap of the little shape down, in order to create the nose.

Sanbo 2



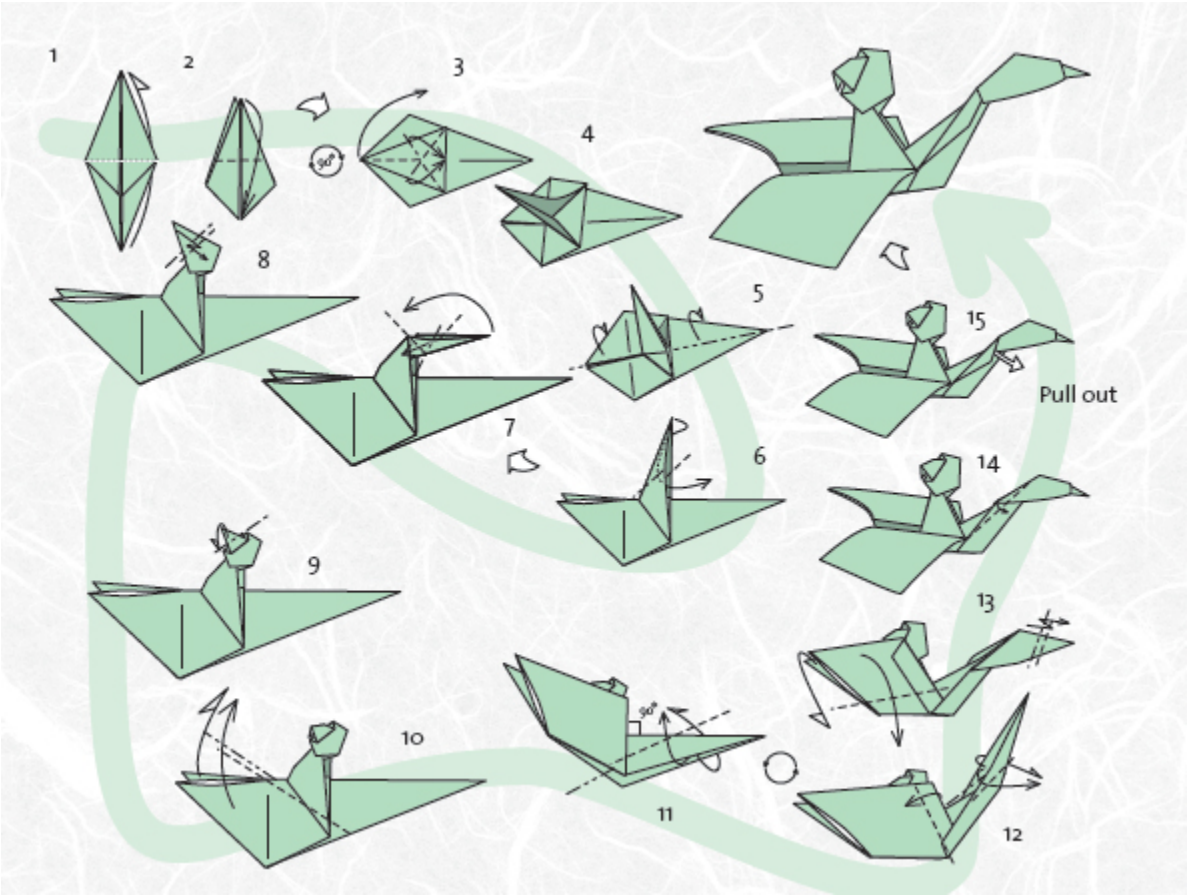
29–30. Do an accordion fold. Then fold the upper part of the pleat down to create eyes. Fold the four paws. Since the legs are long, you are free to shape the paws and legs the way you prefer.
32. If you want, shape a nose as you did on the dog, see p.72.

NILS ON MÅRTEN GOOSE 1

This is one of Norio's most famous works, both in Sweden and abroad. You can find a folded Nils in the home of the Nobel Prize winner Kenzaburo Oe, who read Selma Lagerlöf's The Wonderful Adventures of Nils, *as a child.*

You can make Nils and Mårten in two separate colors. Try to figure out how to make this happen! Take a look at Nils and Mårten 2 on the next page, and maybe you'll get a hint. (You can't do it the exact same way, but it is very similar….)

From fish base, see p.16.



1. Fold the lower flap up and away from you, as illustrated.

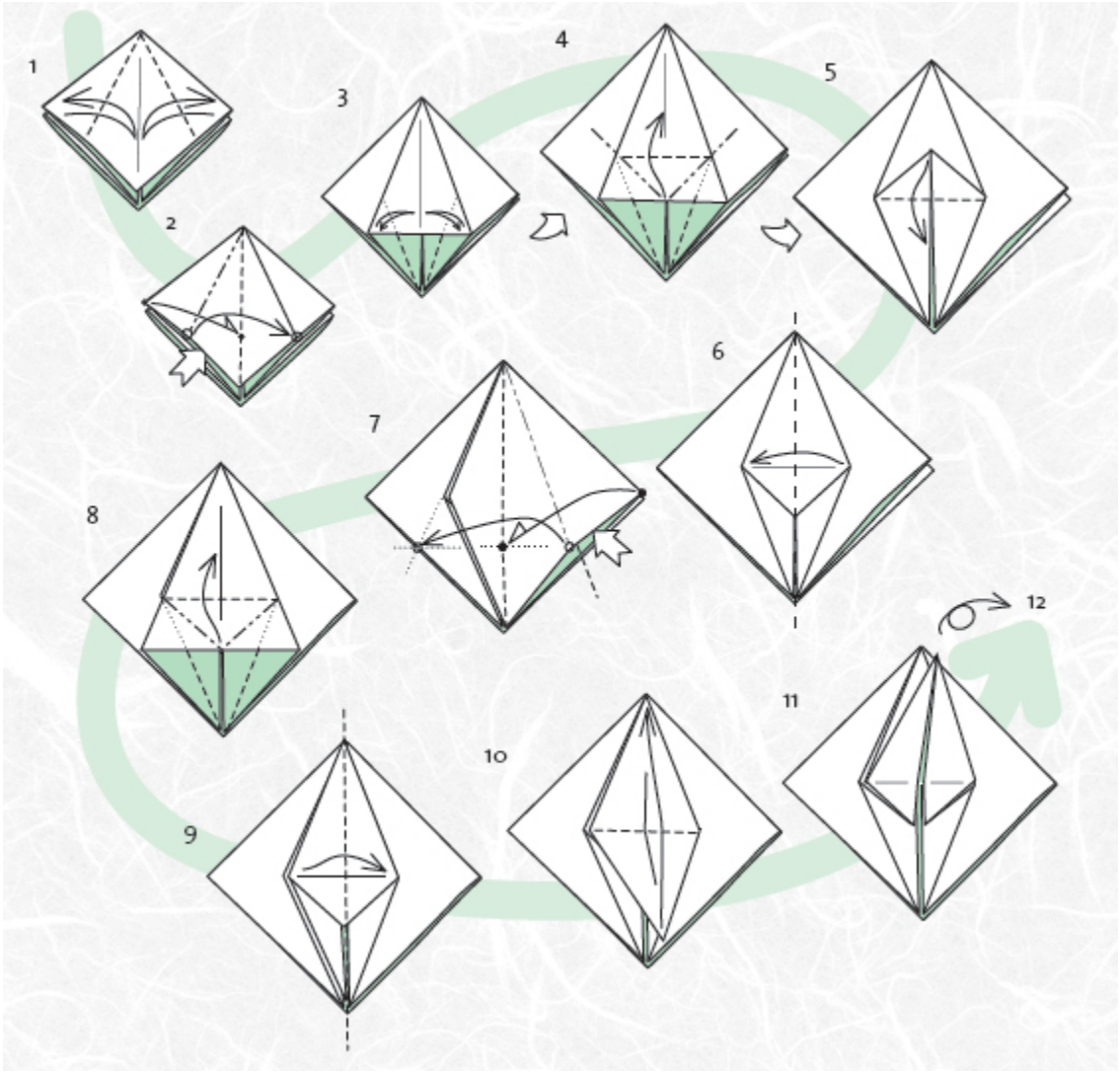
3. Fold the upper flap up towards the right so that it is aligned with the pleat to the right. Then fold down towards the right, and unfold. Now you should have marking creases in the shape of a cross.
4. Take hold of the tip and fold it in half, so that it slims down to half its width. Steer it towards the right. Fold like illustrated.
5. Fold over the middle.
7. Fold an edge on what is to become Nils's neck. Pinch the neck with your thumb and index finger, and then steer the tip towards the edge so that you get a flat face part. Press down.
8. Do an accordion fold to create Nils's beanie.
10. Fold the wing so that it is in a 90 degree angle against the goose body. Repeat on the other side. 14–15. Fold the neck in a bit, pull the cheeks out and fold them over the pleat on the neck to make them rounder.

NILS ON MÅRTEN 2

A small detail during folding can make a model turn out completely different. Here, Norio will show us how we may play with the colors of Nils on Mårten. Pick a) if you want Nils and Mårten Goose to be the same color and b) if you want Nils and Mårten Goose to be in separate colors.

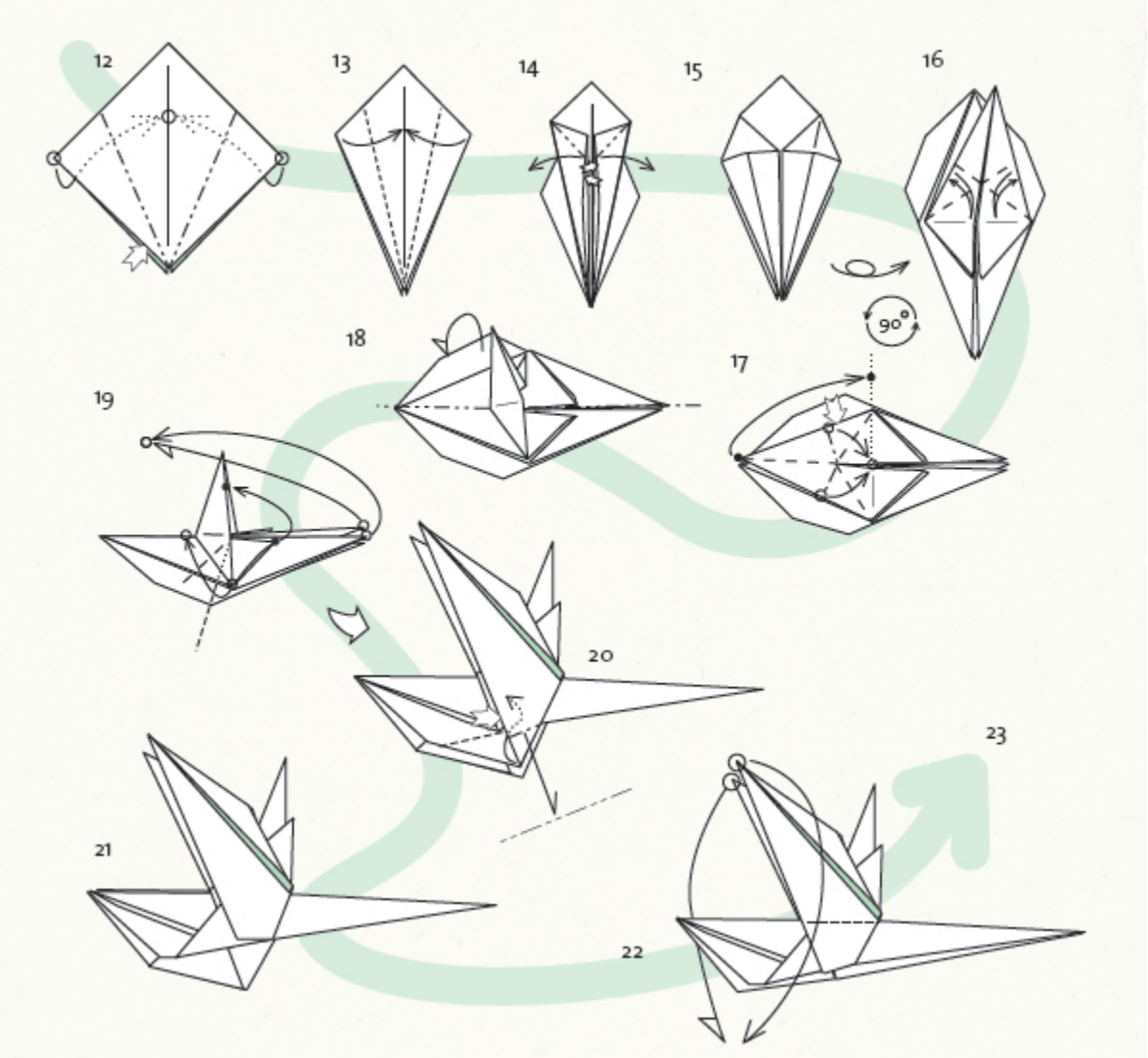
We will begin with variety a:

From square base, see page.16.



1. Fold with the white side of the paper outwards. Fold marking creases, as illustrated.
2. Insert your index finger in the small pocket formed. Fold that in like the frog's legs, step 2, see p.17.
7. Fold the top right flap towards the left and repeat step 2.
11. Fold marking creases and fold the flaps on both sides according to the illustration.

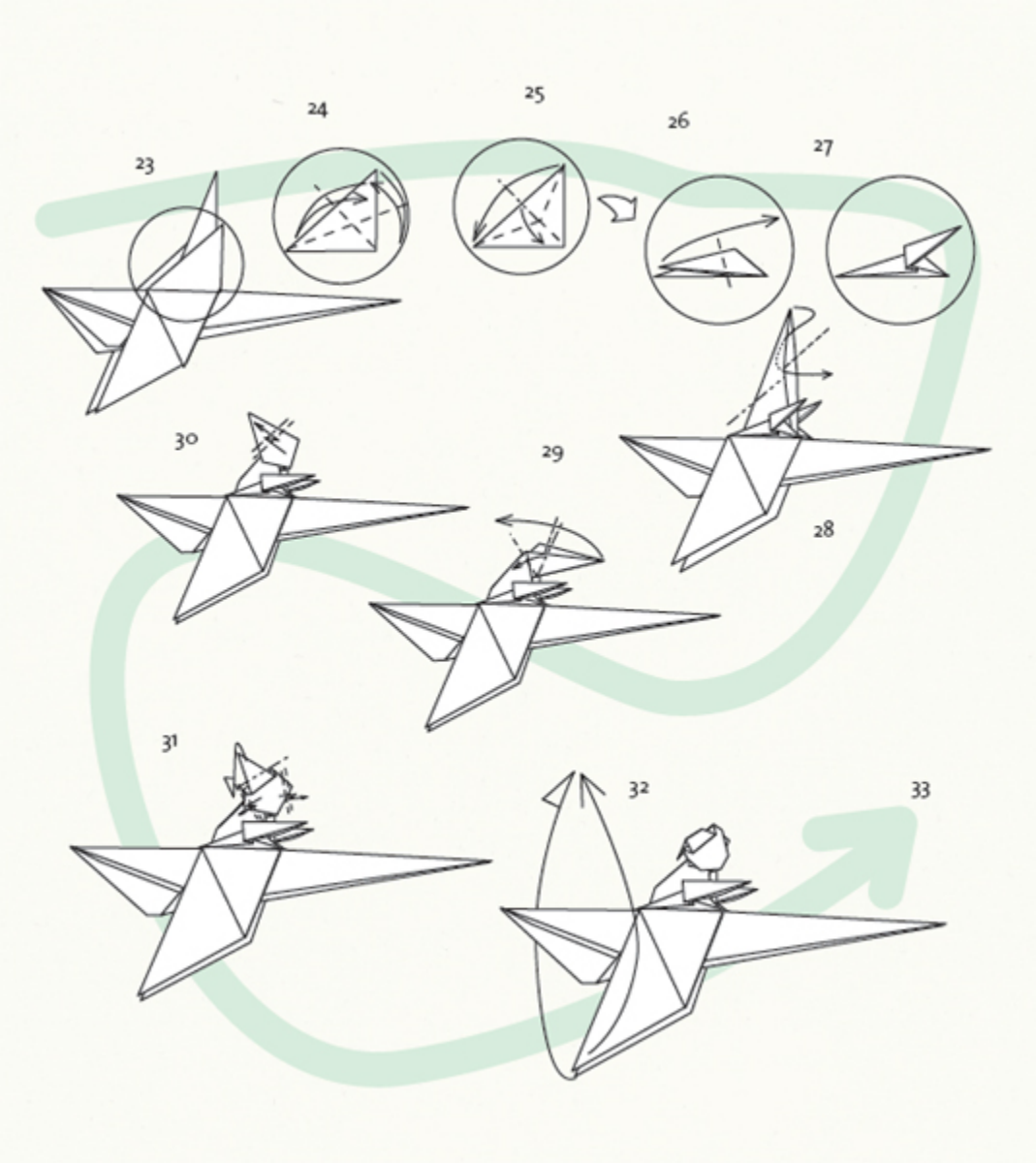
Nils on Mårten 2



12. Fold the sides in and you now have a crane base.
13–14. Take a hold of the top flap on the left and fold in towards the middle. Flatten the fold. This is harder than usual because you can't insert your index finger into the flap you are flattening. Grab the tip of the triangle that has now appeared, while at the same time gripping the base of the triangle. Then flatten and repeat on the other side.
16. Now fold marking creases by gripping the top tip and steering it down so that its side is aligned with the crease in the middle of the paper.
17. Pinch the tip so that it folds on its middle, have it stand upwards.
18. Fold on the middle.

19. The tip that is now pointing upwards is going to become Nils. Fold so that the two white points point against their respective white point. Fold black dot against black dot. Repeat on the other side.
20. Fold the lower flap and make a crease. Then, unfold and steer it in under the wing.
21. Repeat on the other side.
22. Steer the wing, on both sides, downwards.

Nils on Mårten 2



24. Fold and unfold. Create marking creases in the shape of a cross on the triangle shape that lies against Nils.
25. Pinch the tip and make sure that it folds on the middle. Steer it down towards the left.
26. Unfold.

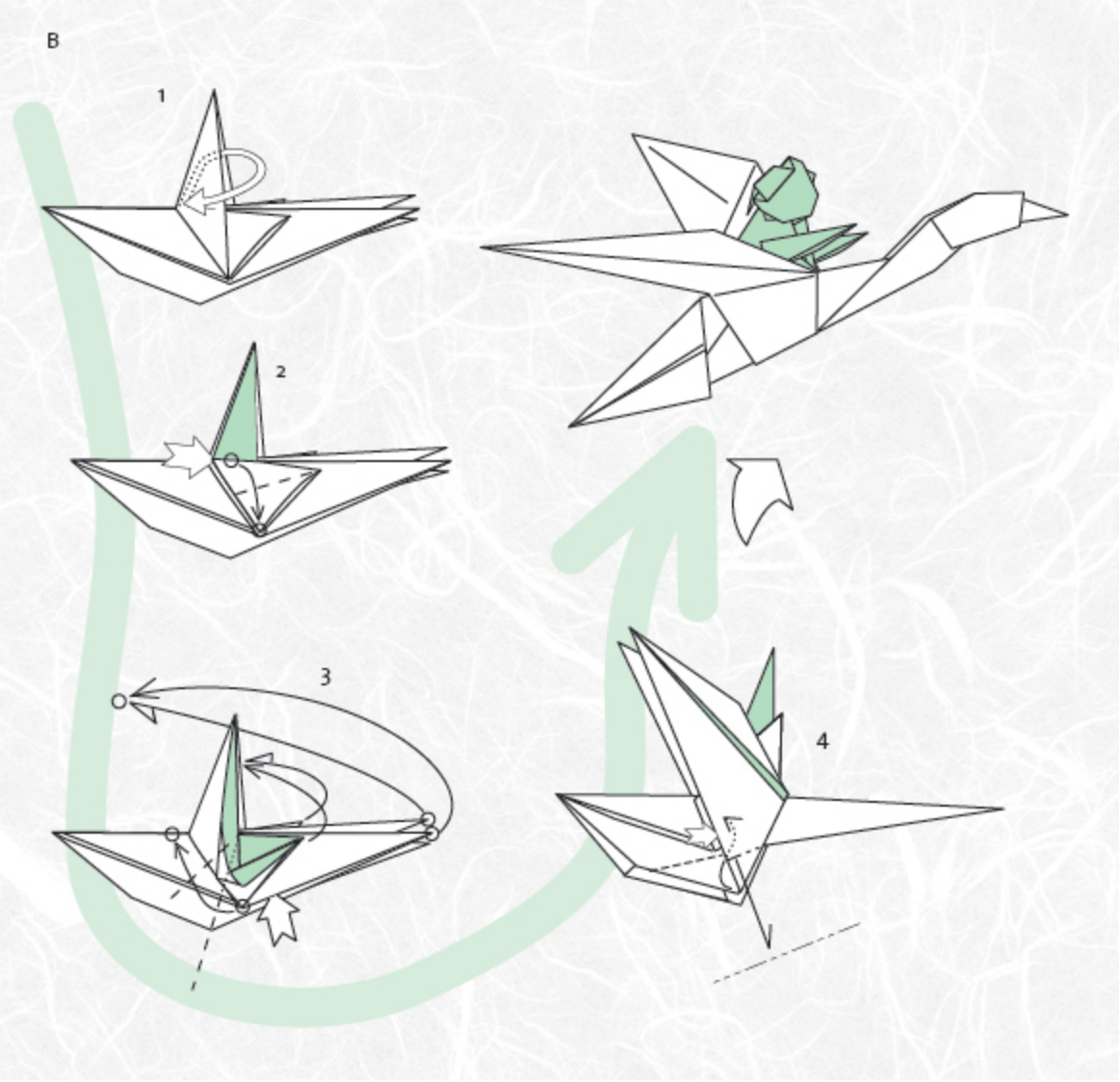
Nils on Mårten 2

35. Unfold the beak from the underside, as pictured. Then fold over to create some volume in the cheeks.
36. Do an accordion fold to create the beak.
38. Do an accordion fold to shape the tail.

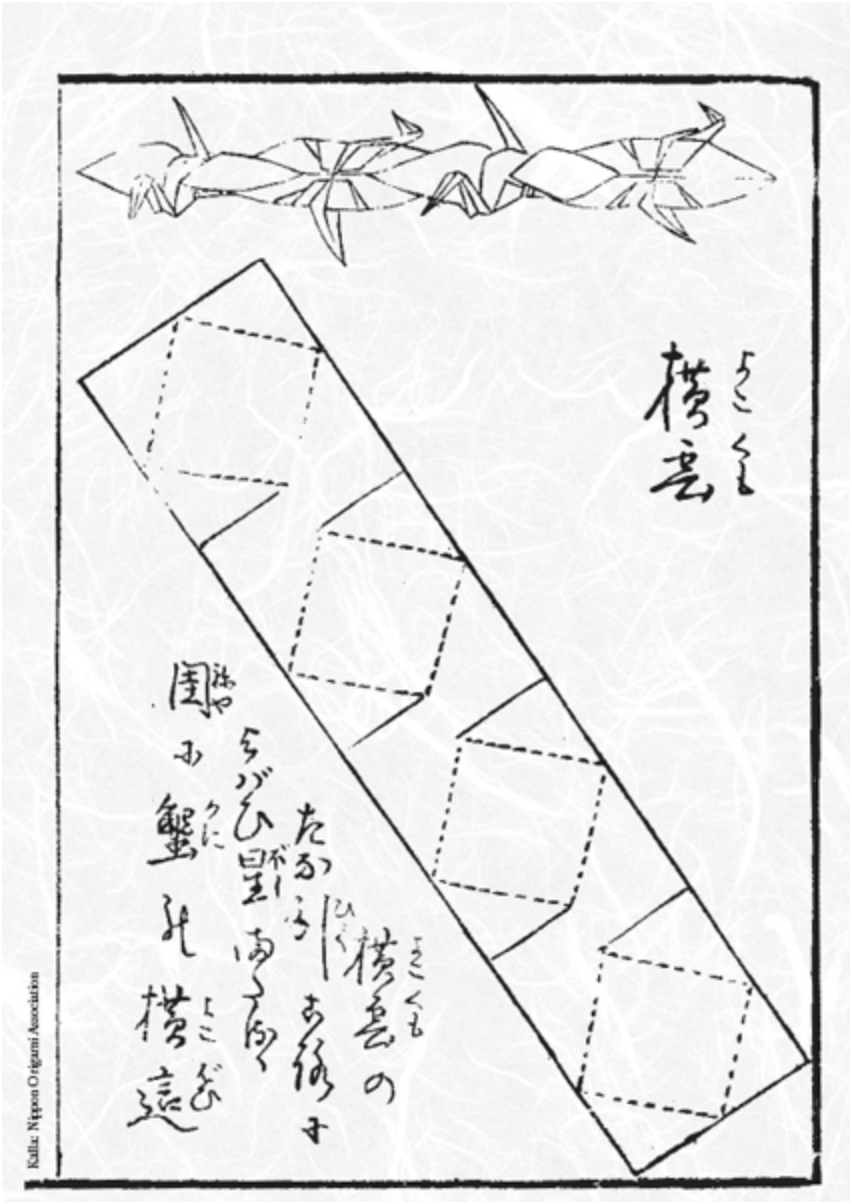
Nils on Mårten is flying dangerously close to a flapping dove.

NILS ON MÅRTEN 2 VARIETY B

Here we'll give Nils a different color than Mårten Goose. In order to do this you will, of course, have to use a piece of paper with a different color on its front and back side.



1. Fold as variety A untill step 19, see p. 96. Insert your index finger in the tip that is to become Nils. Take hold of the left inner flap and pull it out. Repeat on the other side. The Nils tip should now have color.
2–3. Insert your index finger in the small pocket that the white arrow is pointing towards. Make sure that the circle-marked points meet. At the same time grab the large flap that will become the wing and steer it towards the left, as illustrated. Repeat on the other side. Then continue by folding from step 20 of variety A.



If you follow this folding instruction from the end of the 1700s, you can fold a garland of cranes with one piece of rectangular paper. Every other crane will have their back facing up or their underside facing up.

DALA HORSE

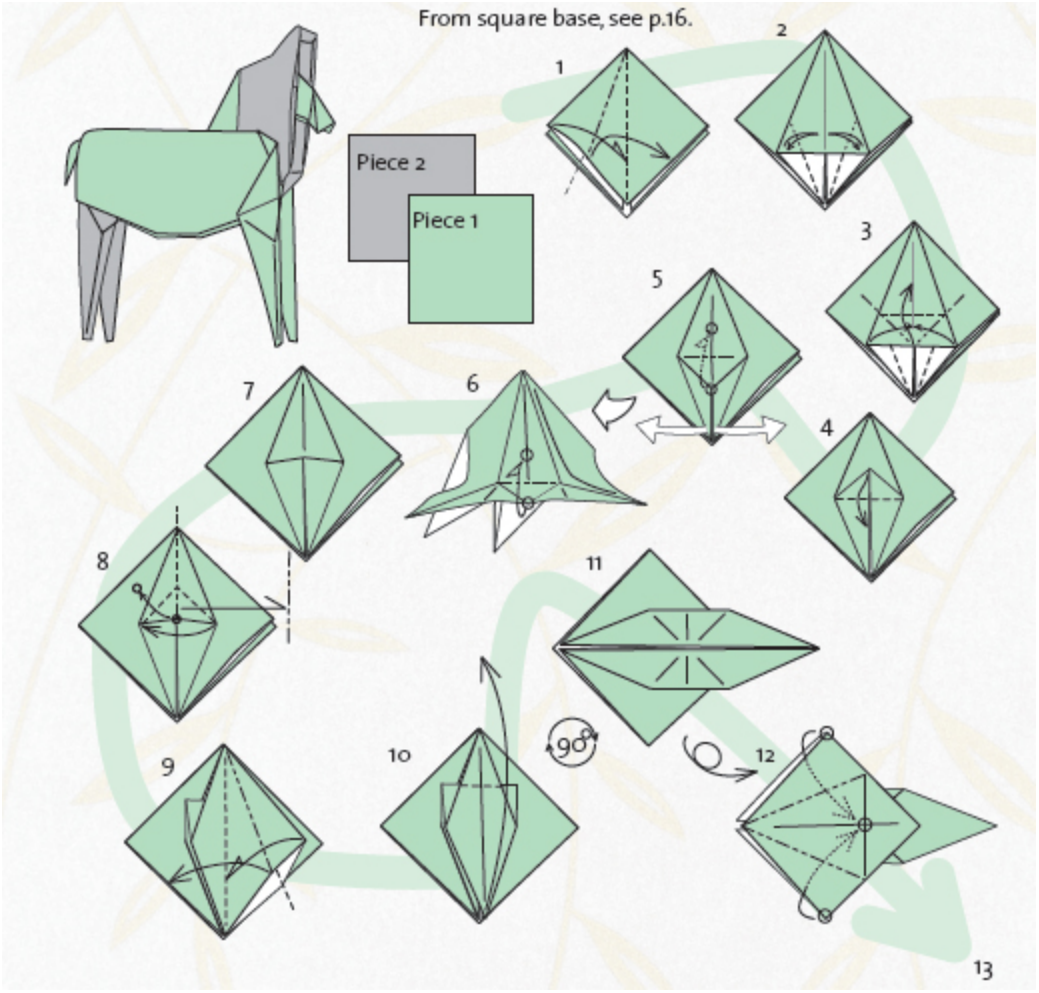
The Swedish province of Dalarna asked Norio if he could create a simple model of the dalahäst (Dala horse). He had previously done a more complicated variety that he folded out of a single piece of paper. After some thinking he came up with this dual-colored model of the dalahäst.

By combining two folded shapes you may make completely different origami models.

The Dala horse is based on a square base (where half is folded like a crane base and the other as a frog base) and sort of a windmill base.

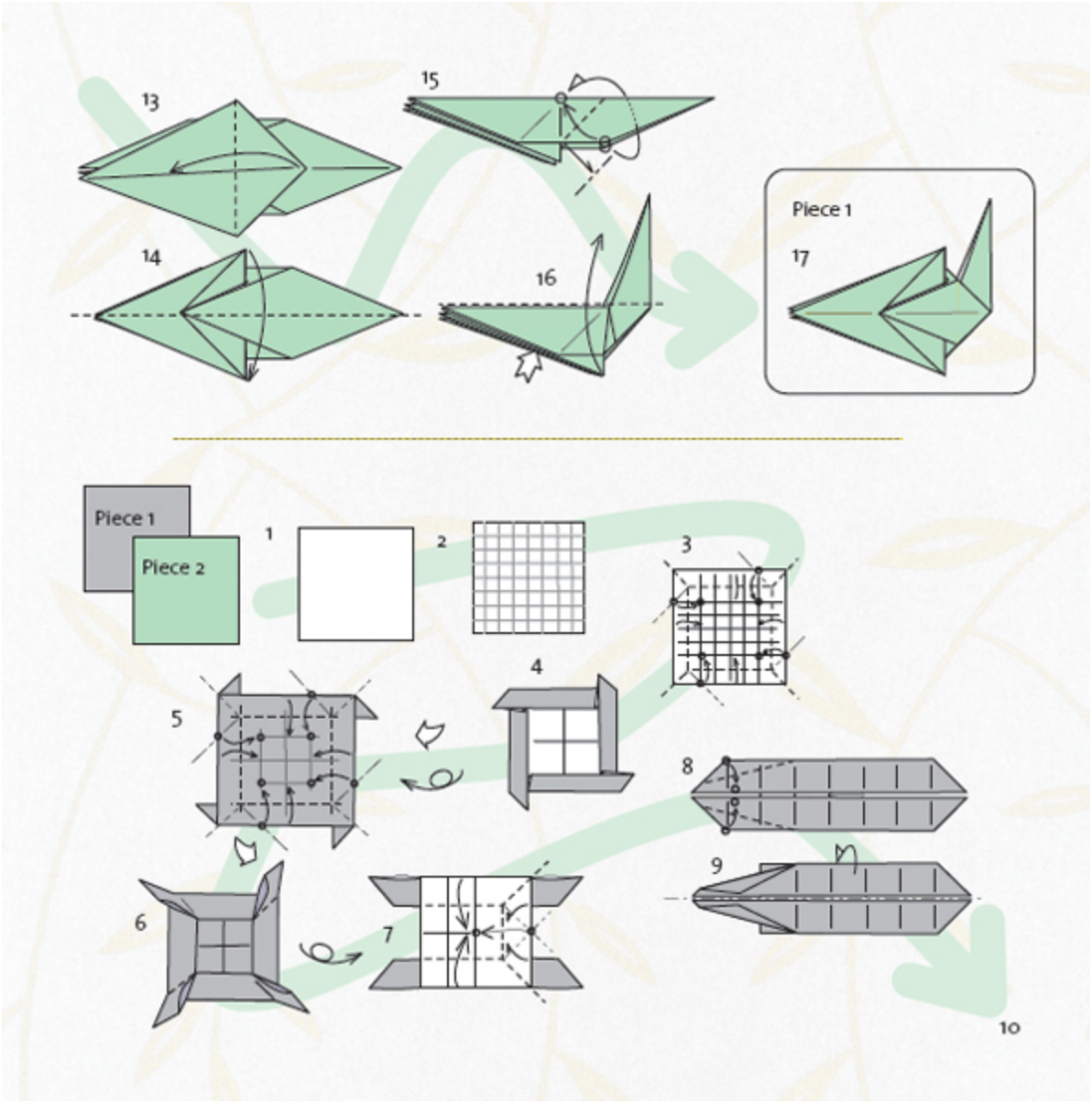
You will need two squared pieces of paper and a clip.

From square base, see p.16.



Part 1:
2. Fold creases as illustrated.
3. Take hold of the middle of the top flap and fold.
4. Fold the triangle down.
5–6. Grip the very bottom of the two tips and separate them.
8. Insert your index finger in the small triangle shape in the middle. Fold the front shape together over the middle so that an edge appears in the shape of a triangle. Flip and repeat steps 1-9 on the next.12. Fold creases. Fold the bottom tip upwards and fold the sides inwards. Then fold down.

Dala Horse

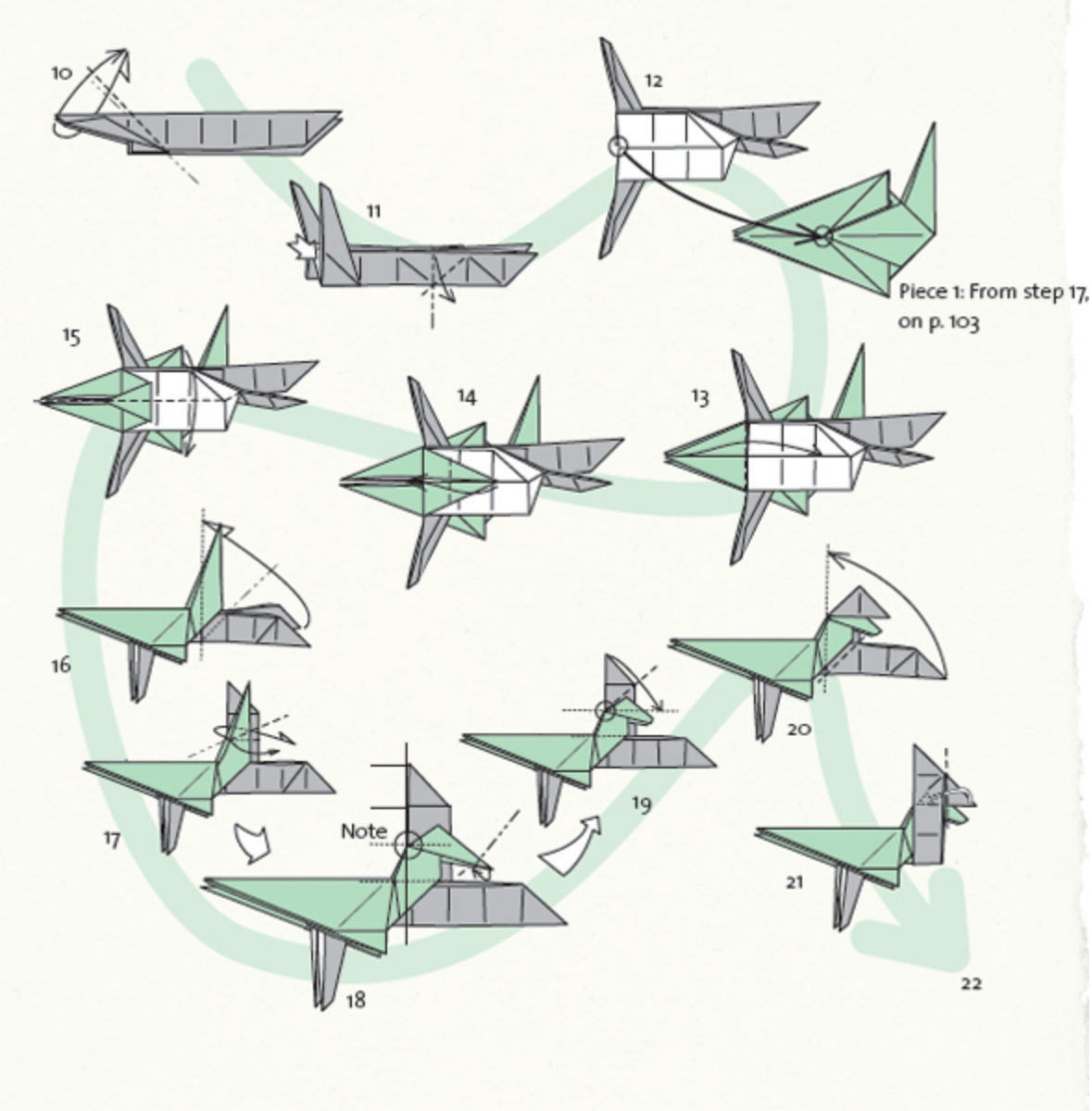


15. Fold a crease and make an outwards fold.
16. Adjust; Pull the tip pointing upwards a little to the right. Now the first part of the dalahäst is ready.

Part 2:
1. Fold so that you have 7 vertical and 7 horizontal creases on the paper (8x8 squares). You will be using these creases as guidelines as you fold.
3. Fold like the windmill, see p.17
5. Fold one row of squares inwards, and do another windmill row.

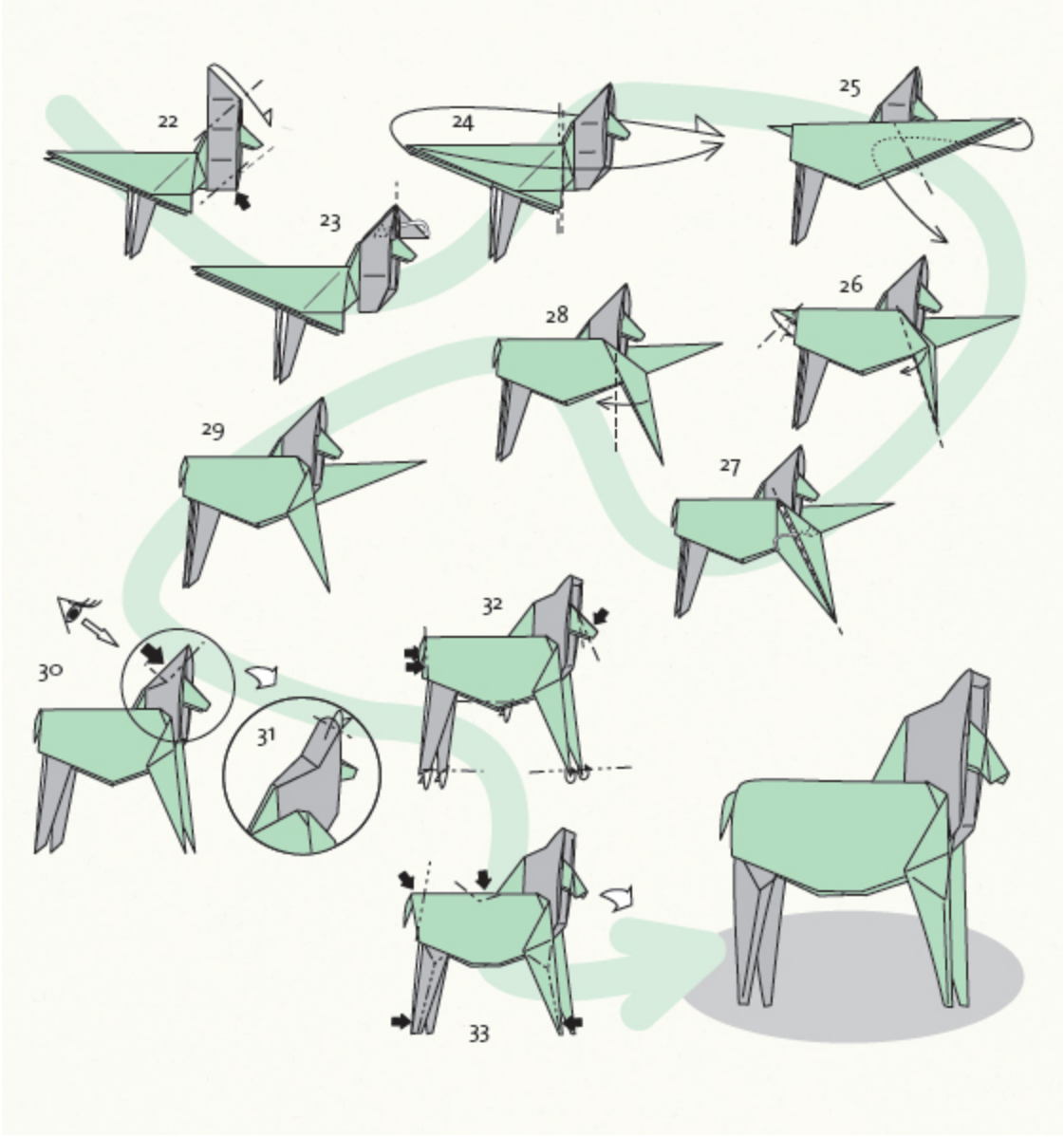
6. Fold so that the flaps are parallel.
7. Grip the point between both tips on the right side, illustrated with a circle. Steer it towards the other point. Take hold of the shape's upper and lower sides and then push together towards the middle.

Dala Horse



11. The two long tips will become the back legs. If you look at the model from behind it looks like a W. Fold down the leg closest to you.
12. Now lay the first part of the horse on the bottom and the second part on top. Place it so that the circle-marked points are on top of each other.
13. Fold the lower tip up and fasten with a clip.
14. Fold out a piece that becomes the tail.
16. Fold the back flap on the other side of the head upwards.
17. Fold a crease and then do an outwards fold.
18. The back of the horse's head should be aligned with the back flap. Fold the muzzle inwards a little. NOTE! Make sure that the back of the head is laying against the bottom paper.
20. Fold the front flap up.
21. Fold the tip into the flap you just folded.

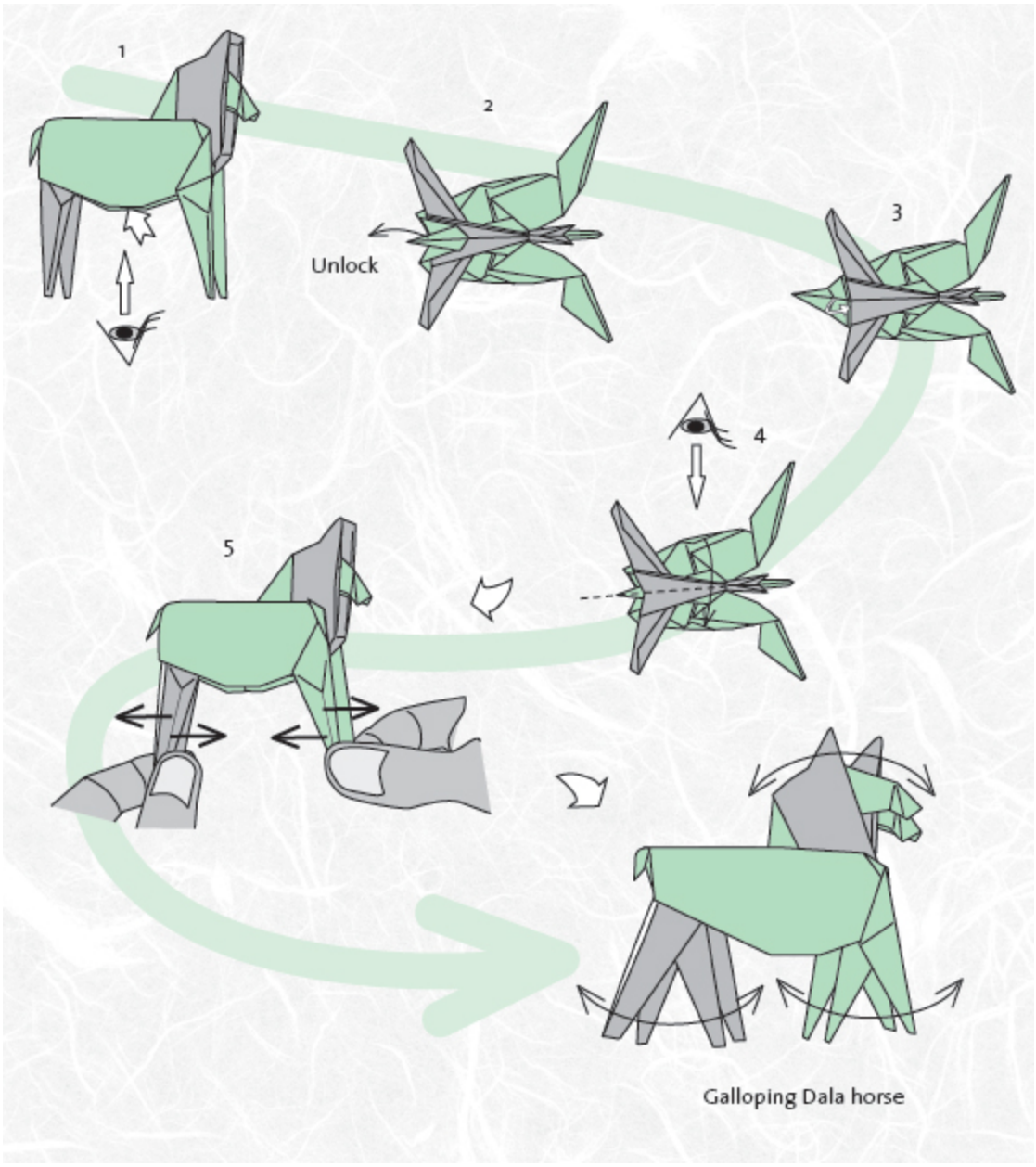
Dala Horse



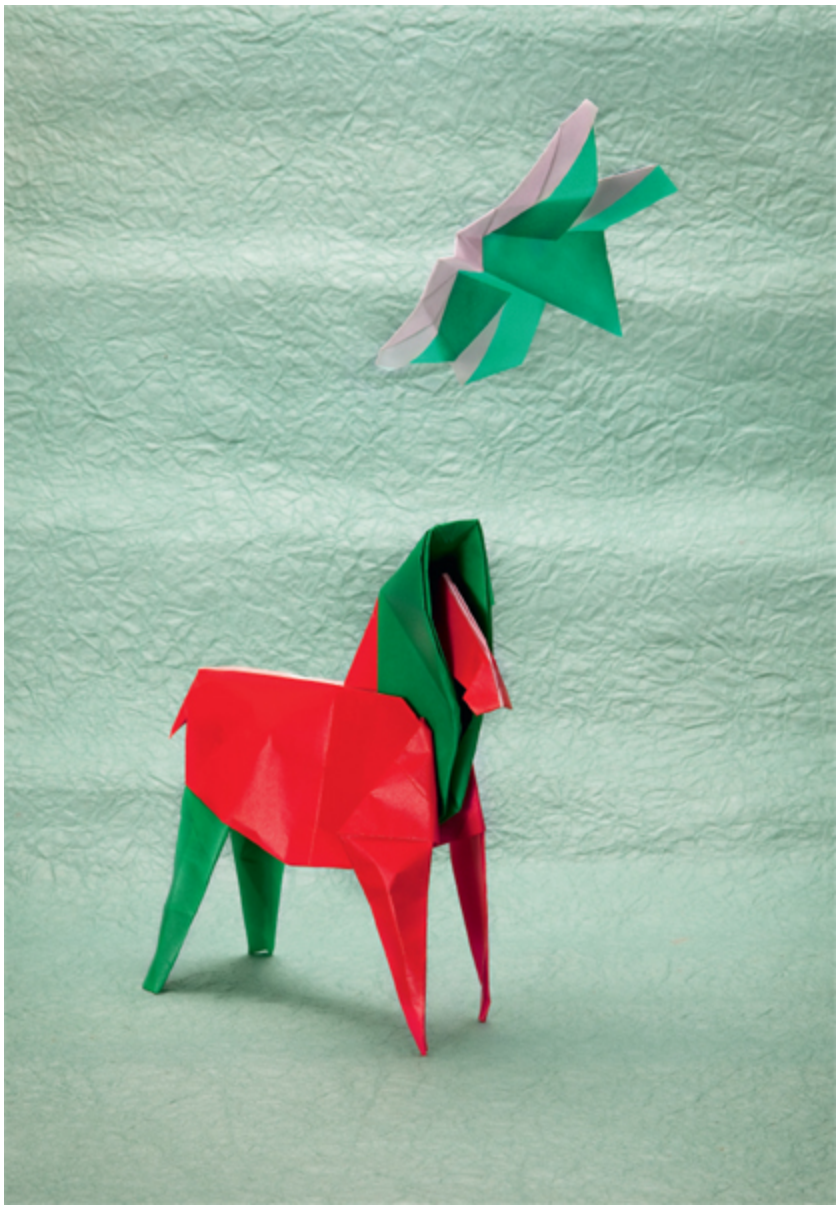
22. Fold the tip down and fold it in the same way you did on the other side. Do an inwards fold to get rid of the edge on the bottom.
24. Fold the left flaps towards the right.
25. Do an inwards fold.
27. Fold the left little flap in the right flap.
29. Turn and repeat steps 25-29 on the other side.
30. Form the ears of the horse. Pinch the backhead and shape an edge about ¼ inch from the tip of the ear. Fold a tiny bit of the tip inwards.
32. Fold the edge of the backside inwards, and round the stomach. Do inwards folds on the hooves.

33. If you want you can fold the legs slimmer and more movable.

Galloping Dala Horse



2–4. If you want the horse to be able to gallop you have to unlock it. Unfold the flap underneath the tail and fold it over the backlegs.



A homing airplane is flying above a Dala horse quietly walking.

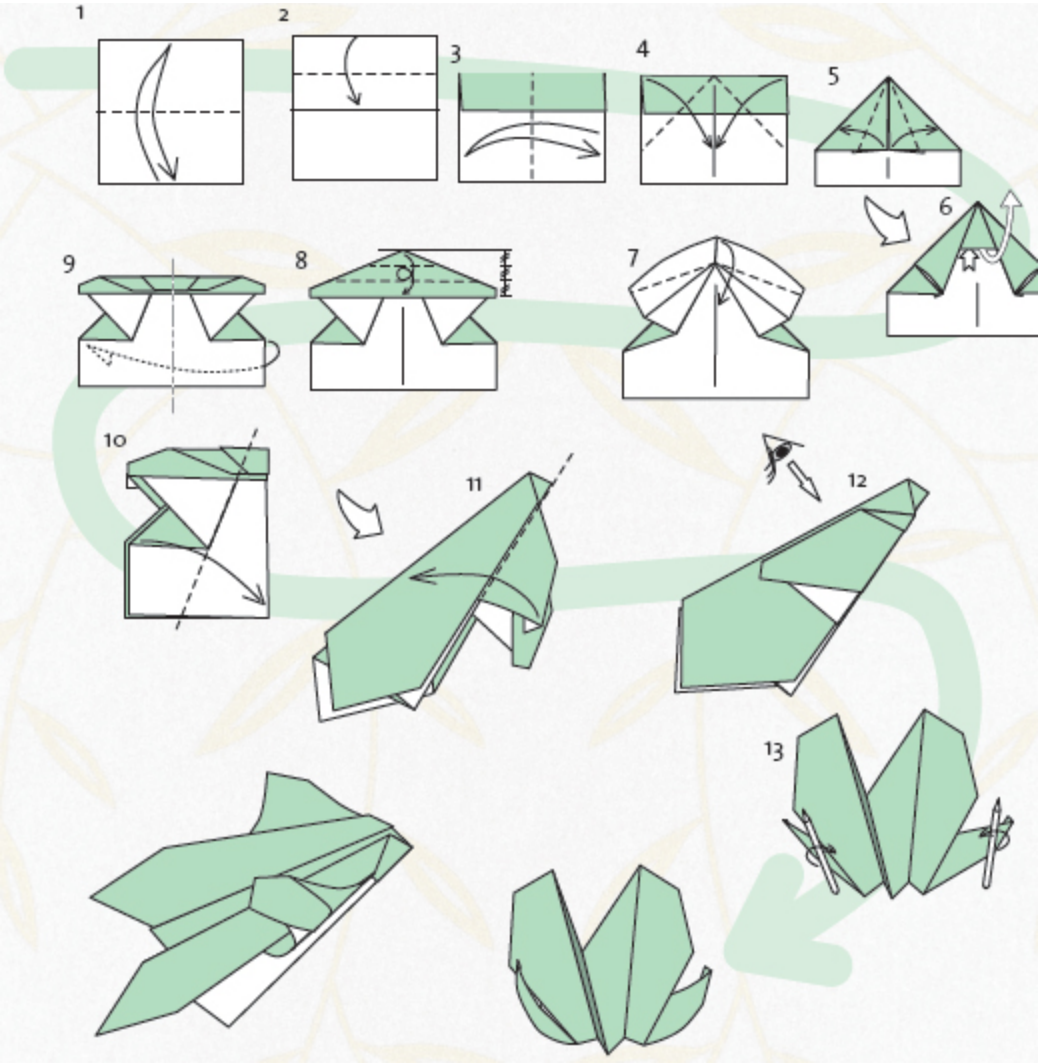
HOMING PAPER PLANE

The thing that is so special about this plane is that it has four wings. The front two wings make the plane stride upwards, but

the back two wings pull it back. This makes the plane move in an upwards circle.

Depending on how you throw the plane, you can make it move in different ways. (See the pictures on the next page.) Norio wanted to make a paper plane that could be thrown indoors with little space and he came up with this.

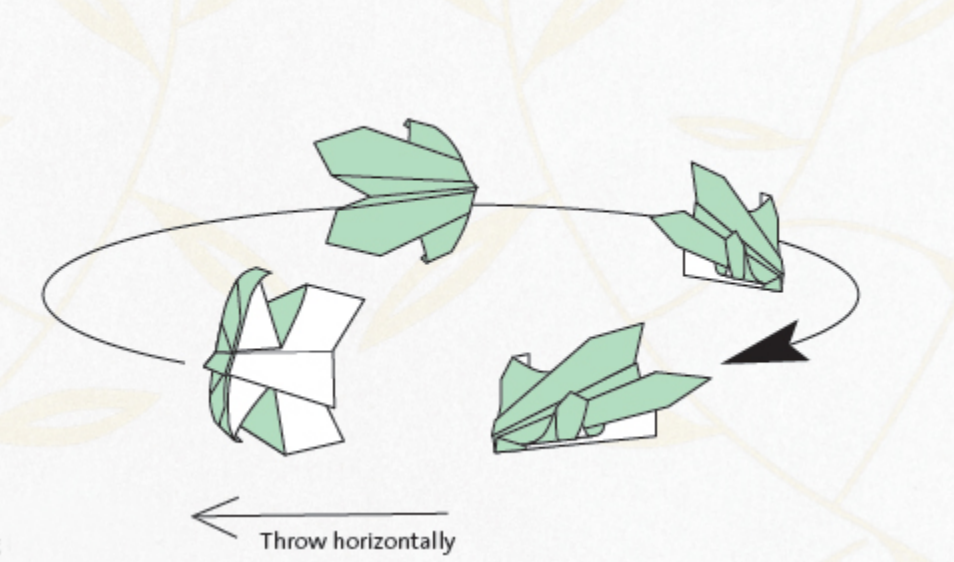
When you are folding a plane it is ideal to use a 60 g/2 oz paper, 15x15cm/ 5.9x5.9in. big.



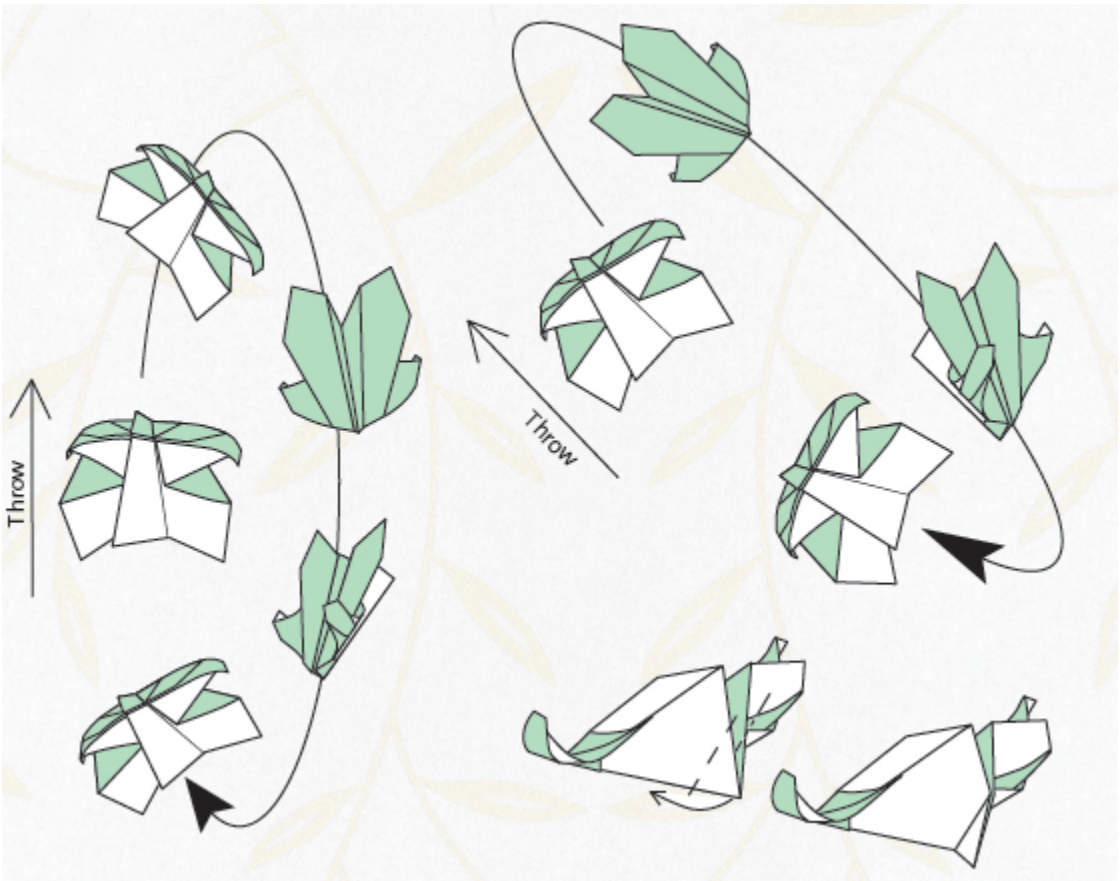
6–7. Hold the back flaps in place and unfold the front flaps as the picture shows.

10. Fold the wing down and repeat on the other side.

13. Fold out the wings and wind them so that it looks like 14.



Hold the Homing Paper Plane with the one wing pointed against the floor and the other towards the ceiling as you throw. Throw in the direction of the arrow, horizontally.



If the HPP doesn’t return the way it should, try to bend the tail as pictured.

Heading towards The Brocken? An older witch on a quiet flight.

CHALLENGE YOURSELF

You have now travelled very far into the world of origami. You are able to fold the base models and the most important traditional shapes. You understand the principles behind the

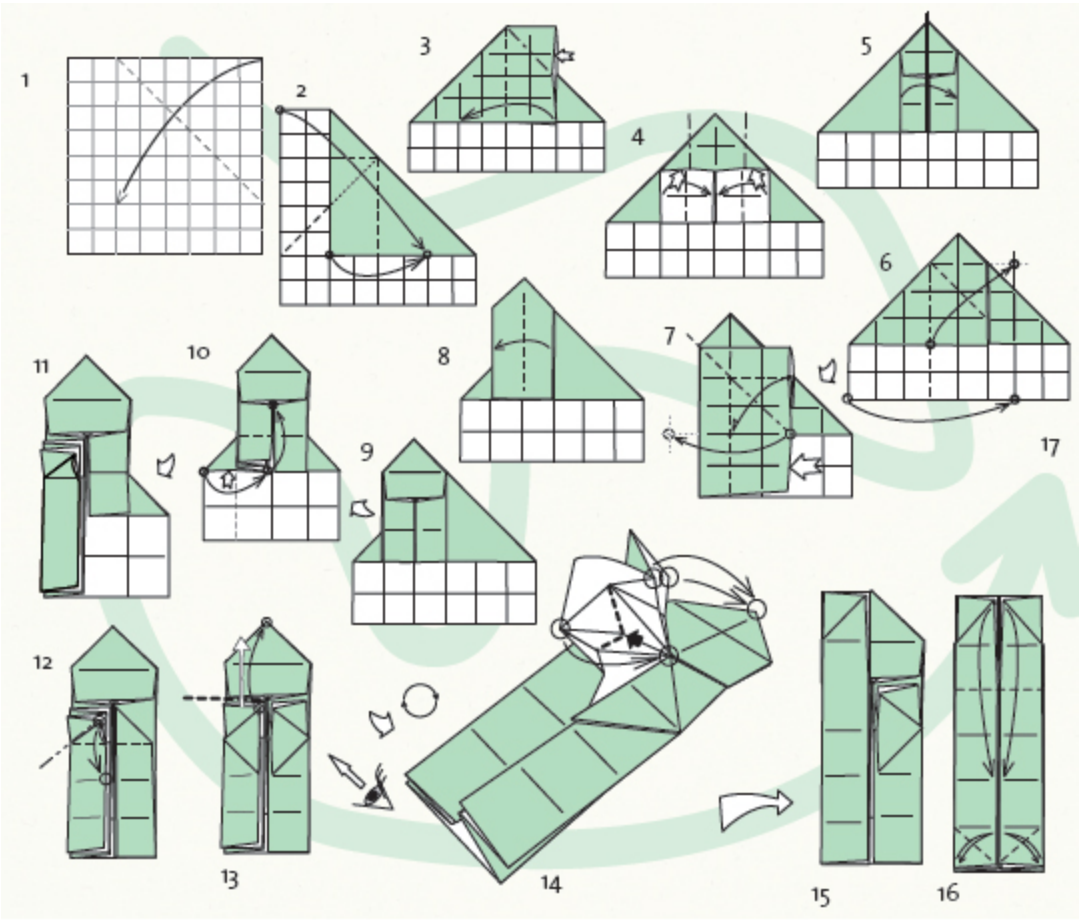
formation of models and maybe you have even started to work on some creations of your own. You no longer need every single hand movement explicitly explained. Now it is time for some real challenges signed off by Norio Torimoto himself! Good Luck!

To ensure that the severe bulldog's looks are as realistic as possible, it is important to emphasize its unique traits.

BULLDOG

Norio's intention here is that you should work to produce as much of the bulldog you feel is possible. Consider the facial expressions, the muscular chest and the bow-legs. By making its stomach and legs skinnier, you emphasize the chest.

It can be especially tough to execute the dropped ears; This is also a detail that is hard to properly explain in writing. The best way is just to experiment as you go. This is one of the challenges of this particular origami model.

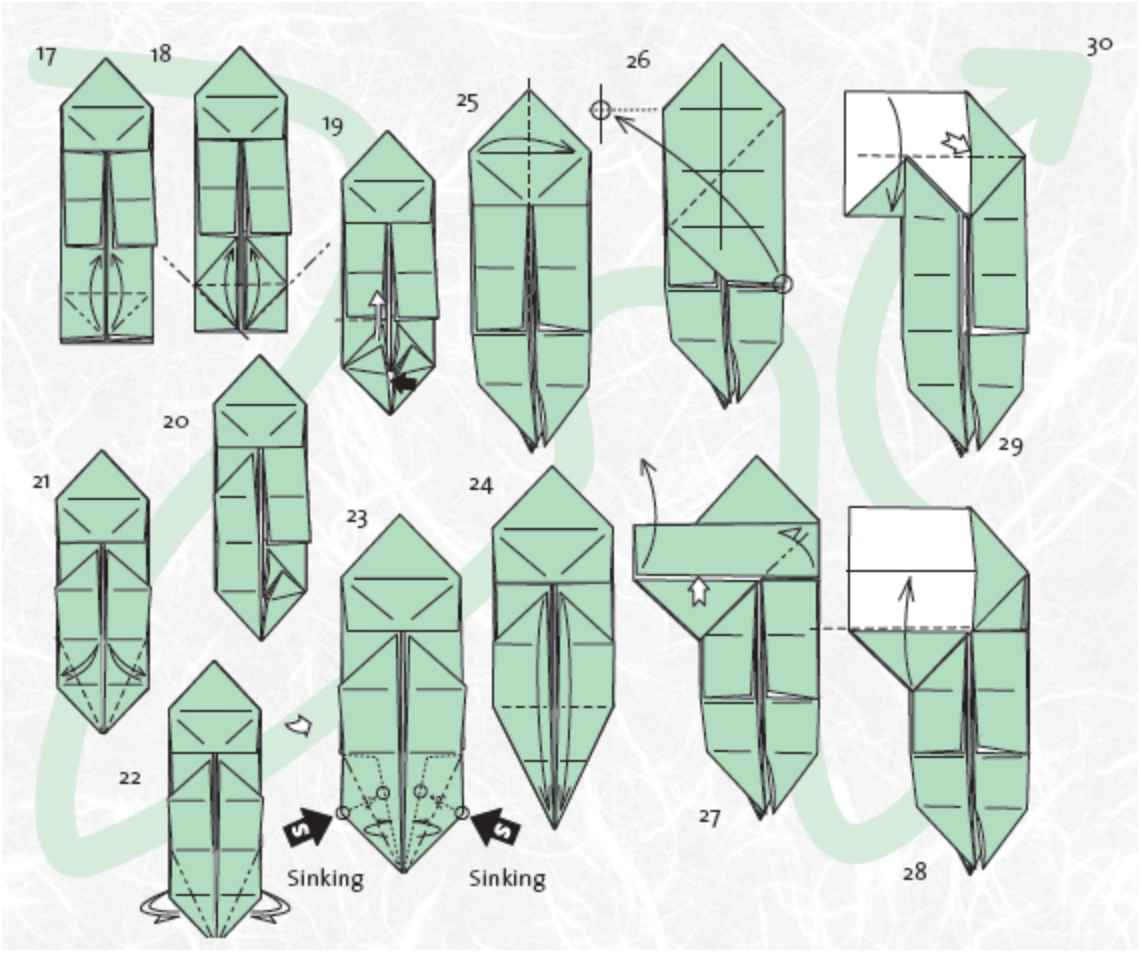


1. First fold seven horizontal and seven vertical lines so that the creases create a checkered pattern of 8x8.

4. Fold the inner flaps in towards the middle on each side. Place your index finger under the lowest flap and pull it upwards. Gently push the

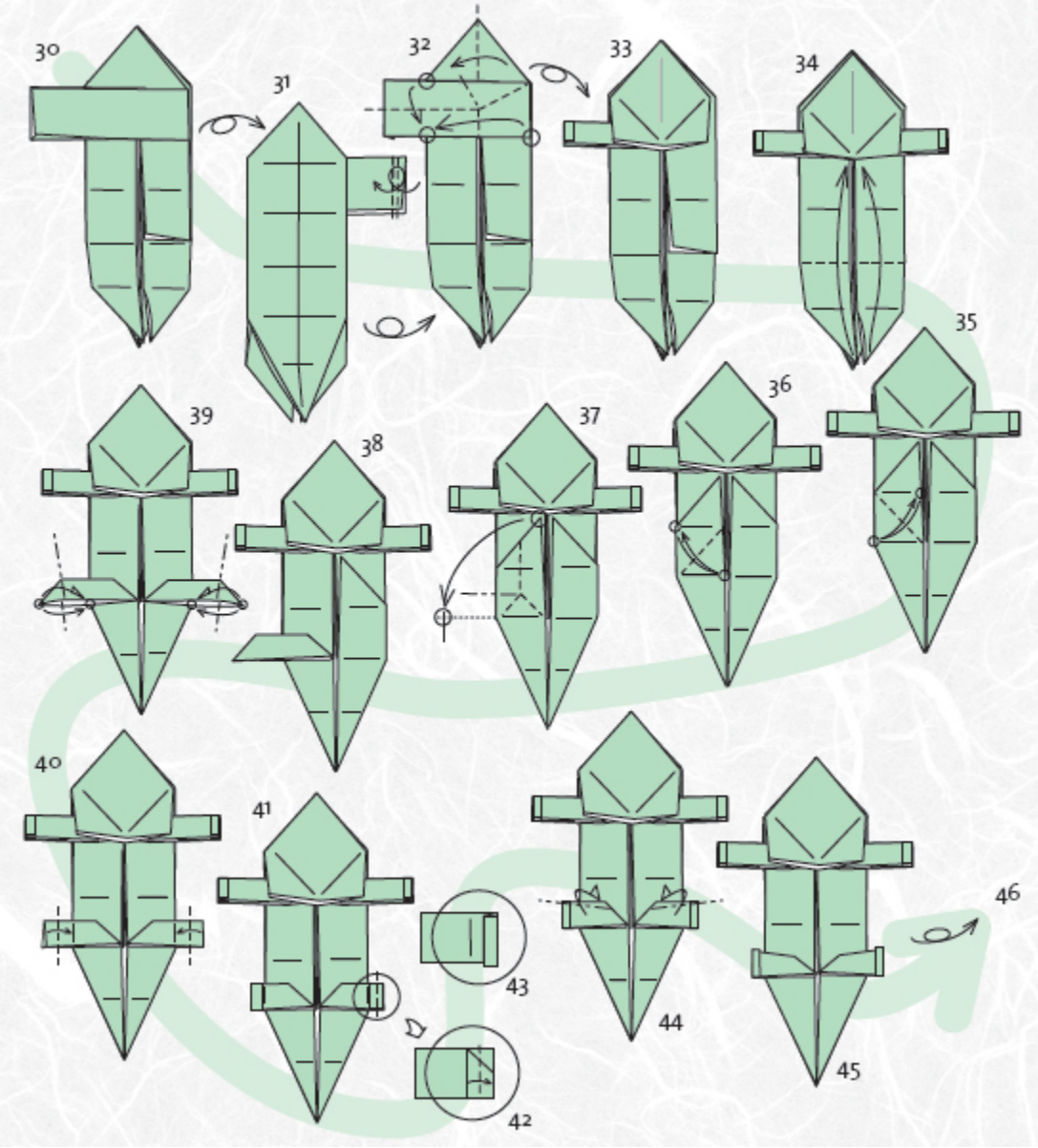
sides in.
6. Fold so that the lower point is lying down against the upper point.
7. Move the upper right flap to the left. Place your left index finger on the lower point where the first vertical and horizontal squares meet. Push from the top.
9. Repeat steps 5-9 on the right side.
10. Unfold all the folds in the middle on the left side and tuck the left flap underneath.
11. Repeat on the right side.
12. Take hold of the point that's marked with a black circle and fold it downwards so you create a triangle. Do the same on the right side so the two triangles create a square.
14. Take hold of the front flap and gently pull it backwards; while you do this push from the inside where the paper is bending inwards to avoid the tearing the paper.
15. Repeat on the right side.

Bulldog



16–18. Fold the upper flaps downwards, as illustrated. Fold a square on the bottom, in the same way as in steps 11-12.
19. Pull the upper left flap, while at the same time pushing down on the edge that now appears on the flap, as you did in step 14. Repeat on the right side.
21–22. Fold a crease by folding forwards, then unfold and fold backwards as well.
23. Do a sinking fold on the left side, push the triangular shape inwards, as illustrated. Repeat on the other side.
25. Fold the entire top long flap over the right.
27. Fold up and at the same time fold the right corner in, as illustrated.
29. Insert your index finger where the illustrated white arrow points while also folding down. You should then get a rectangular shape.

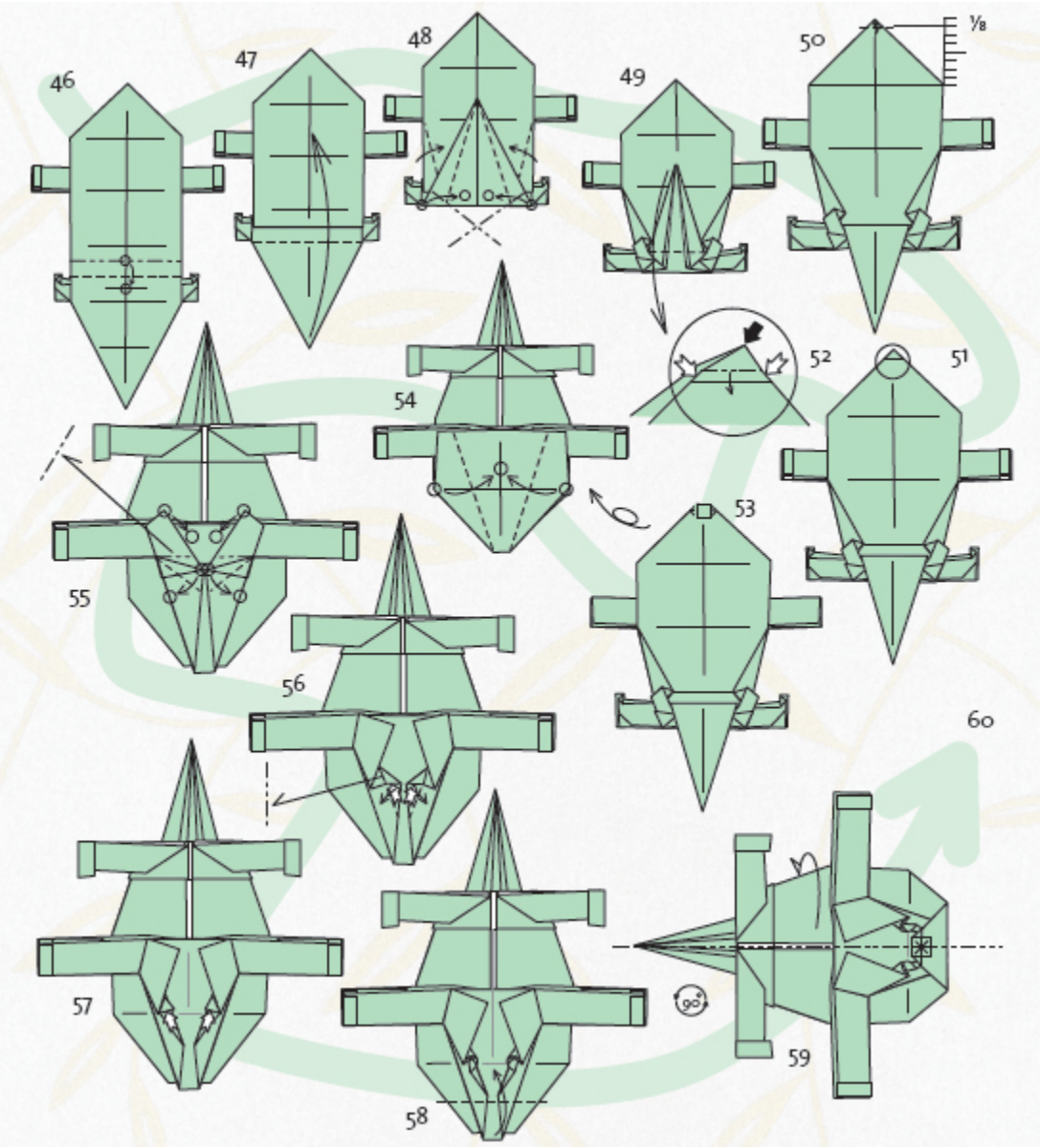
Bulldog



32. Fold the leg down to half its width, while at the same time steering the upper right flap towards the left.
33. Fold the right front leg like the left, steps 25-33.
35. Fold down to make a crease and unfold.
36. Fold down and fold back. Now the creases should show a cross.
37. Fold the flap (that will become the left back leg) down to half its width and push so that it folds towards the right.

38. Repeat on the right back leg.
39. Fold and shape the paws on both feet.
44. Fold a small pleat to make the paws look more robust.

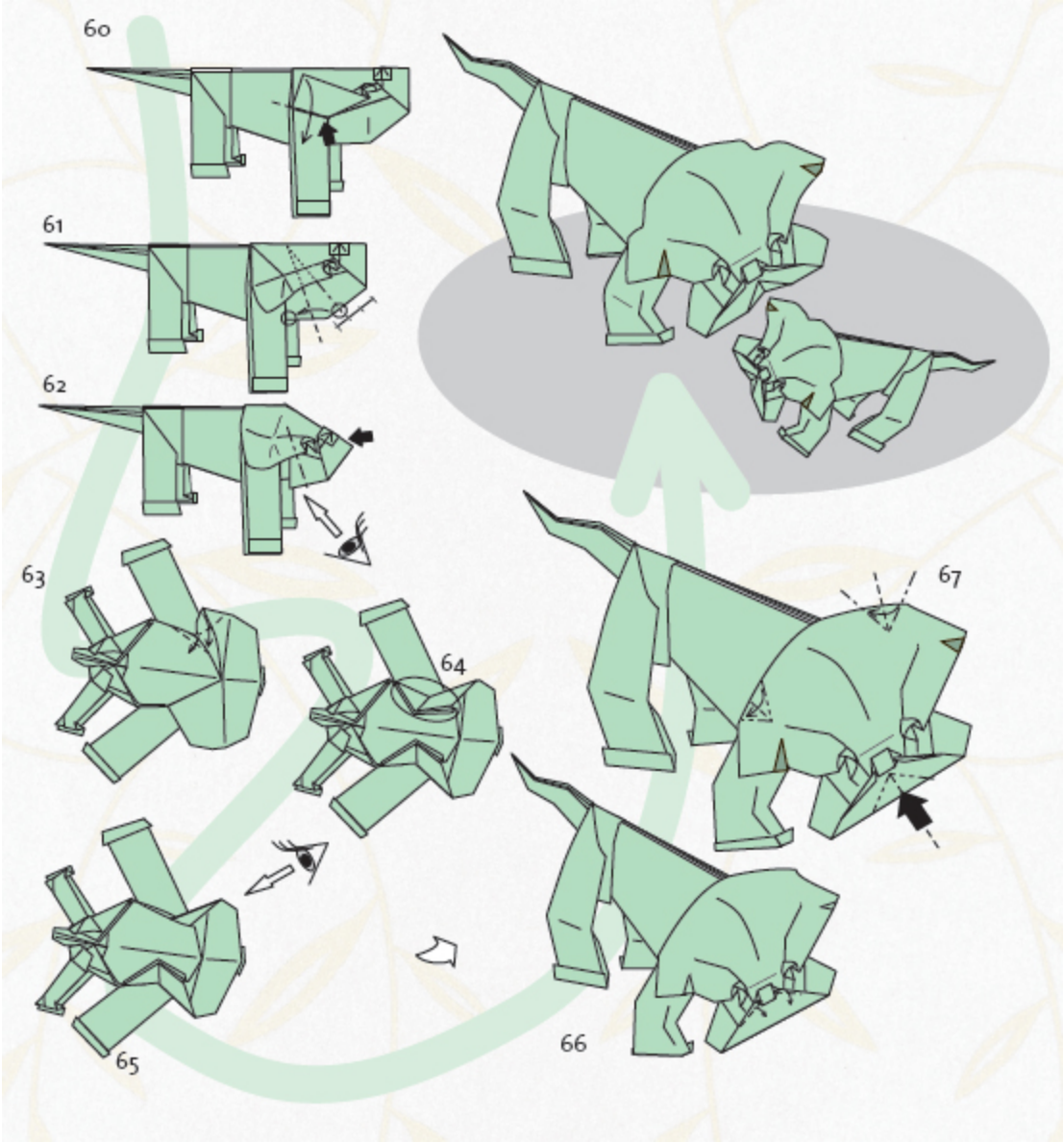
Bulldog



46. Do an accordion fold in order to achieve the dog's distinctive traits: the large, dominant chest and the smaller back part.

48–49. Now you are going to make the tail slimmer. When you fold the tail slimmer, a pleat will appear. Pinch to make sure it remains. Repeat on the other side and steer the tail down.
50. Fold a small pleat for the nose.
51–53. Fold like you did on the armchair model, see p.50, step 2-3, with the help of a toothpick or similar object.
55. Take hold of the left inner flap and fold the points in the middle down towards the left. This way the upper flap will automatically move towards the right. Repeat on opposite flap.
56. Lift the flap on the left side and push a part of the flap, as illustrated, inwards. Repeat on the right side.
57. Lift the flap the picture shows and flatten. Now you've made one eye.

Bulldog



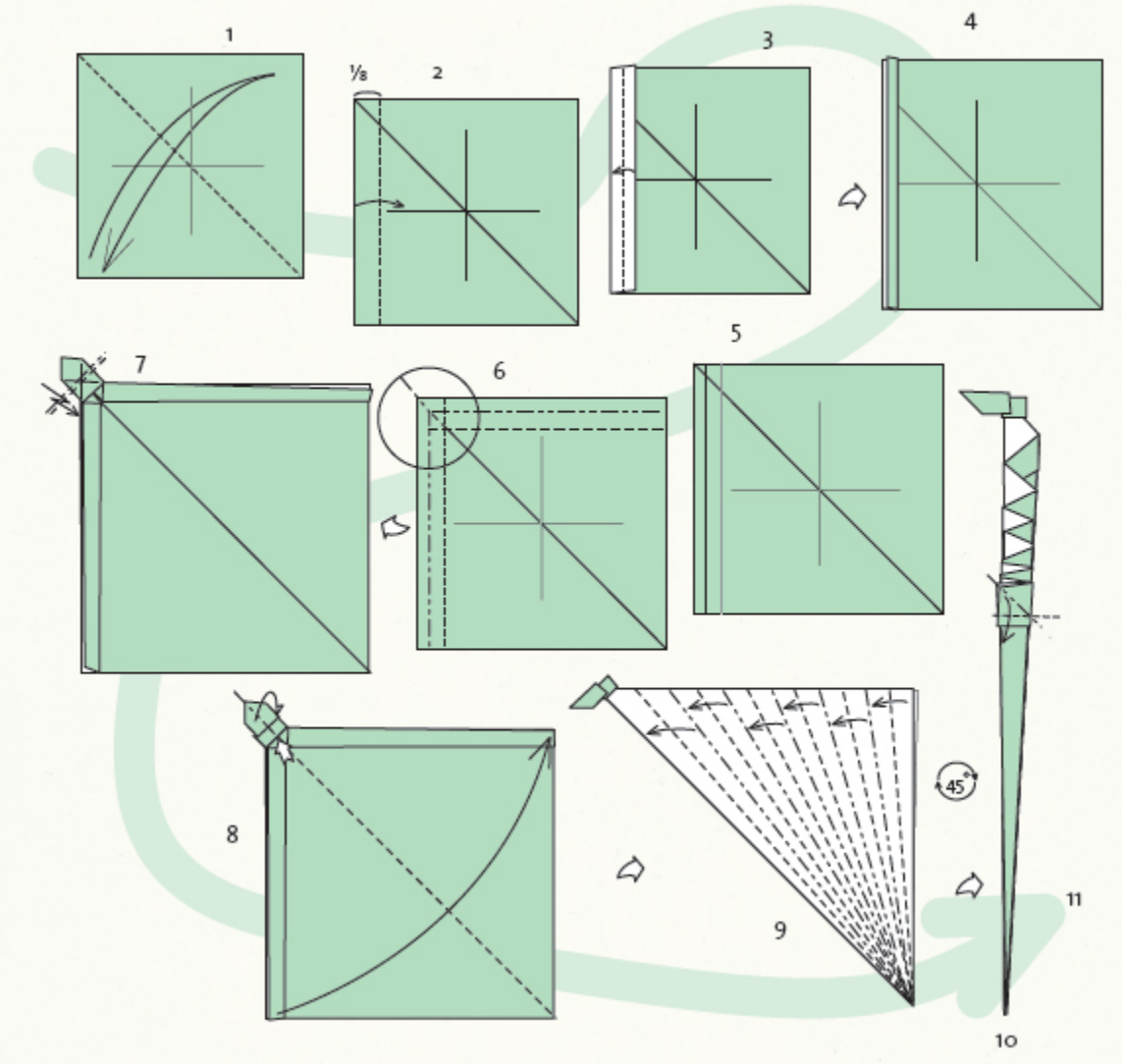
60. Fold down the flap that will become the ear. Hold a thumb on the fold next to it. Push the folded flap up from its underside. Shape the ear. Then repeat on the right ear.
61. Make the face rounder by doing an accordion fold. Repeat on the other side.
63–65. Fold the pleat in to lock.
66. Fold a small pleat on each side of the nose to create the illusion of a nose and whiskers.

67. Fold a pleat by the mouth—both to make the model more realistic looking and to lock the front part of the face. Fold a pleat to shape the ears.

WITCH

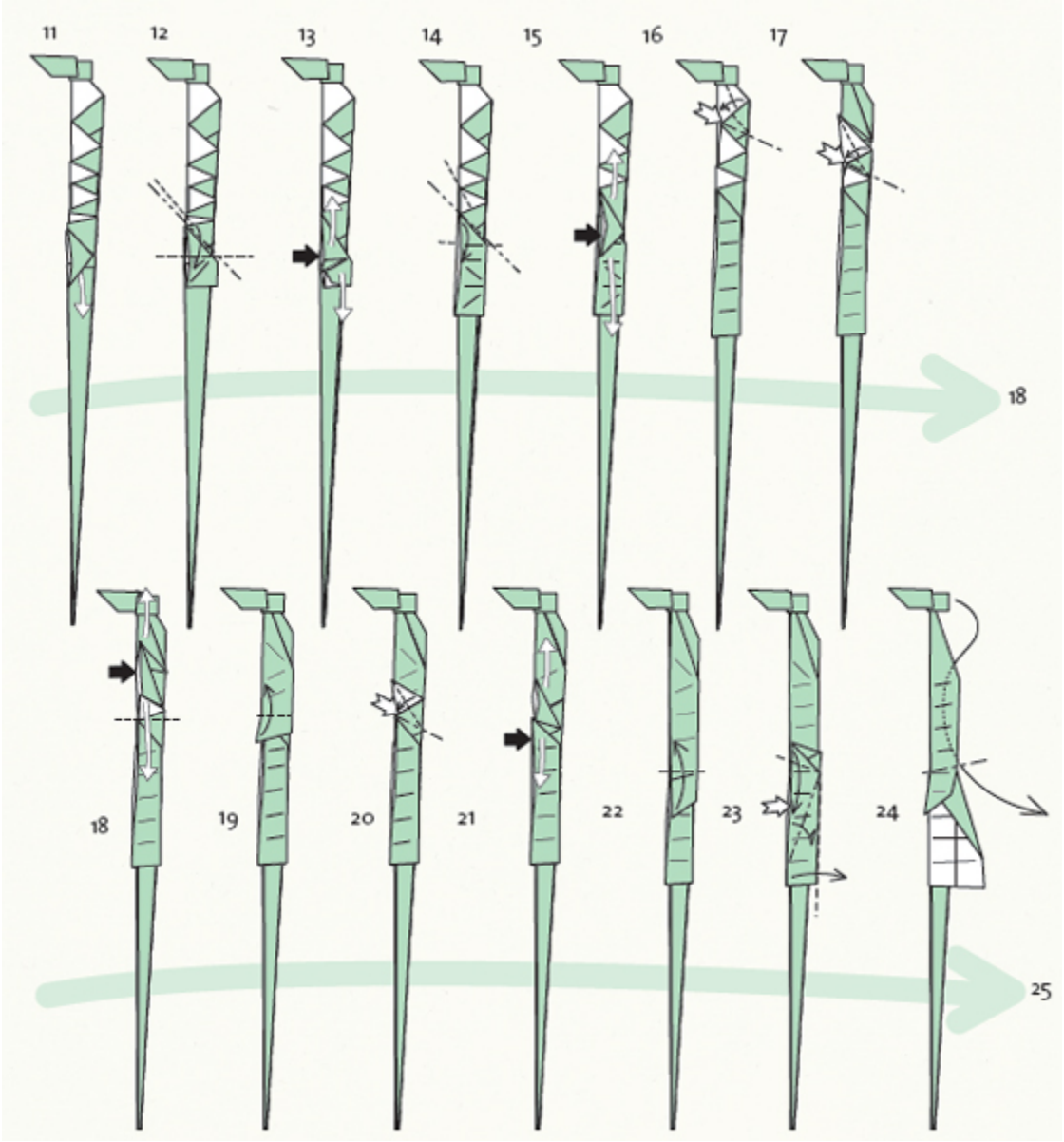
This model is fun because it illustrates how you can fold something pretty complicated— both the witch and her broom— out of a single squared paper. This model is not based on any of the traditional base models, even though some of the witch's head is partly a square base.

The model also gives you a lot of creative space: It's up to you to decide if the witch is battling a headwind or enjoying a comfortable flight in a tailwind. You can also make her ancient or young.



5. Unfold completely and fold the same way on the upper edge.
6. Fold as shown with the friendship dove, p.44, steps 10-14.
9. Fold twelve equally sized fan pleats on each side.
10. Fold down as illustrated.

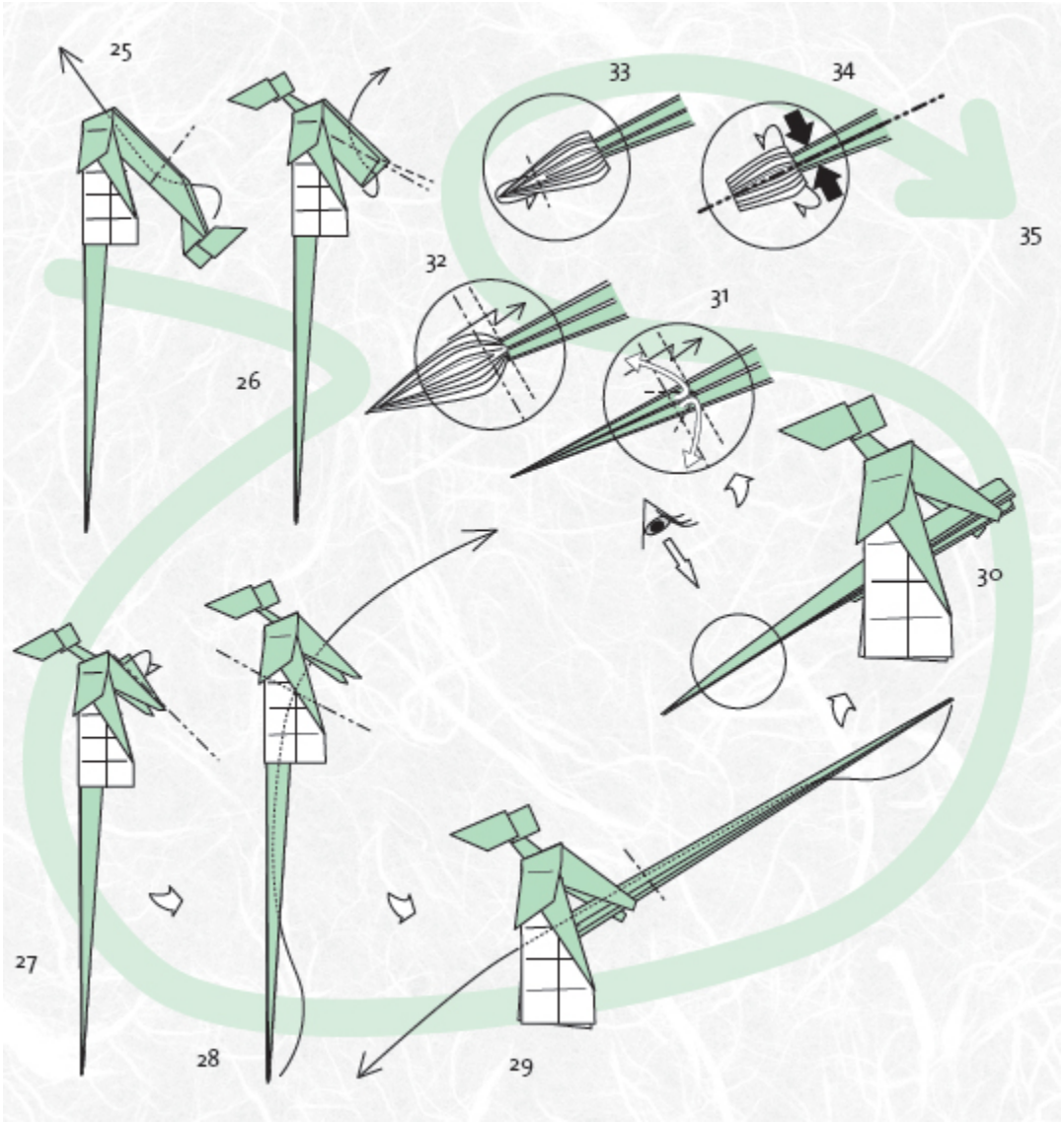
Witch



11. Pull the flap under the triangle down towards the right.
12–14. Pull out and push in as you did for the bulldog, step 13-14. Then fold a pleat above, so that you get a triangle.
15. Do as in steps 12-14.
16. Fold in behind the next-to-last fan pleat, as illustrated.
17. Fold once more the same way.
18. Pull out the same way as steps 12-14.
19. Fold in behind the flap as in step 16.
21. Pull out and push inwards as in steps 12-14.

23. Now you will shape the dress. Insert your index finger as illustrated and fold a pleat on the side.
24. Repeat steps 10-23 on the opposite side. Then fold the body down by doing an inwards fold.

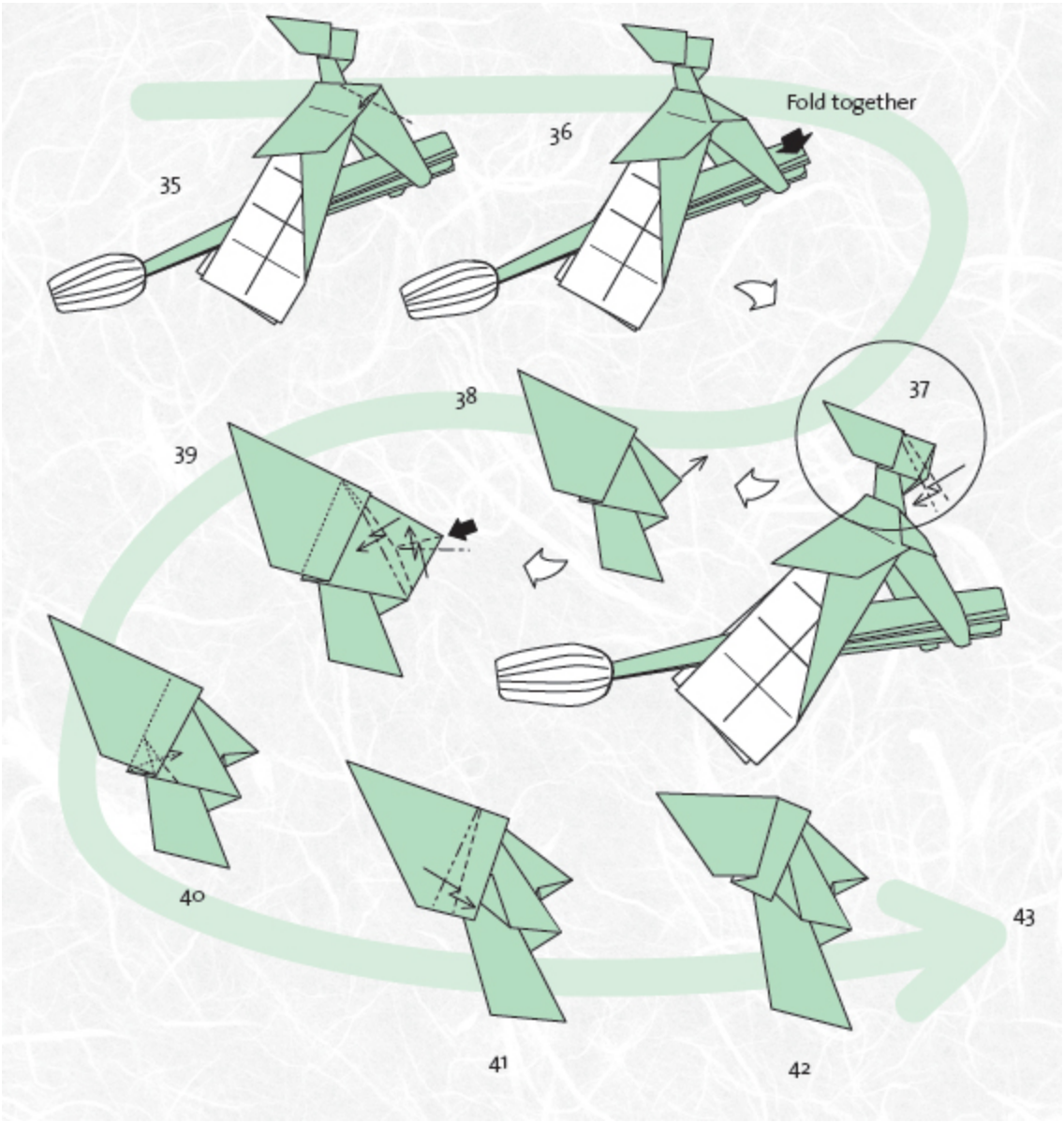
Witch



25. Do another inwards fold and bend the body up.
26. Do an inwards fold again to create what will become the arms.

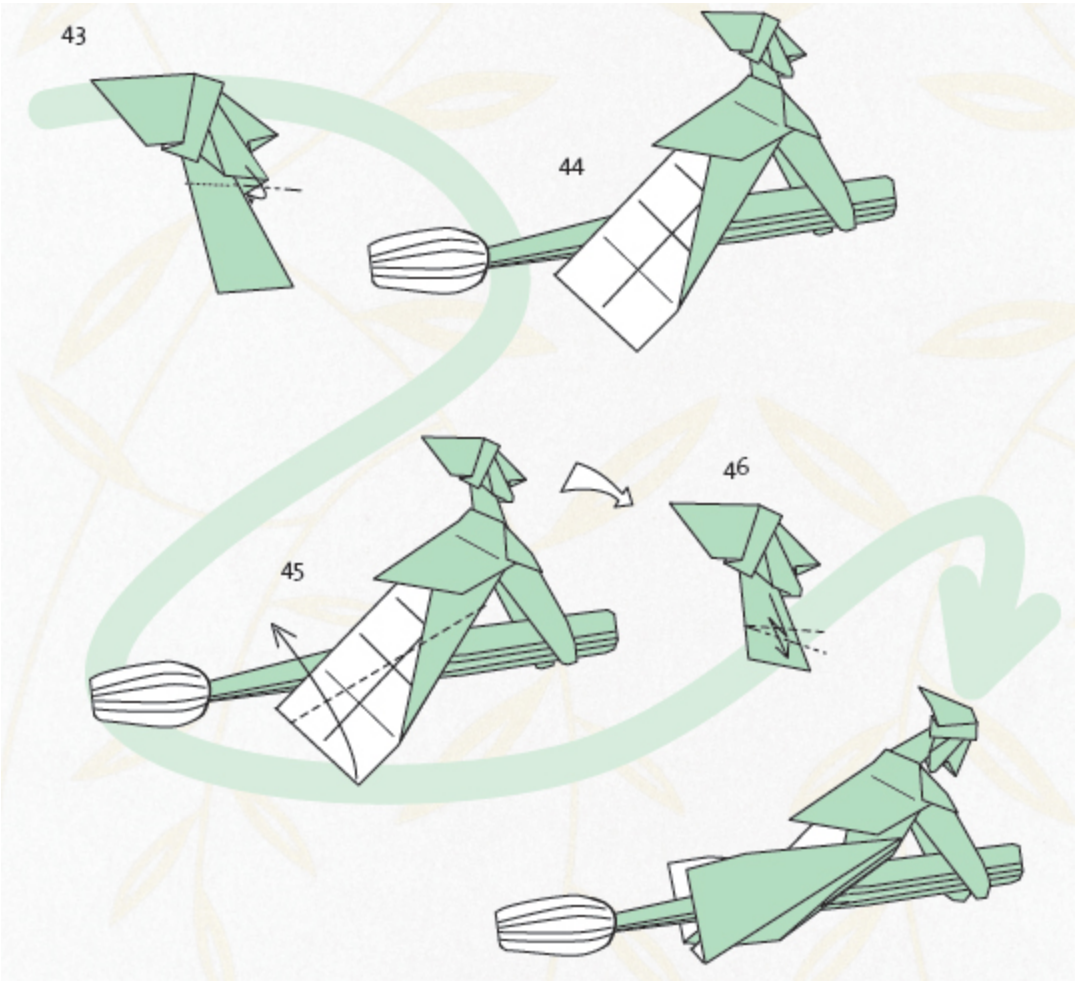
28. Fold the future broom twigs with an inwards fold.
29. Fold the twigs back with an inwards fold.
31. Carefully unfold to do the brush itself. At the same time do an accordion fold.
33. Fold the tip inwards.
34. Fold in so that it is obvious where the brush ends.

Witch



35. Fold the shoulder down and repeat on the other side.
36. Push the shaft together.
37. Fold and do an accordion fold.
38–39. Pull the nose out again and make a little pleat, as illustrated, to create nostrils.
40. Fold a pleat to make ears.

Witch



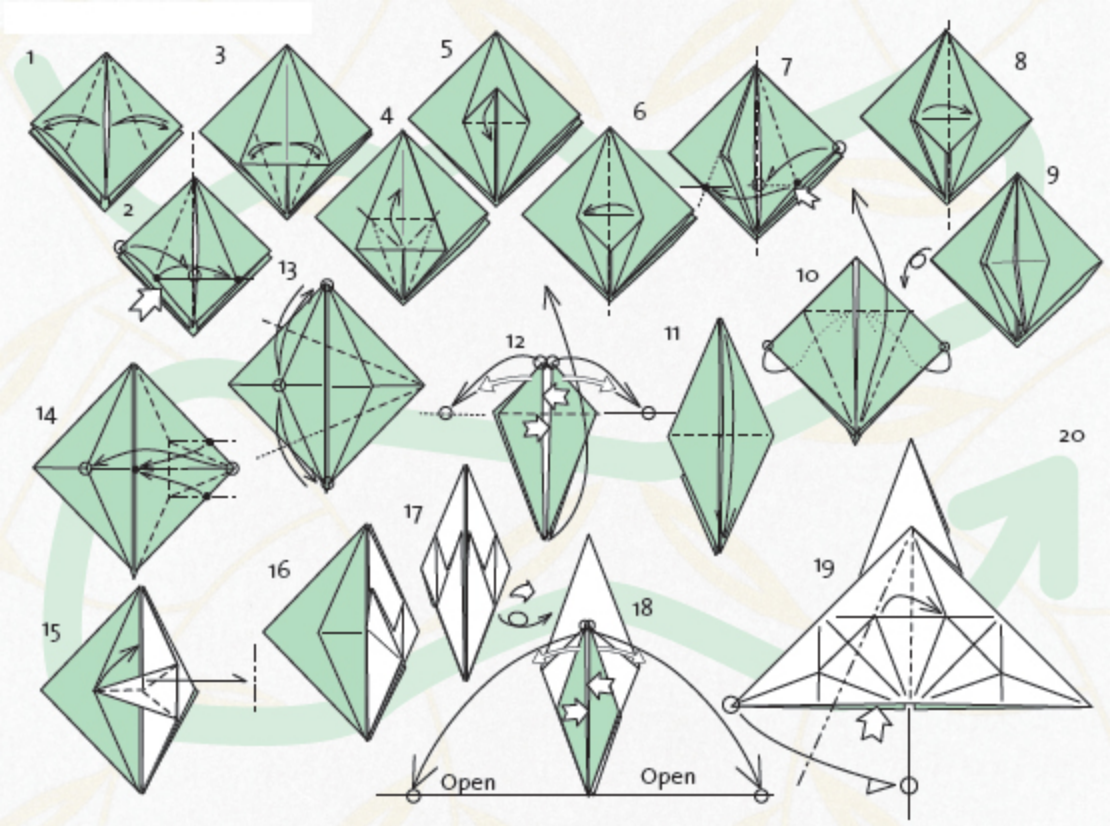
43. Make the jaw pointed and try to create the feeling that it’s an older woman.
45. If you want to create the illusion that the witch is flying at a fast pace you fold the clothes slimmer.

46. If you fold a pleat on her neck, it will look like she's flying against the wind.

ANGEL WITH LUTE

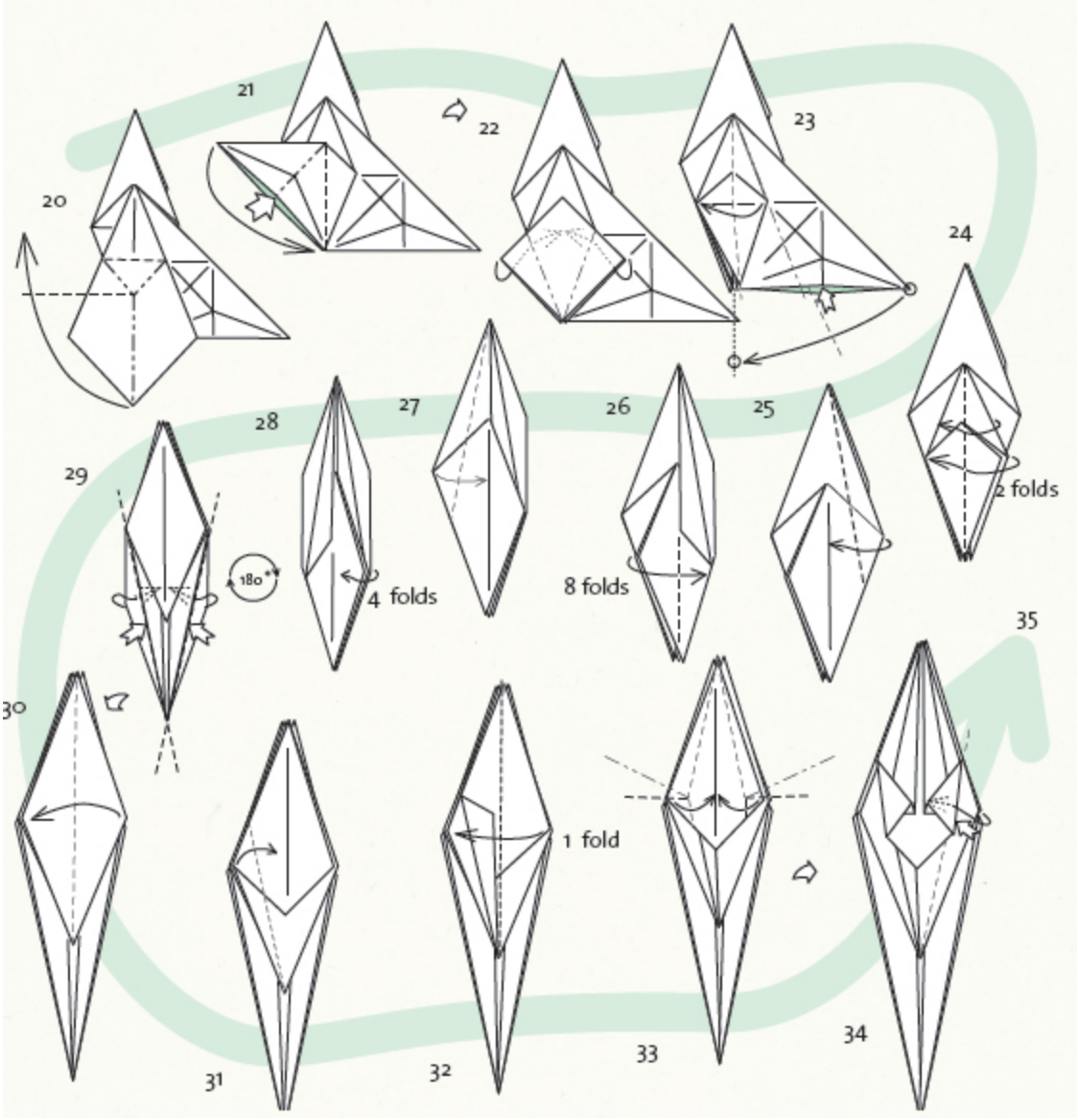
The difficulty with this model is that the angel is doing multiple things at once. It flies, but it's also running at the same time. It plays and sings at the same time. To manage the creation of all of these elements, you will have to keep track of multiple different flaps while you fold. According to Norio, this is the real challenge of this model. If you can fold this model, you can fold most anything. In this model, the angel with lute—-folded in one single squared paper—multiple traditional bases are used. The trained folder will be able to recognize the crane base with many different transformations. Compared to many of the other models in this chapter, this is a very Japanese model, despite the western motif.

From sanbo 1, step 4, see p.33



1. Fold steps 1-4 of sanbo, p.33. Fold with the colored side of the paper outwards, if not the angel won't be white.
7. Repeat steps 2-7 on the right side.
12. Steer the bottom tip upwards, while at the same time gripping the two upper tips and steering them out to the side. Carefully open the two folds so that you get a square.
13. Fold creases and fold back.
14. First fold so that the two points marked with a white circle meet. Carefully pinch on each side of the triangle base and fold a pleat on each side.
15. Pinch both sides of the crease at the middle of the triangle. You will then get a tip that points straight up. Fold that downward towards the model's bottom, as illustrated.
16. Repeat steps 13-16 on the left side.
18. The lower flaps will become the angel's legs. Carefully open so that you get a triangle.
19. Fold the left side of the triangle inwards, as the illustration shows.

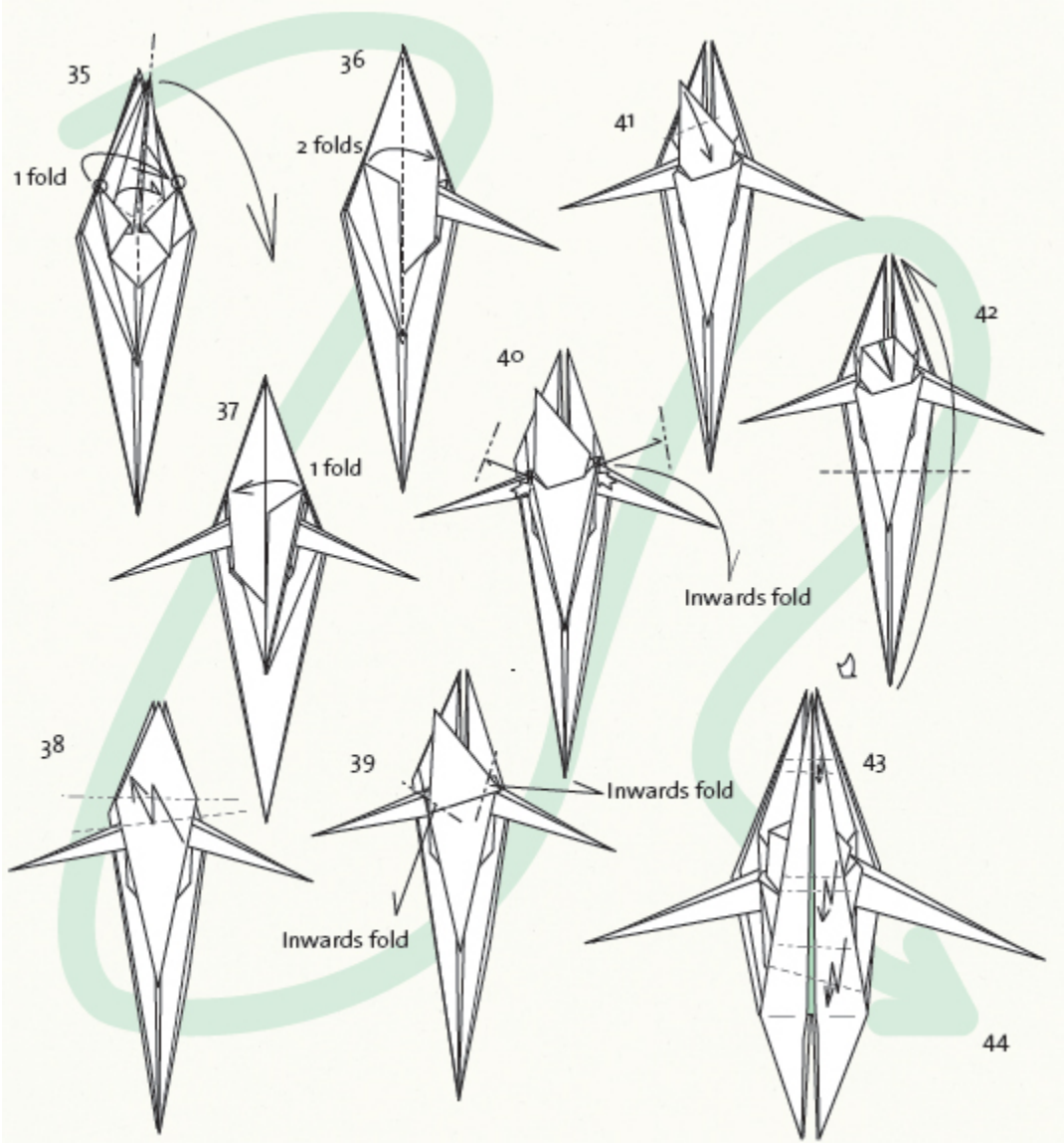
Angel with Lute



21. Insert your index finger in the small pocket the white arrow is pointing towards. Fold like a square base.
22. Fold the upper layer of the square and then fold the sides in as you do in the crane base, see p. 17. Then fold the upper tip against the lower.
23. Fold the right flap towards the left, as illustrated. Repeat steps 20-23 on the right side.
24. Fold two flaps from the left to the right. 26. Fold eight flaps from the left to the right. Repeat steps 24-26.

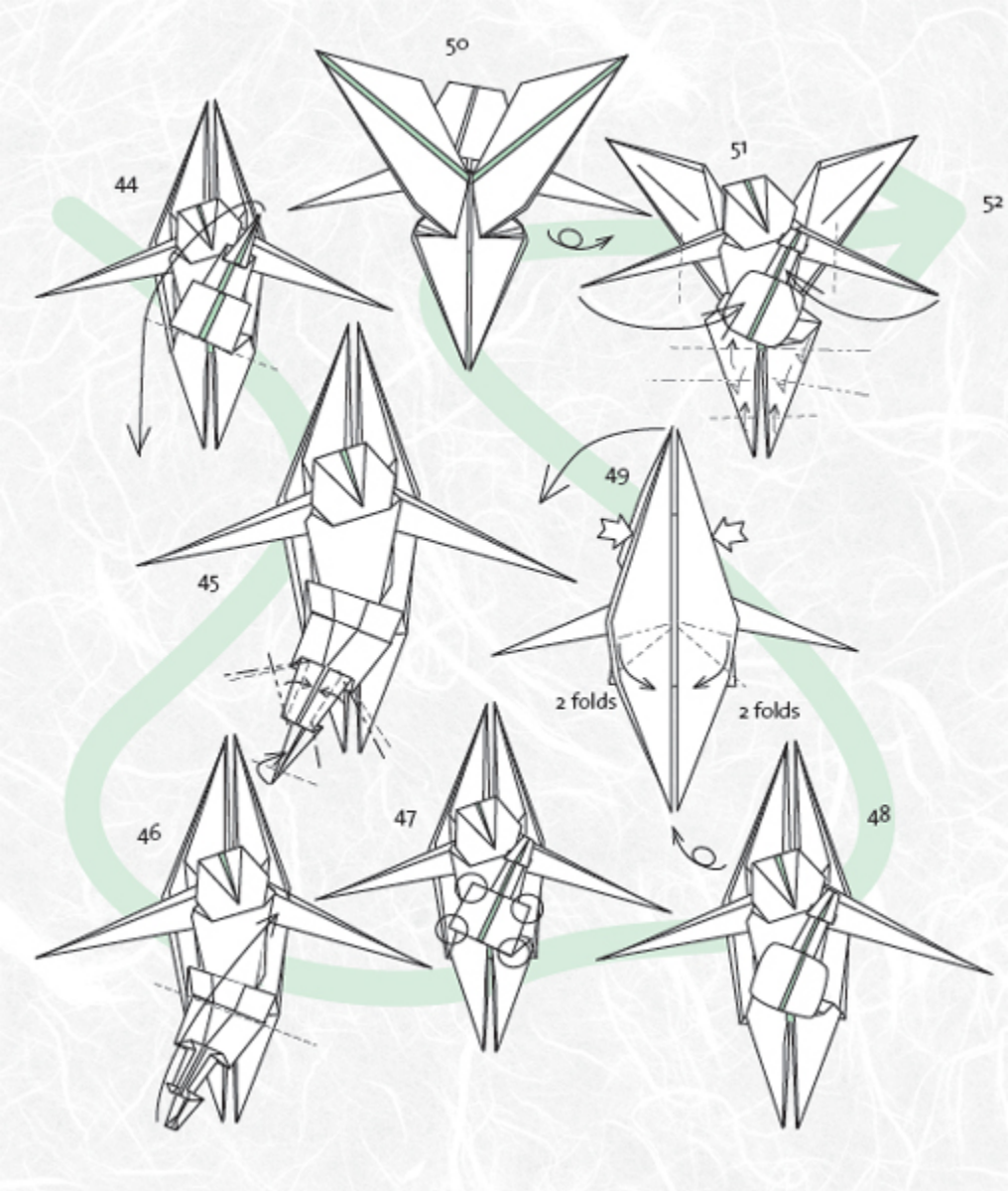
28. Fold four flaps from right to left.
29. Fold up and in, as illustrated.
30. Fold on flap from right to left.
32. Steer the top right flap towards the left. Repeat steps 30-31 on the left side.
33. Fold the front right flap towards the middle. Insert your index finger in the pocket that appears and fold the top paper out towards the right. Repeat on the left side.
34. Fold in as illustrated.

Angel with Lute



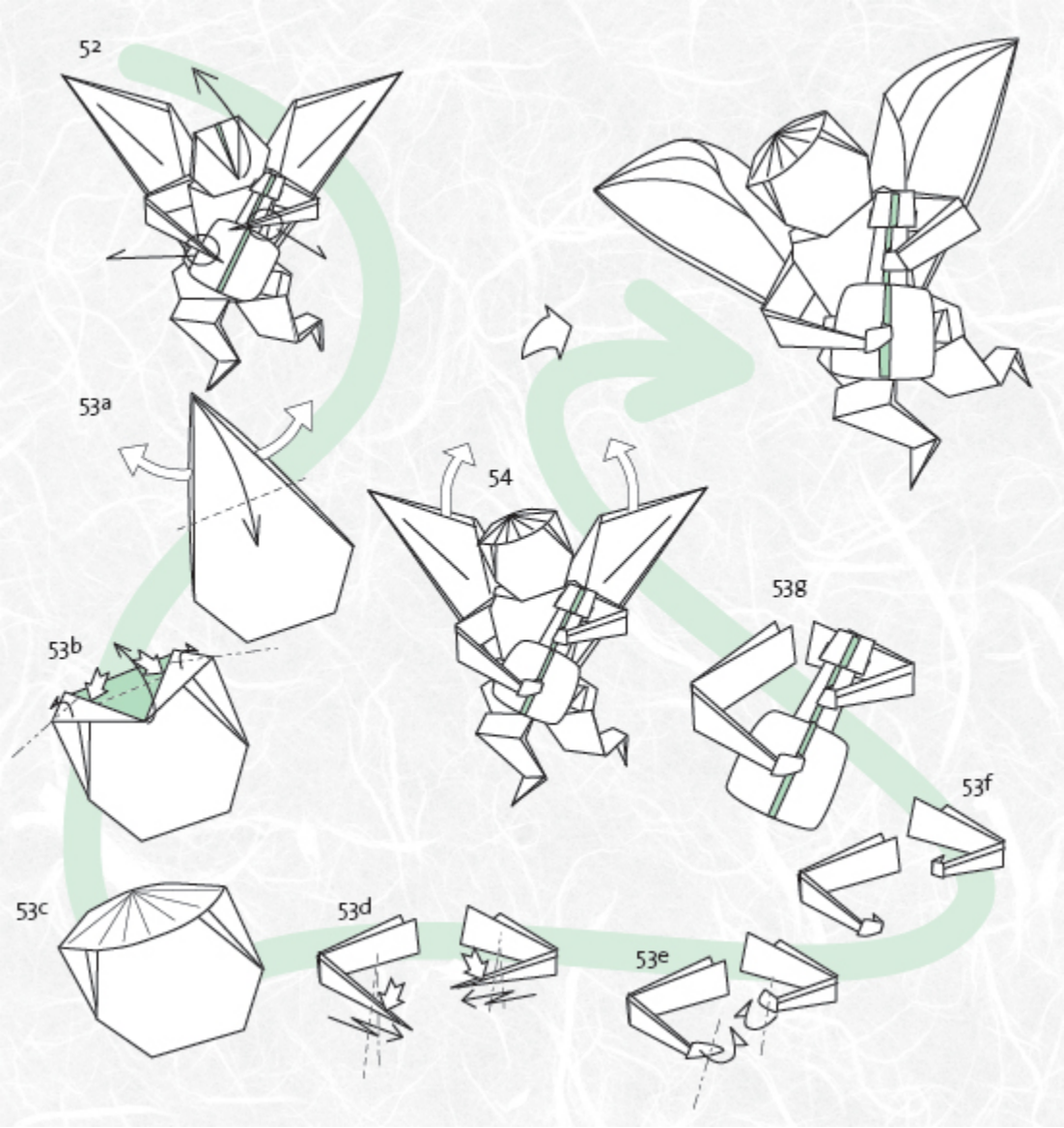
35. Fold the tip (future right arm) while at the same time steering it downwards as illustrated.
36. Flip two folds towards the left. Repeat steps 31-35, followed by folding one fold back from left to the right.
38. Make sure that you have the same amount of folds on the left and right hand side. Make a slightly crooked accordion fold.
39. To create rounder cheeks, round the tips on the face with inwards folds.
40. There will be two tips on the shoulders; fold them in to make the shoulders rounder.
43. Do an accordion fold to create the shape of the lute.

Angel with Lute



45. Fold in to make the neck of the instrument thinner. 47. Round the corners on the resonance box with an inwards folds.
49. Do accordion folds on both sides to make the angel's backside and fold the wings out.
51. Shape arms and legs.

Angel with Lute



53. a. Fold the top forwards, as illustrated, and carefully pull the back paper apart. 53. b. Fold the edges in and shape the head as illustrated.
53. c. This fold will give the head volume.
53. d. Do an accordion fold on the arms and at the same time, fold out the tips to create hands.
53. f–g. Insert the fingers in the gap that looks like the strings. This way you lock the hands and you won't have to glue them. It looks like the angel is playing the chords with one hand and striking the strings with the other.

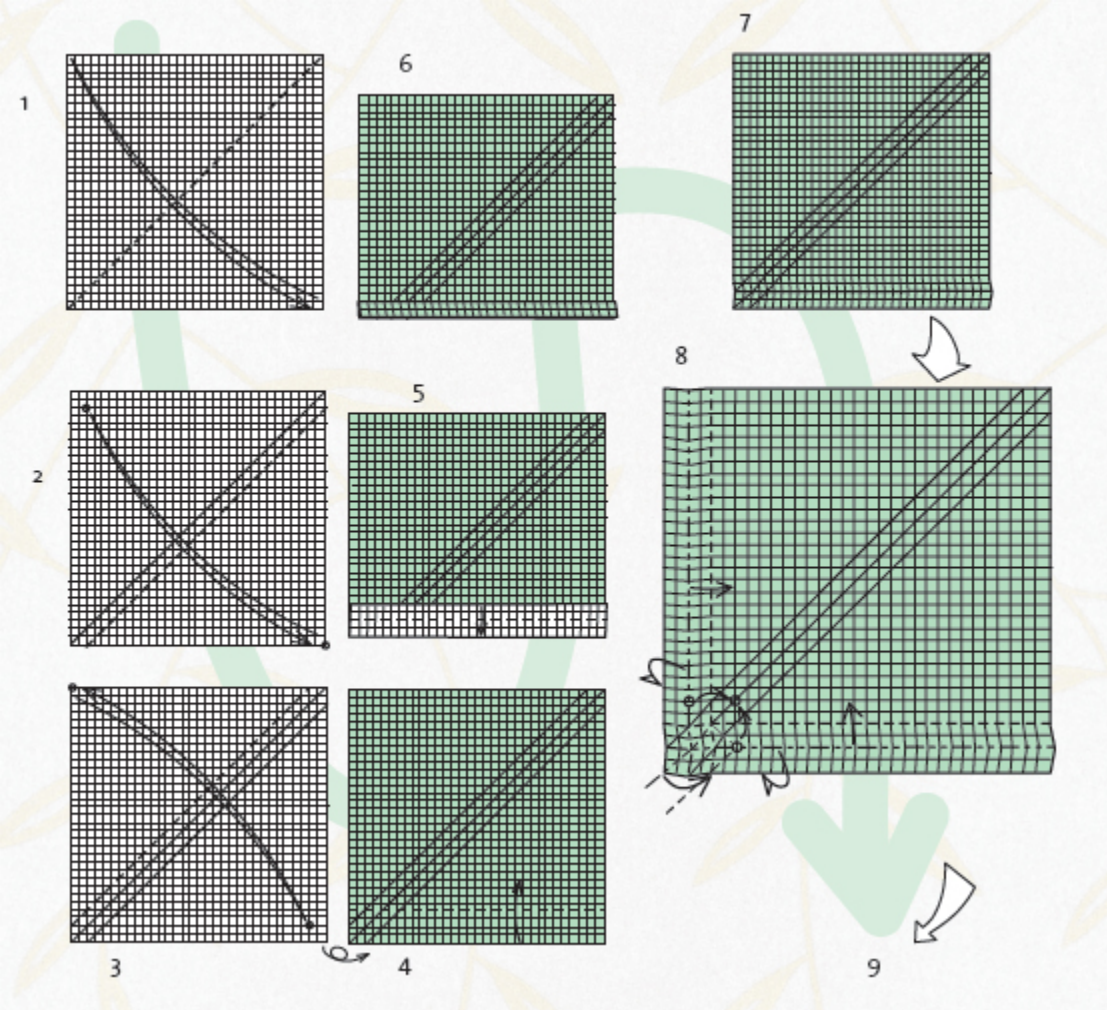
If you want to change the shape you might need glue to ensure that the fold stays in place.
54. Carefully pull the backmost layer on the wings upwards a little to create some volume.

SUBMARINE

This is a combination of a multitude of whole and half squares. The bridge is folded out of a square base, but other then that this model doesn't follow any traditional Japanese origami bases.

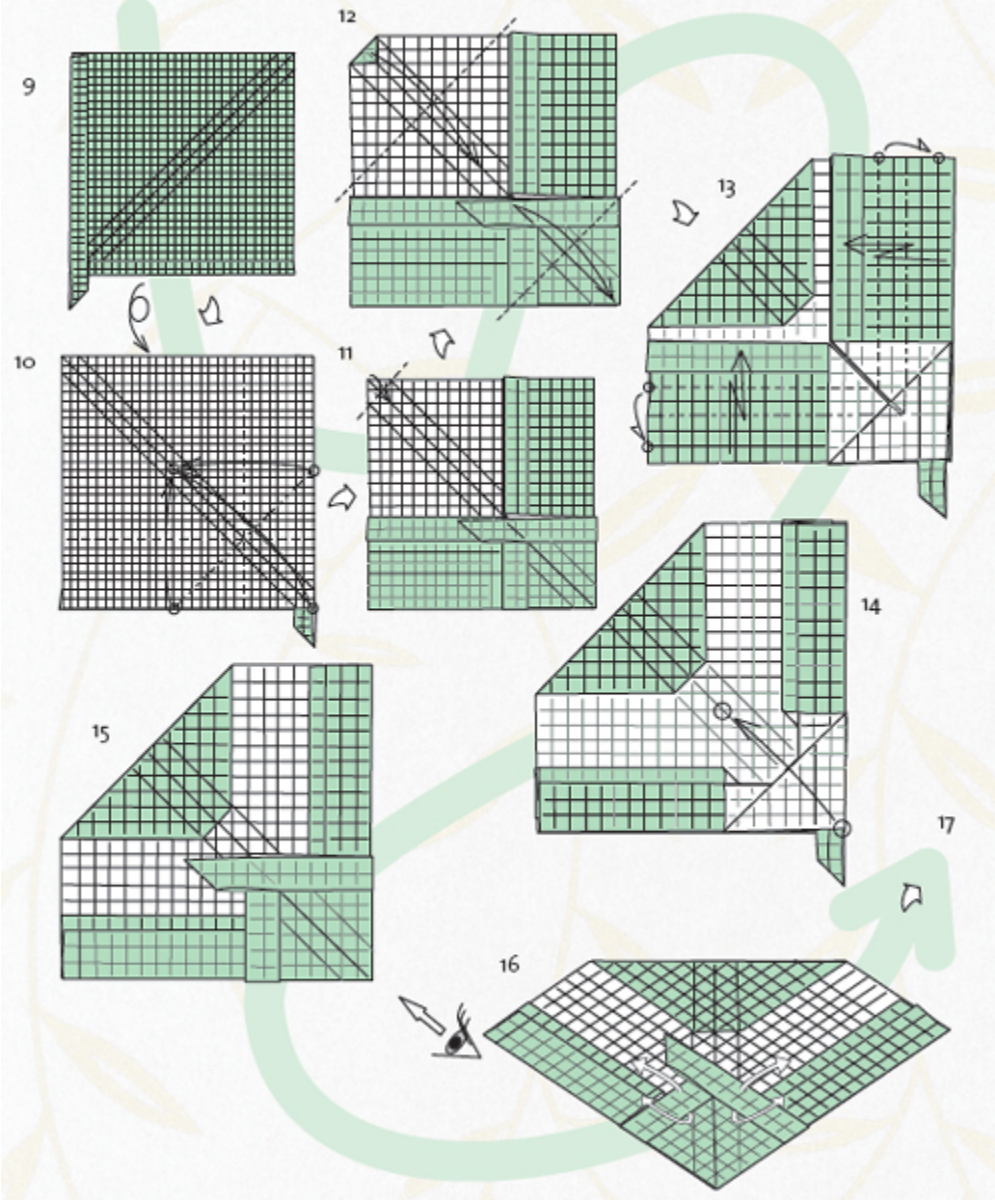
In this model the challenge lies in the fact that your folds have to be perfect right from the beginning; If they aren't, you won't be able to construct this boat.

You need a larger sized paper, about 14xl4in./ 35x35 cm and 15-20 paper clips to fold the submarine.



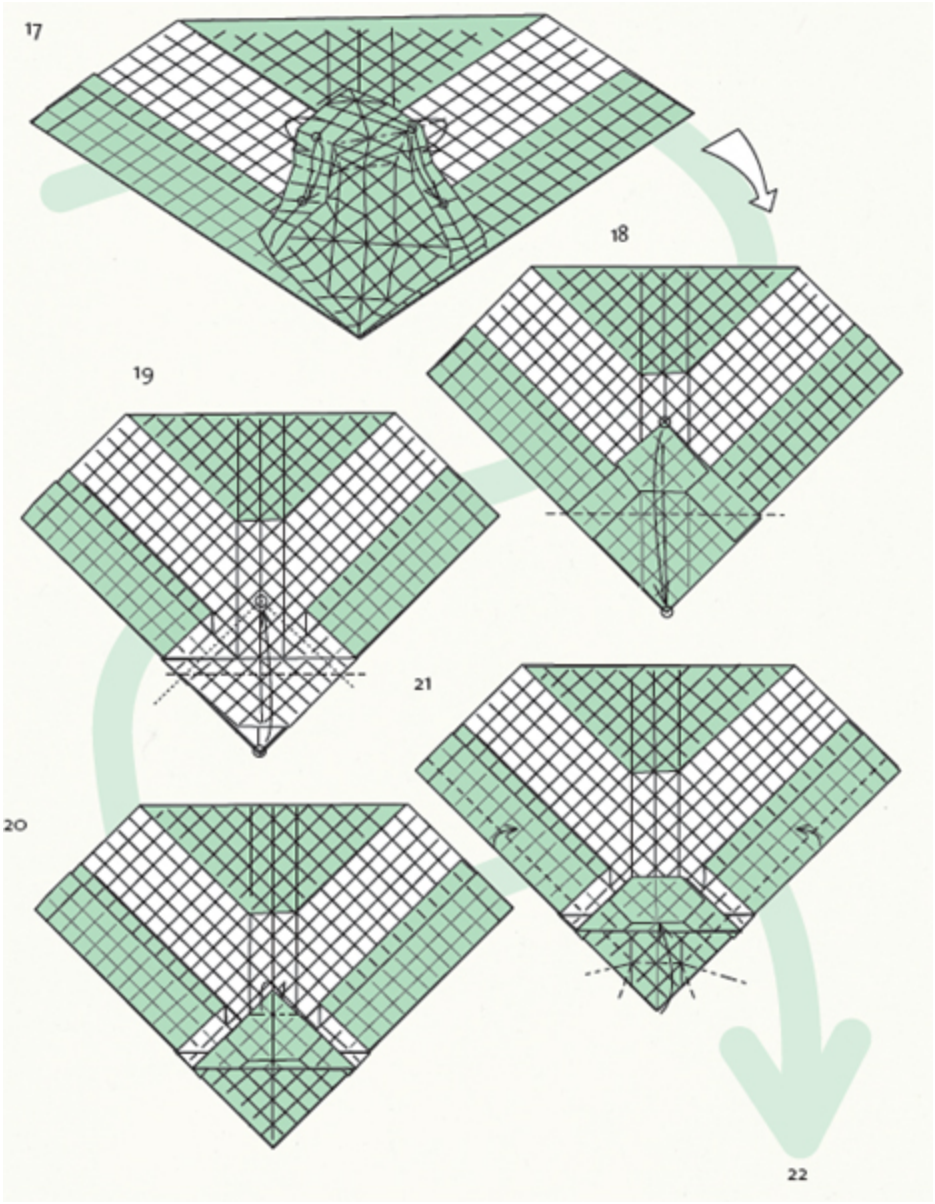
1. First, fold 31 horizontal and vertical lines, so that you end up with a checkered pattern of 32x32 squares. 2. Unfold.
7. Repeat steps 4-7 on the left, vertical side.
8. Fold like the friendship dove, see p.44, steps 11-12.

Submarine



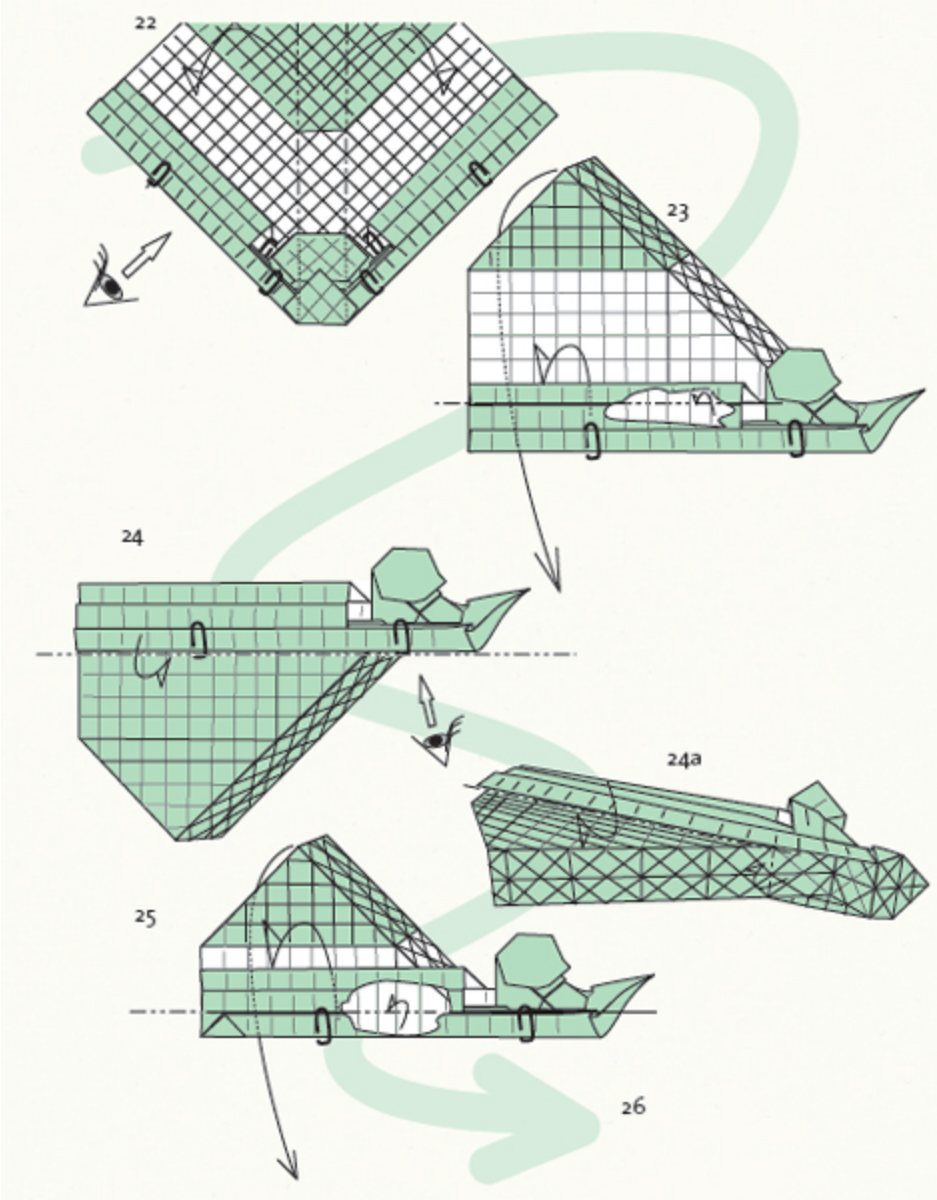
10. Fold the bottom right edge like a square base, see p.16.
13. Fold two accordion folds.
16. Unfold.

Submarine



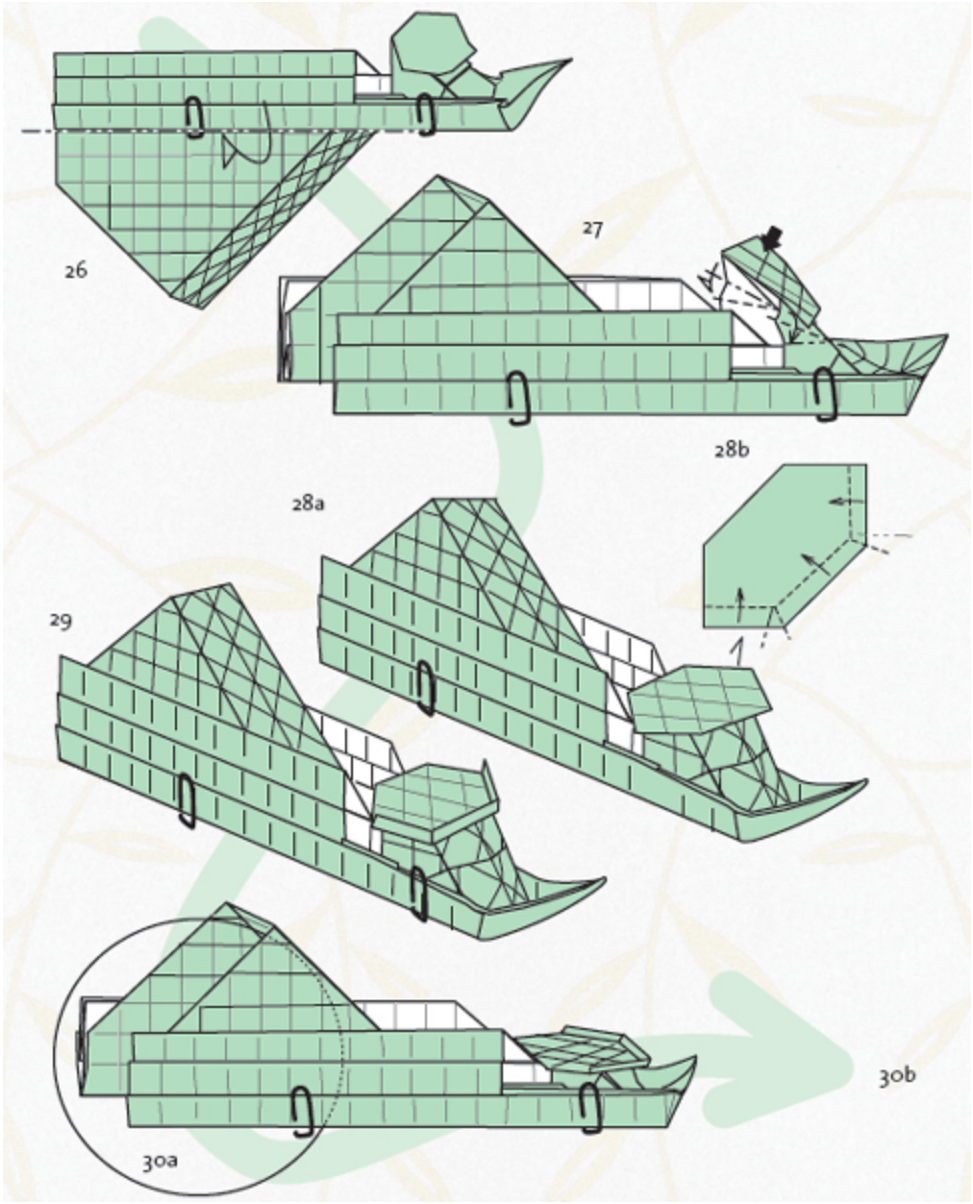
17. Make sure that the upper points, marked with circles, are folded so that they are lying against the lower.
20. Fold the tip in.

Submarine



22. Fold so that a boat shape appears. Lock the pleat with a clip, as illustrated.
23. Now you are going to fold the upper part of the boat. Start by folding a mountain pleat behind what looks like a railing. Then carefully work the rest of the upper part down.
24. Fold inwards again, like you did in step 23.
25. Fold inwards one more time, like in step 23, behind the line at the far bottom of the side of the boat. Repeat the downwards fold of the whole upper part of the boat that you did in step 23.

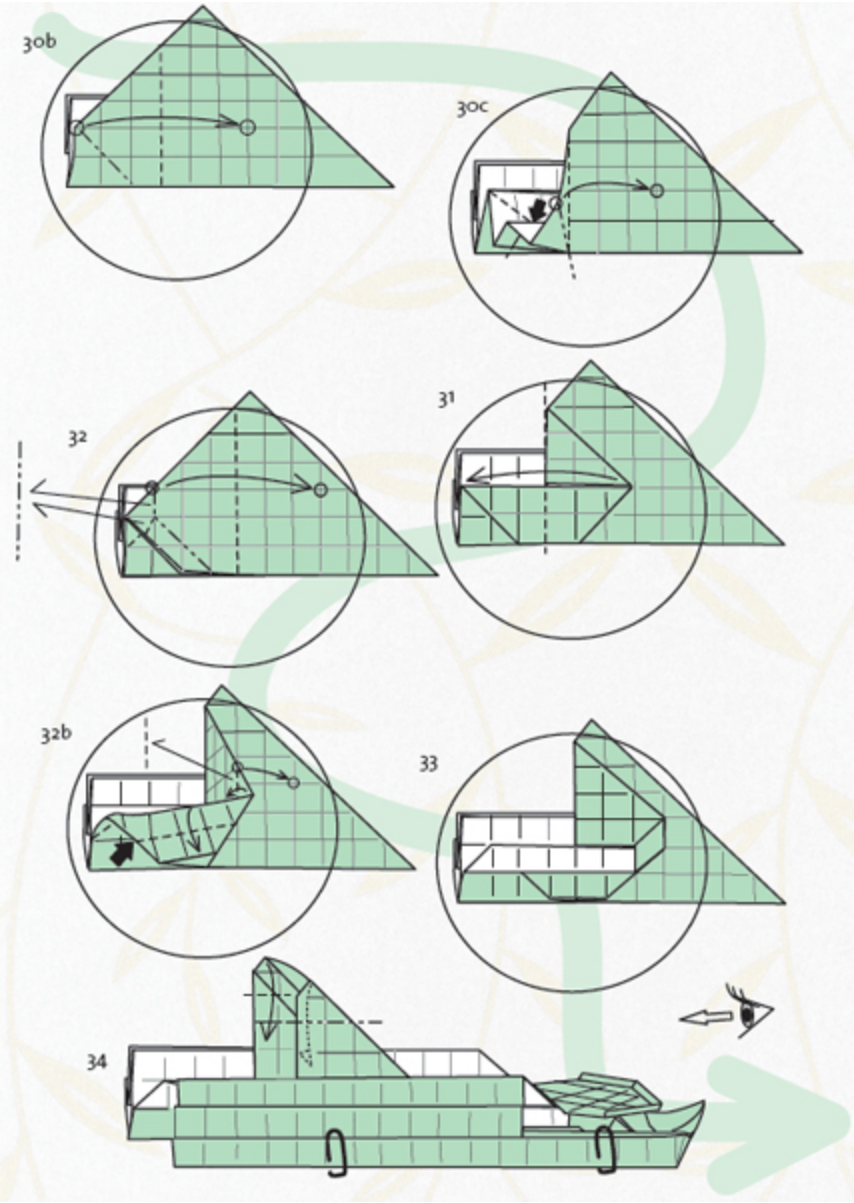
Submarine



26. Fold so that the pleat is aligned with the hull of the boat.
27–29. Shape the bridge.
30. a. Now you are going to fold the insides of the aft. Norio has chosen to only show the boat's aft for the sake of intelligibility. Fold the left back tip against the point marked with a circle. (Use the checkered pattern as a guide, fold by the third square.) Now the paper will move up as a hand fan.

Insert your finger in the bottom of the fan shape and flatten it. You should then get the boat shape of step 31.

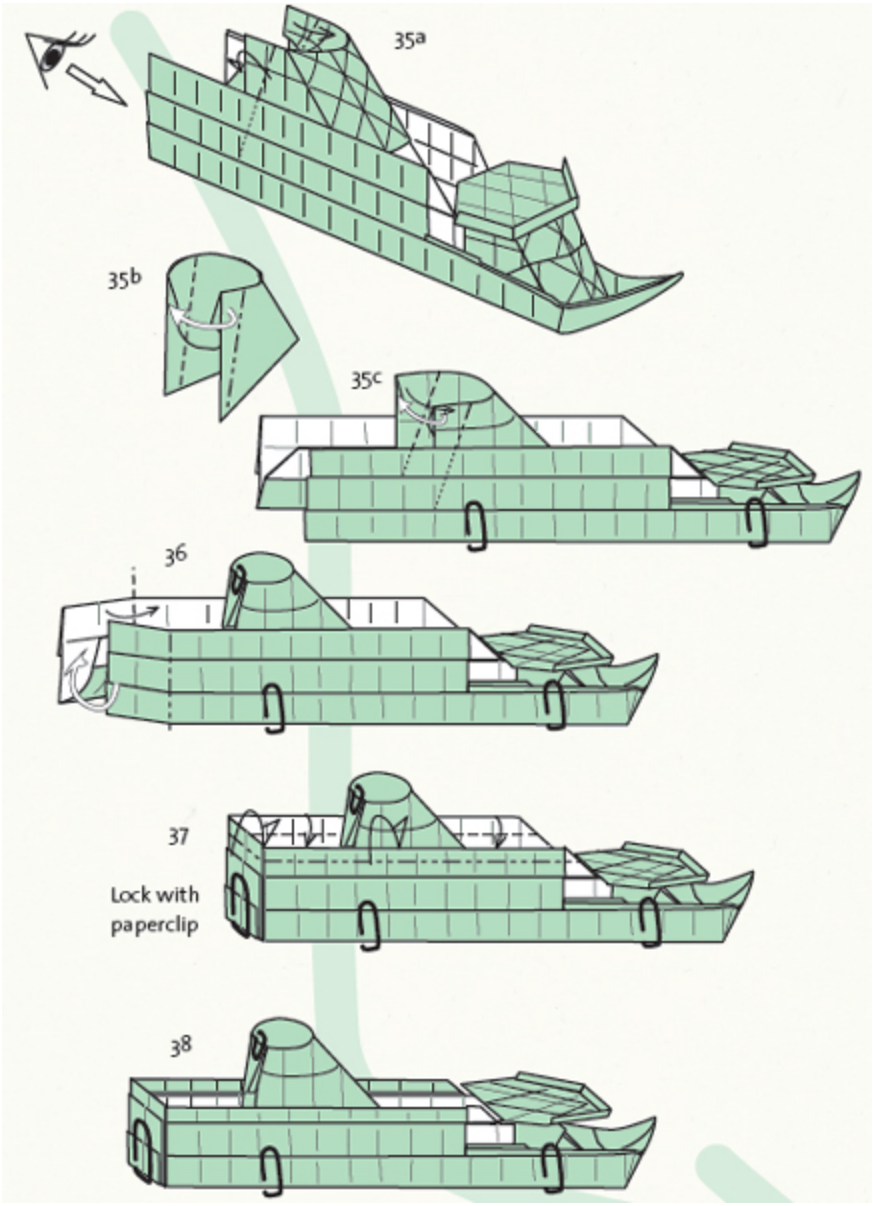
Submarine



32. Take the upper left flap and fold it down towards the right, by the fourth square. Carefully fold the upper edge down. Then, fold a tuck in the right corner, as the arrow shows. (If you don't, the paper will tear.)

33. Repeat steps 30-33 on the right side.
34. Fold the chimney down, as illustrated.

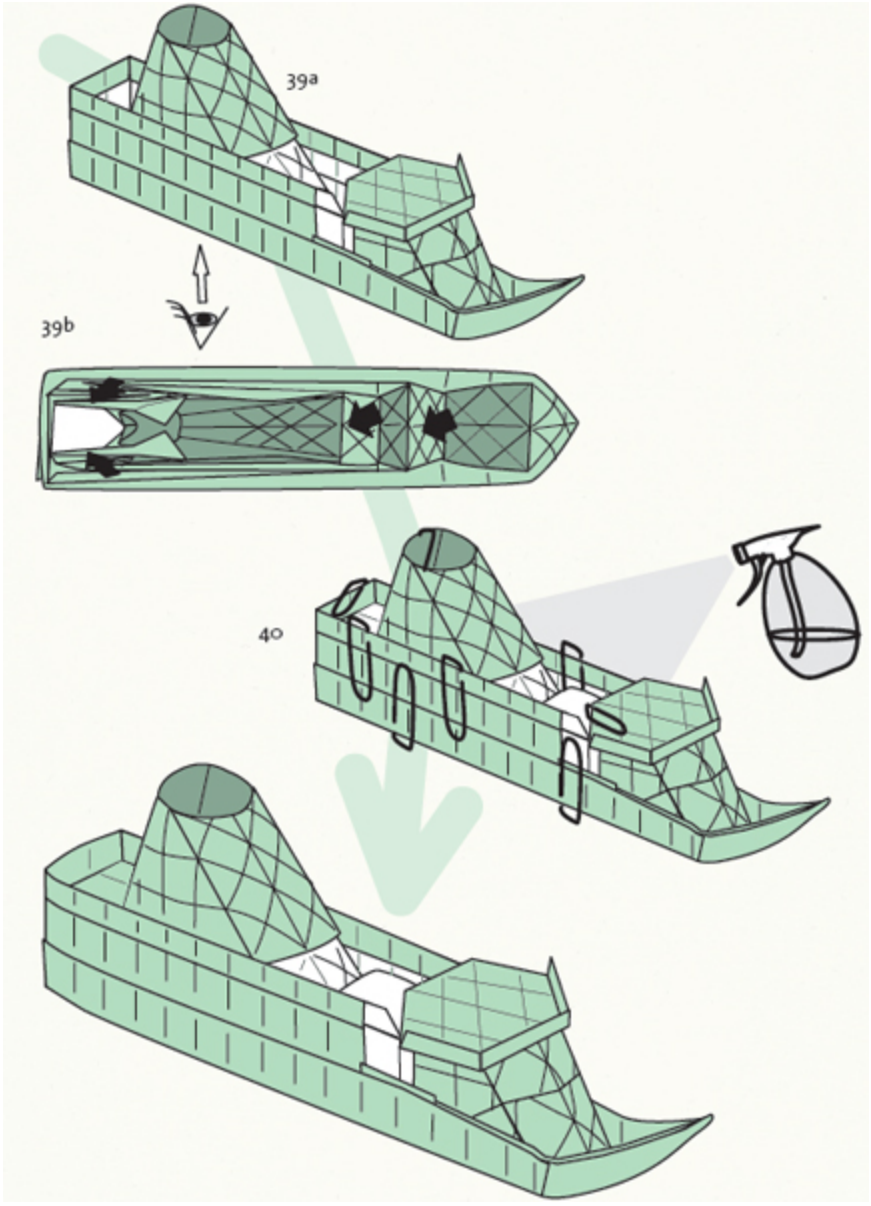
Submarine



35. a. Round the chimney and fold a pleat on each side.
35. b. Steer one of the pleats into the other to lock the shape.

36. Fold a pleat by the second or third square on both ends and fold a small edge down to lock. (If you fold by the third square it's easier to lock it effectively.

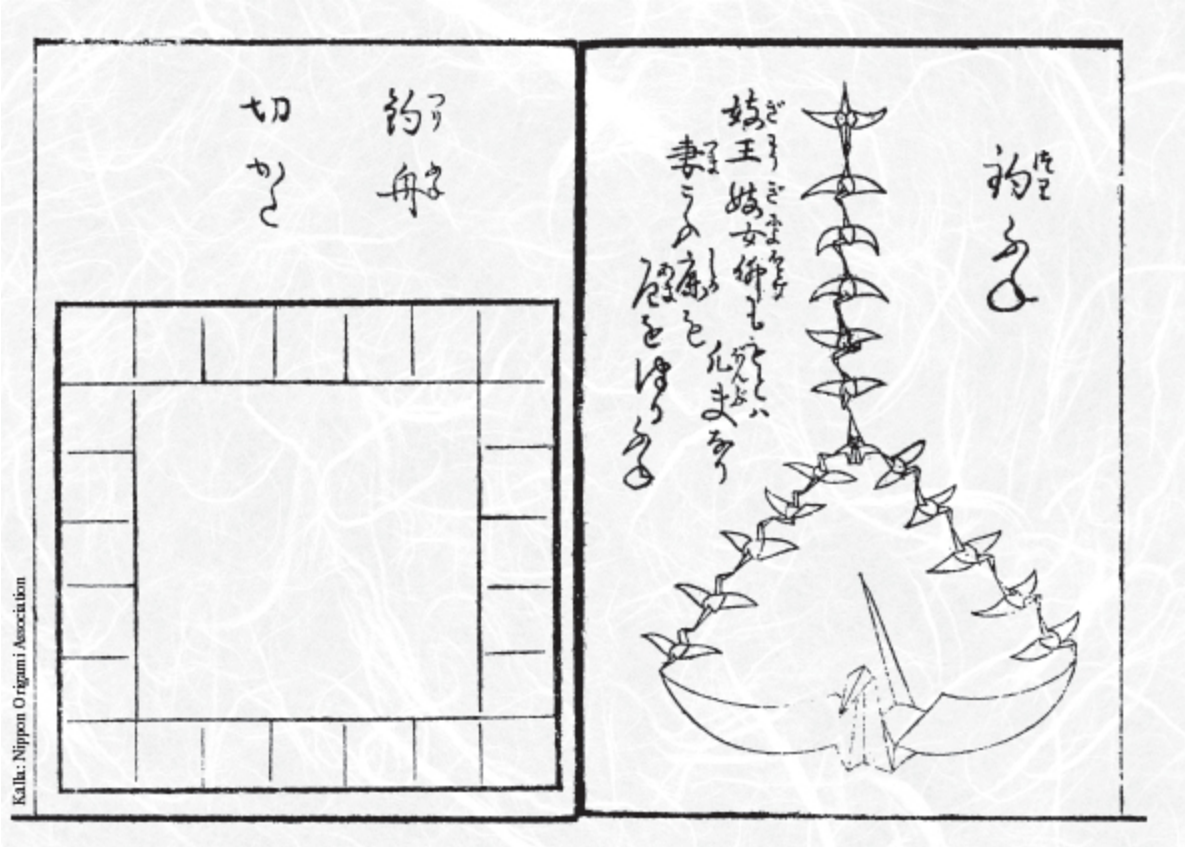
Submarine



39. a. Push up by the black arrows so that the boat get's a deck.

40. The submarine is now done. Instead of gluing it, moisten the whole model with a spray bottle. Let it dry. Repeat a couple of times, before you finally remove the paper clips. The boat should now keep its shape on its own.

The Angel with Lute is protectively floating over the Submarine on its way out into the open sea.



This is a real challenge from the late 1700s: a circle of cranes attached to each other. This is a complicated imoyseyama-model.

St. George in close combat with the dragon. One of Norio Torimoto's masterpieces, made with the principles he's shared in this book.

Afterword

It has been forty years since I first came to Sweden. During the 70s the art of origami was almost completely unknown here: I was nicknamed “the paper magic man” when I performed. But no matter what people called origami, they were fascinated by it.

I was invited to come and teach my art and suddenly I had students all over Sweden.

I soon realized that there was a great distinction between how I saw origami and how my students perceived it. For my Swedish students, it was the finished figure that was most important; the process of copying it in the best possible way. One of the greatest goals for them seemed to be to fold the famous crane—the one model that has come to symbolize origami more than any other. After they had managed to fold the crane, which most learned quickly, they felt that they had learned enough and quit.

For me, origami is a lot more than just copying: First and foremost it is an enjoyable form of creation. For that single reason, the crane has never been a final goal for me, but rather a beginning. This beautiful, classic model is one of origami's most important pillars; many groundbreaking shapes are based on this model. It's when you've mastered the crane and a number of other base models, that you can finally start your own creation process—and through this, realize what origami is really all about.

For a long time I've been wondering when my students will start creating their own works. I promise it's not that hard! Really, it is all about your attitude. If you decide that origami is about copying, you fail to see the endless opportunities that hide in a crane base.

Origami is not, as many assume, an art that demand special talent or extraordinary skill. All you need is a square piece of paper, some creativity and the ability to think.

It is my hope that mine and Yukiko Duke's book will get people past the mental barrier, that more people will discover the possibilities of origami, and most of all, the joy and satisfaction of creating their own models!

If you follow the instructions, you only have one set way you can do things. If you make your own piece you will continuously have many choices of how to fold. That's exciting! Dare to try, and I can promise you that you will be rewarded!

Norio Torimoto

The opera singer is sitting by the grand piano and Olof Palme's face; both models are folded with one single piece of paper by one of Origami's greatest: Norio Torimoto.

The Authors' Thanks

We want to give a warm thanks to all of the people that have assisted us in this project in various ways. All the good people at our Swedish publishing house Norstedts: Cecilia Kerstell, Helena Lindstedt and Ebba Östberg; From the very beginning they all understood what kind of book we wanted to create. Our editor Per Johansson who, with patience and humor, has been a great support to us along the way; Mari Hoijer for professional help with the drawings; Maria Lanner who gave the book its lovely form and Helena Karlsson who took all the beautiful pictures. Many thanks to Charlotte Hermansson for the meticulous review.

We also wish to thank Head Director Koya Ohashi and Yu Sano at Nippon Origami Association, The Japanese Origami Association, for all their help and support. Last but not least, we want to thank our families for being so patient and for enduring our endless discussions and folding sessions.

Norio Torimoto and Yukiko Duke