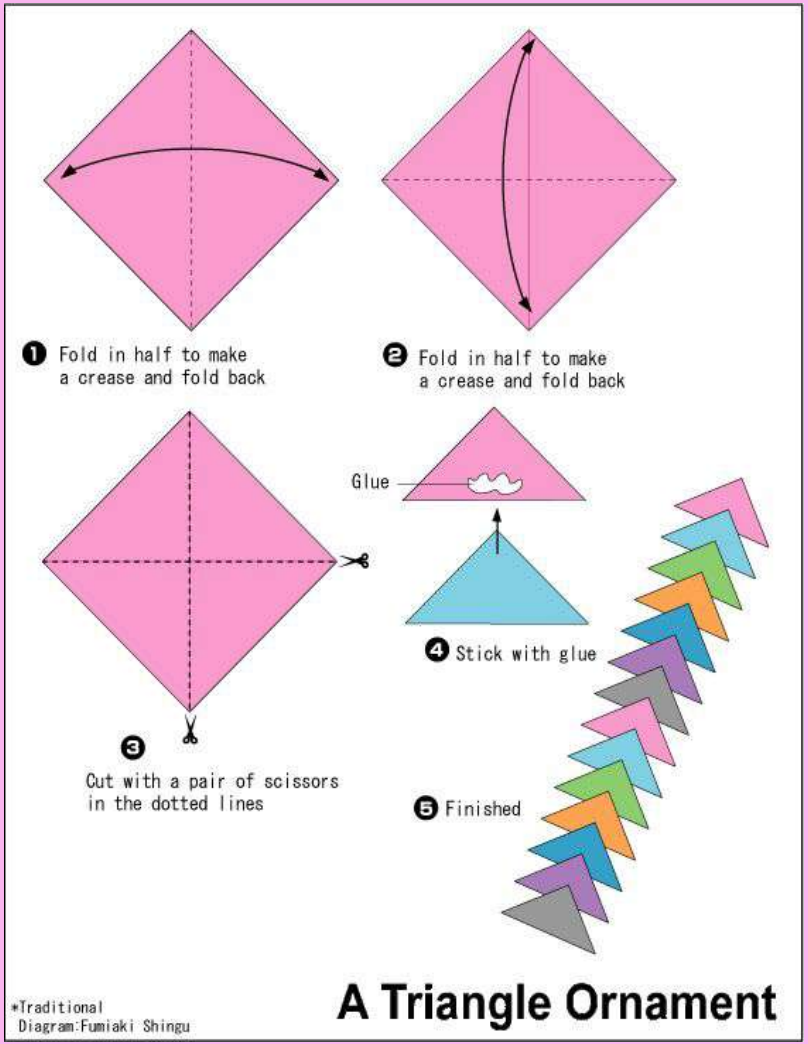
# Modular Origami Swan

This swan requires **215 pieces**!

215/32 = 6.7

**Seven sheets of paper**.


❶ Fold in half to make a crease and fold back
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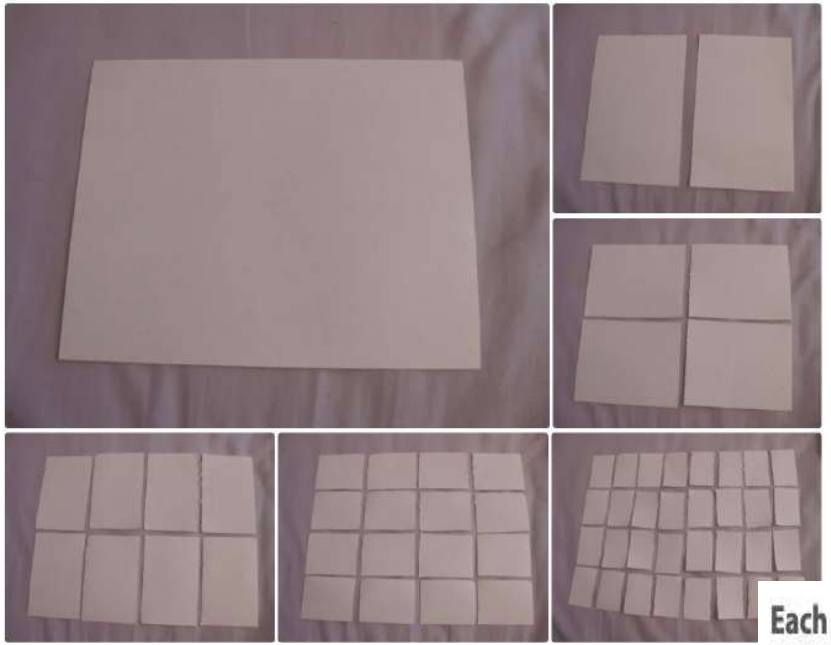
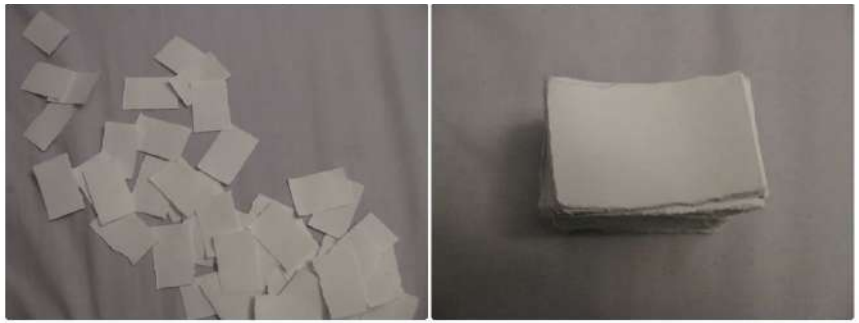
Glue
❸ Cut with a pair of scissors in the dotted lines
❹ Stick with glue
❺ Finished
*Traditional
Diagram:Fumiaki Shingu
A Triangle Ornament

## Step 2: Cutting the Paper





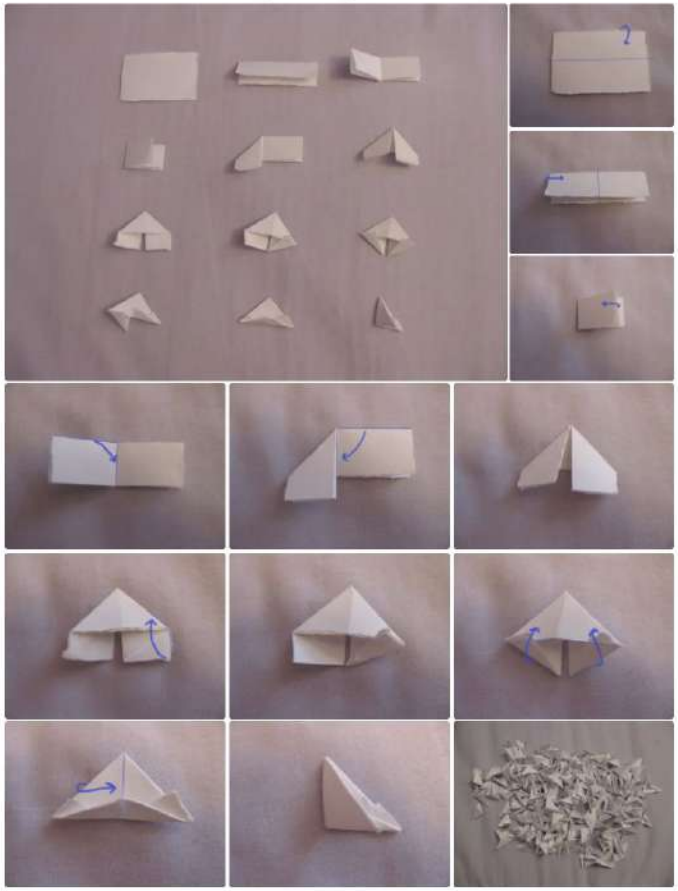
**Each piece of A4 size paper** (computer paper) **yields 32 rectangles**, which you can fold into **32 triangles**.

This swan requires **215 pieces**! 215/32 = 6.7, so you will need **seven sheets of paper**.

To cut the paper into the right size, fold the paper in half five times width-wise.

Each rectangle is 1/32 the size of a regular piece of paper.

## Step 3: Making the Pieces



I highly recommend looking at the pictures first, it's easier to learn from the images than to only read the directions. If you don't understand something, read the directions and try again.
A **blue line** represents **where to fold it**. The **arrows** point you in the **direction of the fold**.

To begin with, take one of your rectangles.

1. **Fold** it in half **length-wise**.
2. **Fold** it in half **width-wise**.
3. **Unfold** the **width-wise fold**.

You should now have a rectangle folded in half with a crease in the middle.

4. For this step, **line up the top of the rectangle** (the folded side) to the **center crease**.
5. **Repeat** with the other side.

You should now have a pentagon-shaped piece of paper, with the two sides meeting in the center.

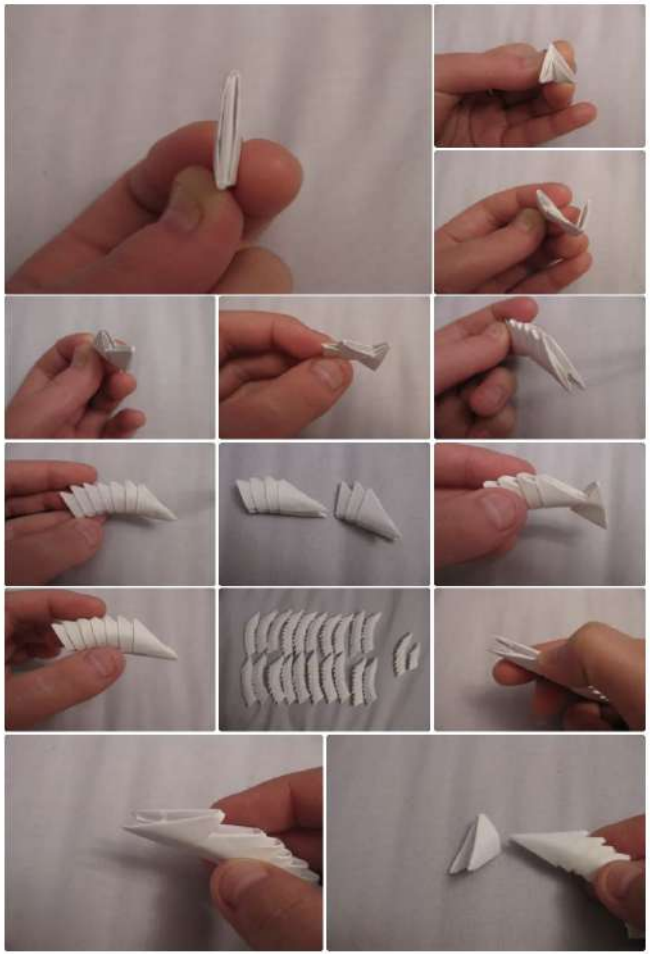
6. **Flip** the piece over.
7. Take the bottom rectangle on the left side. **Take the furthest left edge** and **line it up** with the **slope of the triangle**.
8. **Crease the tip**. You should now have a triangle.
9. **Repeat** on the other side.

You should now have a piece that resembles a diamond.

10. **Tuck the bottom flaps in** by pulling them up as far as they will go. **Crease** it.
11. **Fold** it in **half**.

You should now have a triangle!

Step 4: Anatomy of the Triangle and Stacking



ANATOMY

Before you stack pieces, you have to understand the anatomy of a triangle.

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Before you stack pieces, you have to understand the anatomy of a triangle.

A triangle has **two pockets** and **two points**. **Each point fits inside a pocket**.

When you stack, you are building it in one line, so the **two points of one piece** fit into the **two pockets of another piece**.

When you're building, one point will go into the pocket of one piece, but the other point will go into the pocket of another piece.

## STACKING

I chose to stack my pieces in increments of 10, but you can do more if you'd like.

As you make the pieces, it's helpful to stack them. This helps to open up the pockets to make the structure stronger, as well as helps you count how many pieces you have. Stacking pieces **opens up the pockets**, allowing for stronger structures. Though it's technically not necessary, I highly recommend it as it will keep your structure together and give you an easier time building.

To stack, **slot the two points of one triangle** into the **two pockets of another triangle**. Keep going for a few pieces, and once they expand in size, take the unopened triangles **from the end** and **add them to the front**. This way, you have a stick of fully opened triangles.

To take the triangles out of the stack, simply **put your thumb** right **under the first triangle** and **push up**. Once you've got the hang of it, you can take triangles off in seconds.

## Step 5: First and Second Layer: 40 Pieces

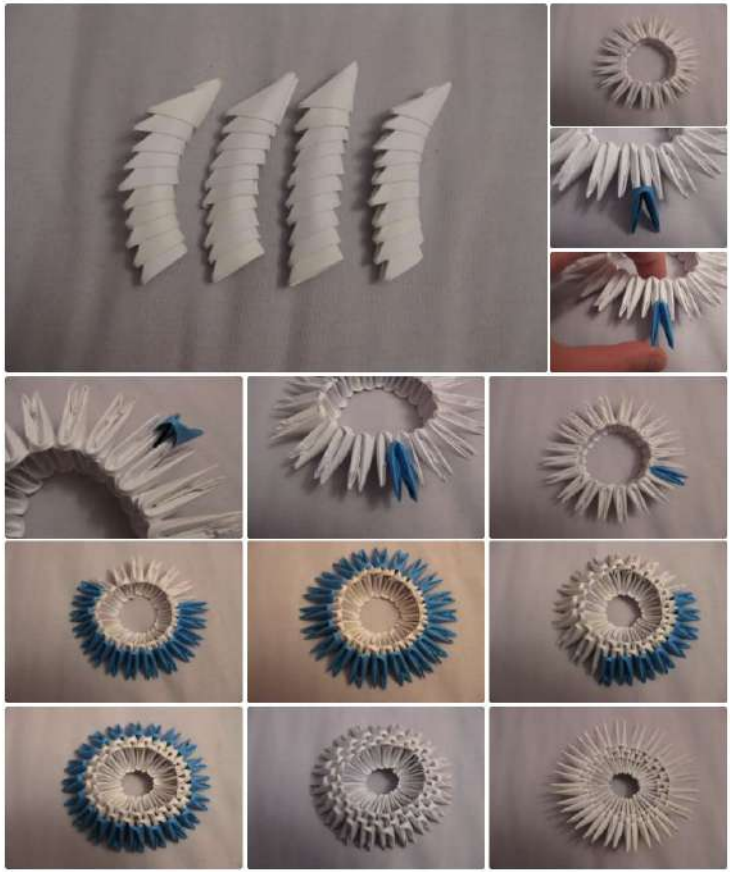
The first two layers of the swan is probably the hardest. This is on account of that there isn't a structure yet, so there isn't anything to build off of. But, once you get past the first two layers, it's smooth sailing.

To start, we're going to make **twenty pairs of pieces**. Because this is the first layer, we're going to **invert the pieces** to create a "stand" when the swan is completed. So, instead of building them **all the same way**, we will be **turning one of the pieces over**.

To make an inverted pair, **take two triangles.** In the pictures attached, the white represents the first triangle, and the blue represents the second triangle. Take your first triangle, and hold it so the **slopes face front**. Take your second triangle and **flip it over**, so you see the bottom parts of the triangle. **Slot one point into one pocket.** Repeat nineteen times!

Next, we're going to **slot the twenty pairs together** to make a ring. Build it on a flat surface to ensure it won't break. **Slot the other point** of the top triangle of a pair **into the pocket of another triangle**, and **repeat** until **ten pairs** have been used. We make the rings out of ten pieces twice instead of twenty pieces once because the pieces **tend to curl**. Repeat the process again so you have **two rings of ten**. From here, **join the two rings** together by slotting one point from one ring into the pocket of the other ring. Once finished, take the last point and slot it into the final pocket to create a ring. From here, carefully flip the piece over. Be very gentle as the ring will be very weak and may break!

## Step 6: Third and Fourth Layers: 40 Pieces

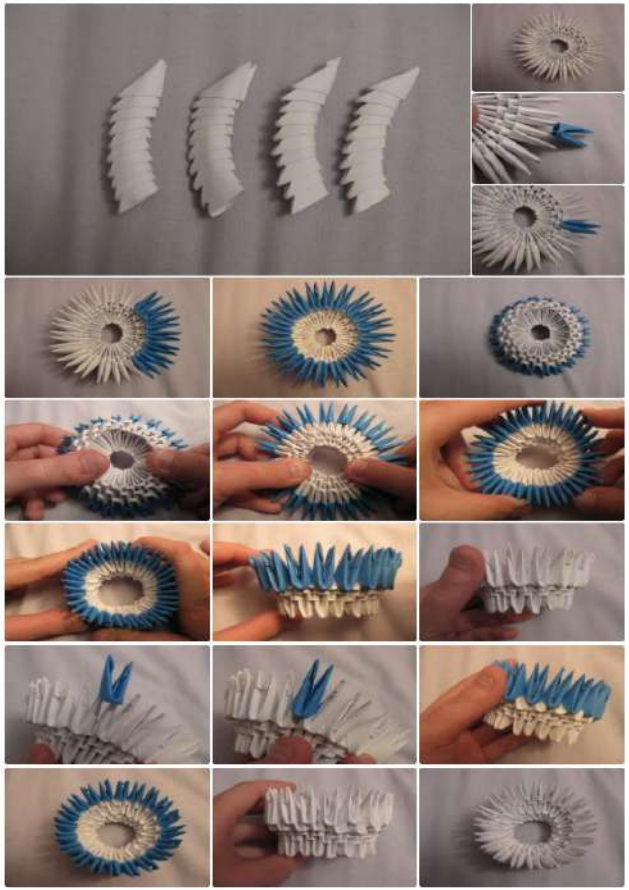


Once you add the third and fourth layers, things will be a lot easier! With the addition of the third layer, the structure can be **picked up, thrown around, etc.** and still hold its shape.

To begin with, **start from any two points** from your sixth layer. **Add eight pieces** to form the beginning of your wing. These eight pieces represent your seventh layer. We are now going to form the **eighth layer**. **Skip the first point** from the seventh layer and **add another piece**. **Add six more pieces** (for a total of seven). Keep **skipping the first point**, **adding on a layer with one less piece from the layer before** to finish the wing.

To create space between the first wing and the second wing, **take two pieces** and **invert them**. Place them next to your seventh layer. Now, place your eight pieces next to the two inverted pieces, and repeat the process again.

## Step 7: Fifth and Sixth Layers: 40 Pieces



The fifth and sixth layers are the visible "body" of the swan. The pieces of the fifth and sixth layers also go in the same direction, no inverting whatsoever!

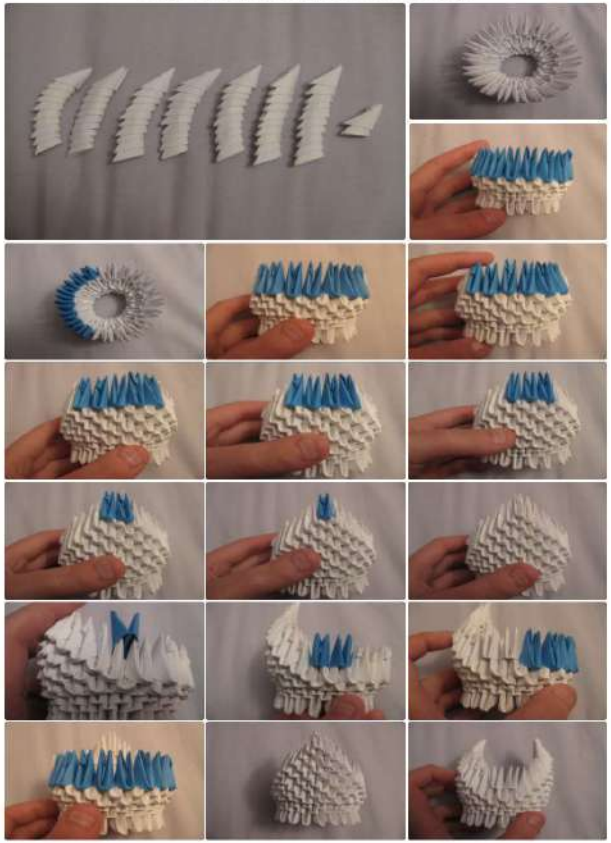
Because we flipped the structure over, we don't need to worry about inverting. Just **add pieces on** like you've been doing for the third and fourth layers! Add **twenty pieces to the top of the fourth layer** to create your fifth layer. From here, we have some "bodybuilding" to do!

Once you've added the fifth layer, **flip the structure over again**. Take both of your thumbs and **gently press on the second layer** as you **pull the fifth layer up** with your other fingers. Be very careful as **not to rip any pieces**! Do this slowly and gently. Once the second layer is lower than or about the same height as the fifth layer, **wrap one hand around the piece and squeeze it**. Hold it as though you are holding an ice cream cone, and even out the the build.

You should know have a structure that can stand on its own!

From here, **add on another layer** as you did with the third, fourth, and fifth layers. Stack it right on top of the fifth layer and go all around. This is the second-to-last full layer that you will be doing. It is also the last layer of the body that you will have to build.

**Step 8: Wings: 72 Pieces (36 Each)**

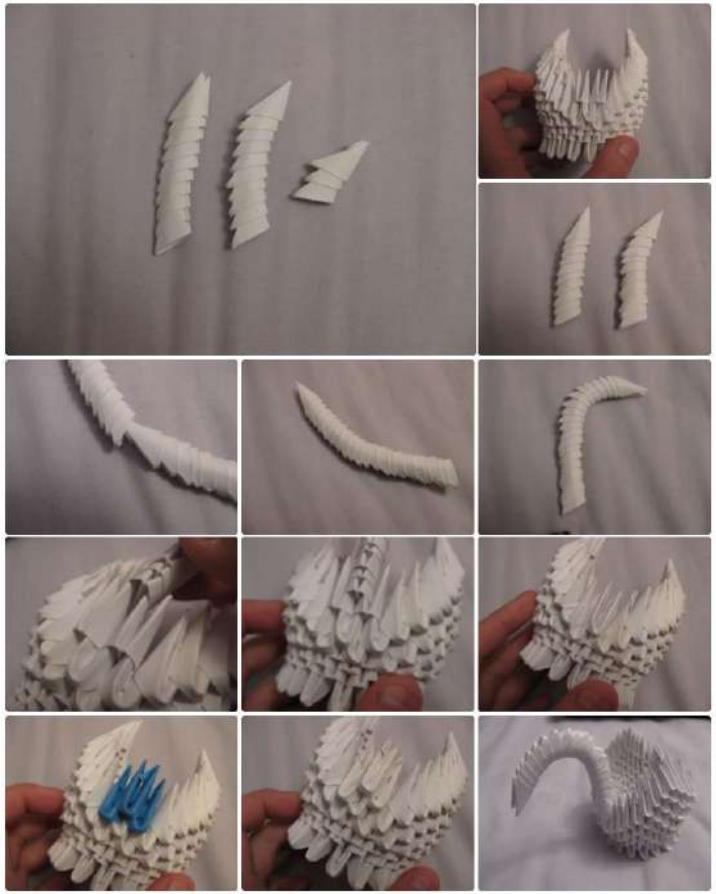


The wings of the swan are composed of **36 pieces each (8+7+6+5+4+3+2+1)**. The wings start out from the bottom with **eight pieces**, and are made of 8 "layers". It diminishes from 8 pieces to 7 pieces to 6 pieces, and so on and so forth.

To begin with, **start from any two points** from your sixth layer. **Add eight pieces** to form the beginning of your wing. These eight pieces represent your seventh layer. We are now going to form the **eighth layer**. **Skip the first point** from the seventh layer and **add another piece**. **Add six more pieces** (for a total of seven). Keep **skipping the first point**, **adding on a layer with one less piece from the layer before** to finish the wing.

To create space between the first wing and the second wing, **take two pieces** and **invert them**. Place them next to your seventh layer. Now, place your eight pieces next to the two inverted pieces, and repeat the process again.

Step 9: Neck and Tail: 20 + 3 Pieces



The neck and tail are the final details on the swan! After this step, you're pretty much done!

## NECK

Go back to the **two inverted pieces** that you put in between the two wings earlier. **Take two sticks of ten** and **connect them** to create one stick of twenty. Take the bottom of the stick, skip one point on the inverted pieces, and **place it in the middle**. **Push it in** to make sure that it isn't loose or wobbly. From here, you can **curl the neck** to make it more "swan-like". I prefer to use one hand and curl down, making half a heart with my fingers. An S-shape is usually more common when making the neck.

## TAIL

When you were making the wings earlier, you left off after the additional 8 pieces. This means that there is still a gap on the other side! Turn the swan around to go to this side. Add two pieces on top of the four points, and add one piece on top to make the tail.

And you're done!

## Step 10: Additional Gluing

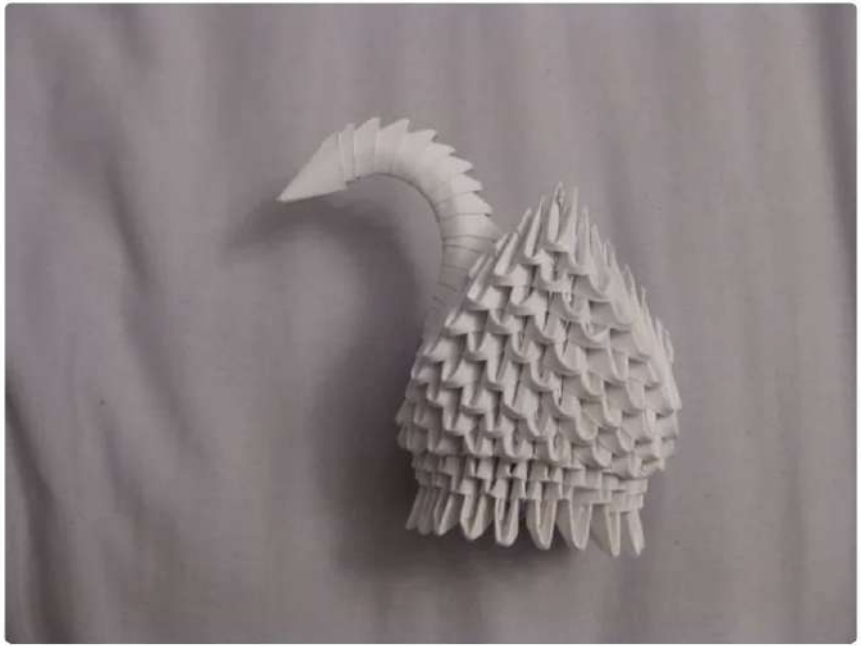

Some parts of the swan are **very weak** and may be **susceptible to breaking**. To prevent this, some **glue can be added** to keep these pieces in place.

Some parts of the swan are **very weak** and may be **susceptible to breaking**. To prevent this, some **glue can be added** to keep these pieces in place.

Glue is **not needed** for the structure to stay together. It can be used as a "supplement" to make sure that the swan is safe in transport, or if you just want it to be more secure overall.

The **neck is a very weak** part of the swan because it is not connected to any other part. You can add glue at parts of the neck, at the base, etc. To add glue, simply **squeeze a dot** (not any more, or it will come out!) **in the pockets** of the triangle and use it as you normally would.

## Step 11: Finished!



Sit back and admire your handiwork!

This swan is a perfect addition to any coffee table or display case, and is a definite conversation piece, especially when they find out you made it yourself!

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Make-Origami: http://make-origami.com/3d-origami-swan/

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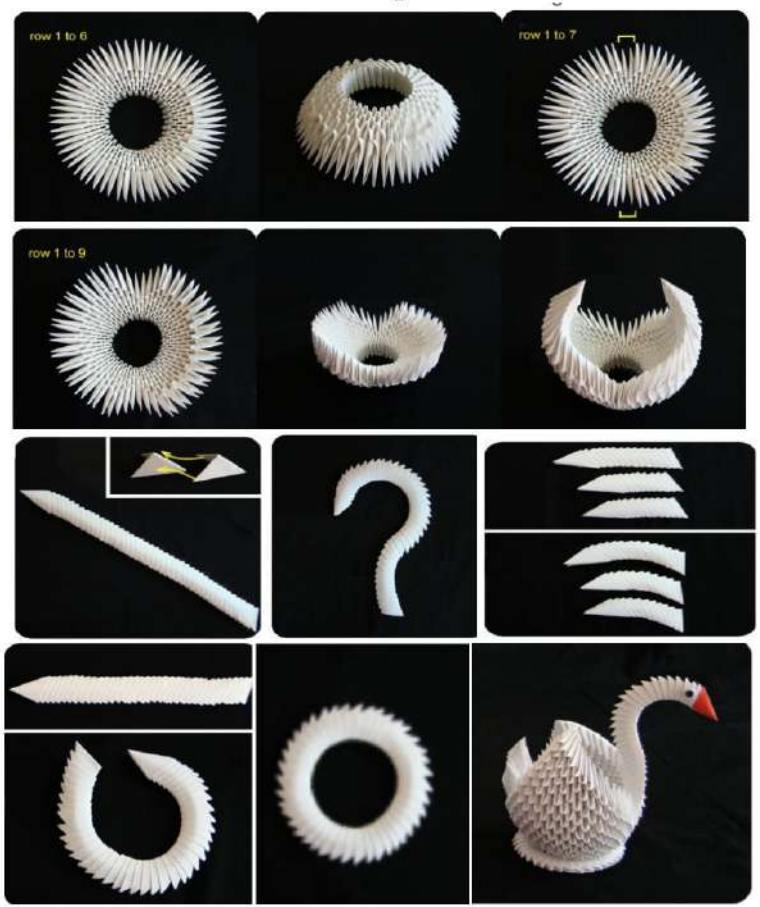


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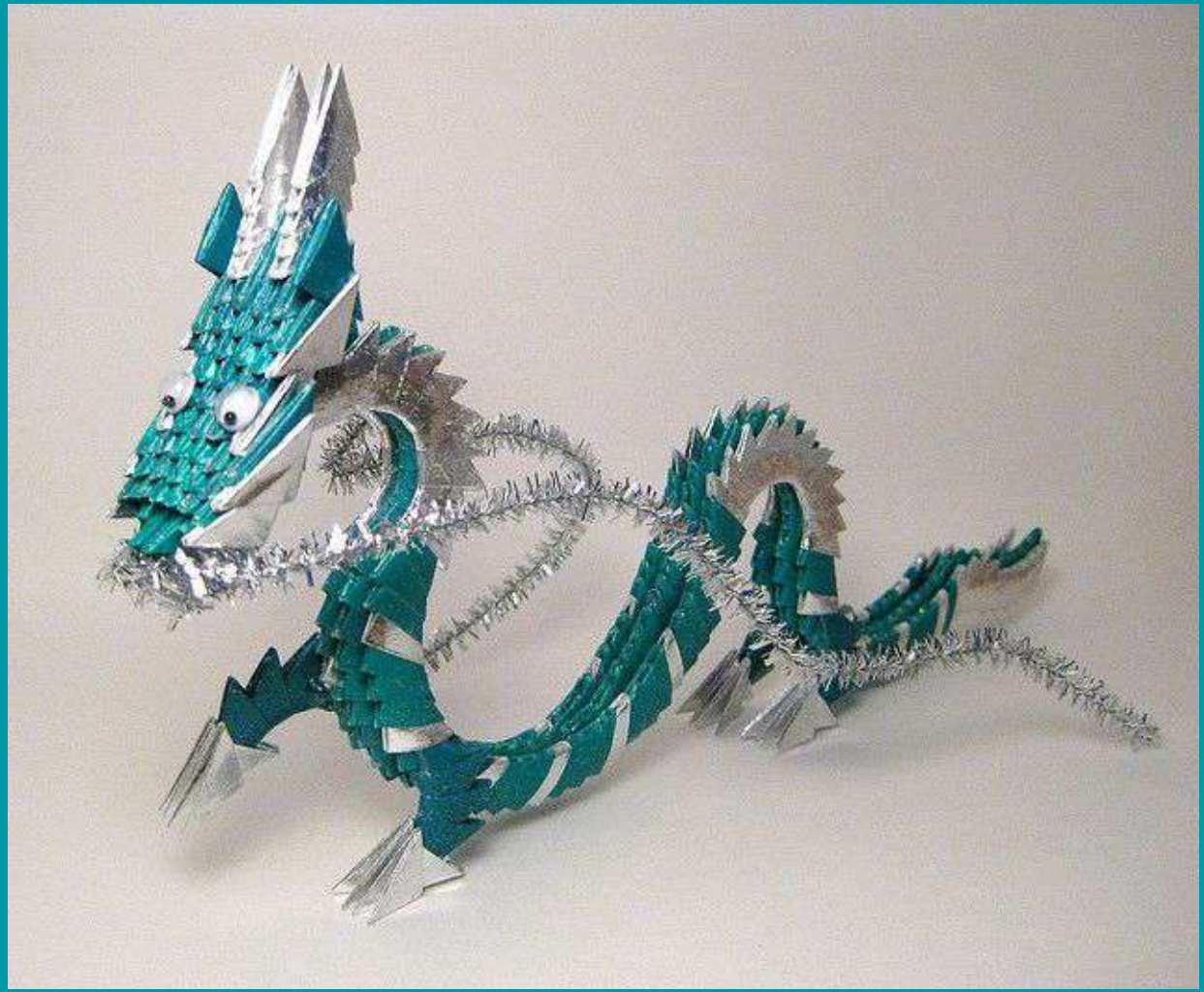


Style1
Style2


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