DRAWING A WHISTLE WITH AUTOCAD and 3D printing

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Course summary

In this lesson, compulsory school students learning is origami with the help of high school students learn to construct an origami bird, a crane.

Course facts in brief

Time: 4x45 min

Number of pupils: 55

Number of supervisors: 6

Number of groups: 4

Age of pupils: 12+

Prerequisites for supervisors: : Learn how to make an origami crane

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Introduction

Background

Society's and business's need for people with technical knowledge is increasing, at the same time as the interest in applying for technical education is decreasing or at least not increasing to a sufficient extent. Something should therefore be done so that more young people will choose technical both vocational and pre-school education in upper secondary school.

Purpose

The purpose of these lessons is to allow younger students in compulsory education school to come into contact with interesting technology they have not worked with before, while they are supervised by older students who attend vocational technical high school. The older students become a bit of a role models and they can more easily transfer their youthful enthusiasm, interests and attitude over technology to the younger students.

Method

The younger students are given the task of solving a technical problem, for example to program a Lego robot, construct a game in CAD and print it on a 3D printer or to mill the game in the workshop together with high school students based on the drawing they created in CAD. To succeed in this, the older students must teach and supervise the younger students the current technology. The contact between the younger and older students around concrete tasks can create conditions for both arousing and deepening interest in technology.

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Preparations in high school

High school students have attended origami classes and were specially trained in the steps and technique of how we can make a bird using paper with the origami technique

Preparations in primary school

The only preparations in compulsory school was to find suitable dates for the courses So, after communication between the compulsory and high school there were set 2 visits in the compulsory school, in class A, (A1,A2,A3 classes) and in class B, (B1,B2, B3classes) , each class had 12-15 students. The number of the supervisor students were 2 at each class. Also, the 3D printer was carried to the compulsory school for the 3D printings.

Implementation

The high school students went to the high school carrying different types and colors of paper and met with the classes of the younger students and their teachers. They taught and supervised a total of 55 students in various classes. The younger students listened and at the same time built the origami crane as the high school students presented it step by step.

Evaluation

When the students have attended the courses, an evaluation is made of how they experienced origami build from scratch implementation and of how their teachers felt that the course worked for the students. The purpose is to get tips on how we can improve future courses. Supervisors should also be allowed to evaluate their participation. The evaluation is done with the help of the tool Google Form.
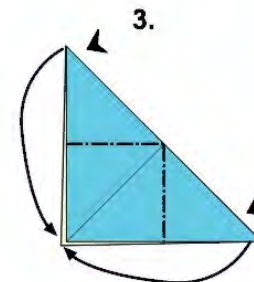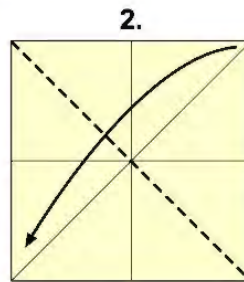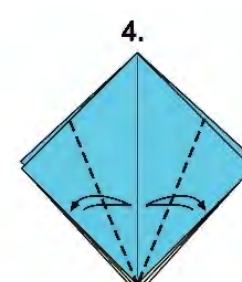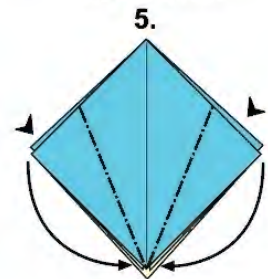
HOW TO MAKE AN ORIGAMI CRANE

CRANE TSURU

1.

Fold and unfold..

2.

3.
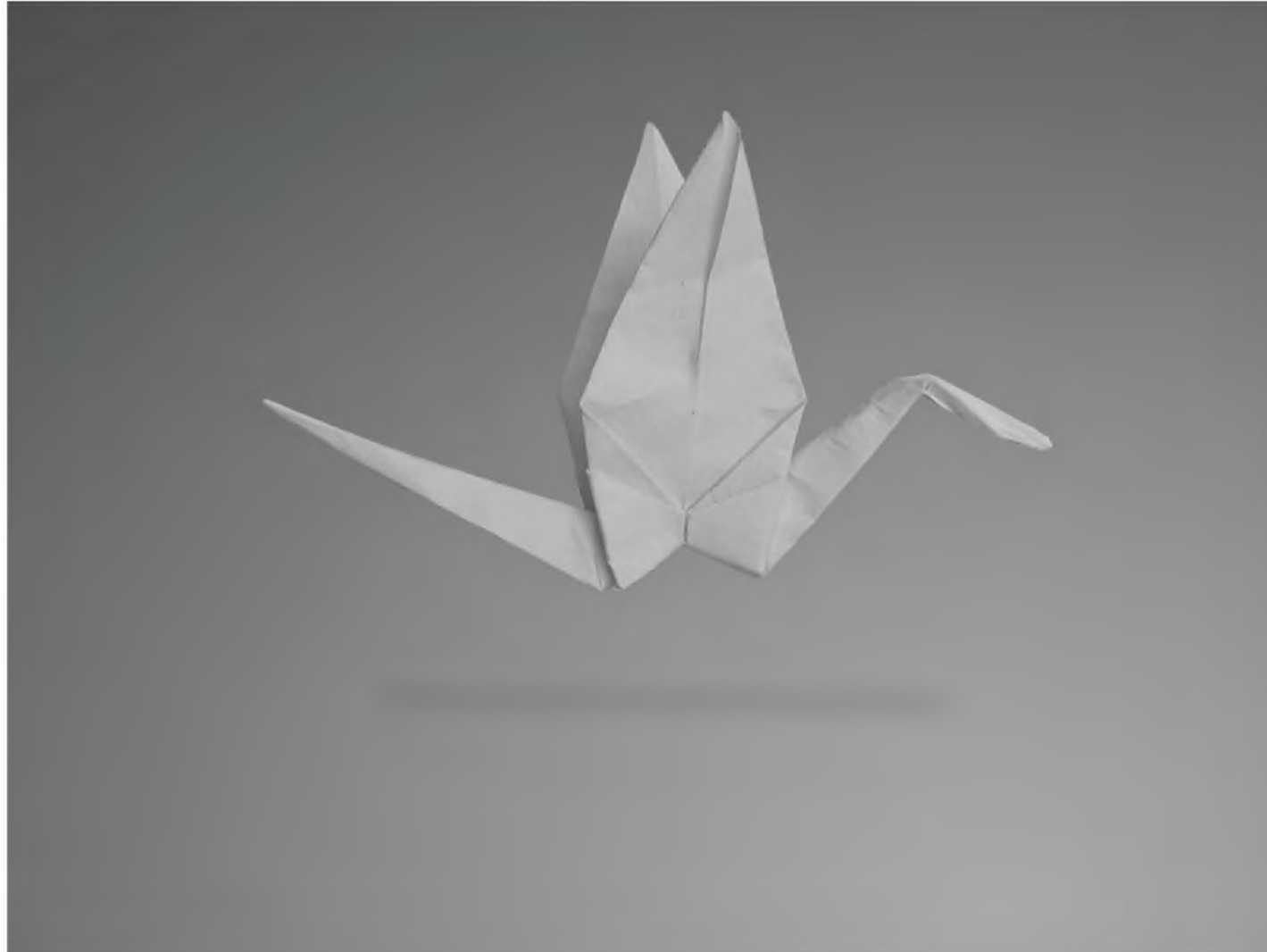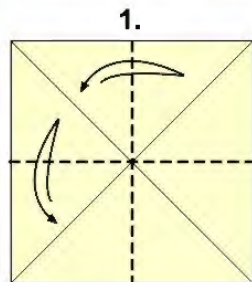
The corners to the inside..

4.

Fold and unfold..

5.

To the inside like
in the Step **3**...

6.
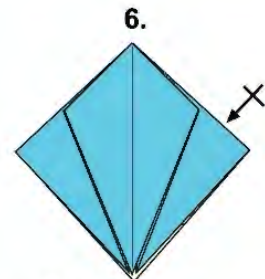
Repeat the Steps
4. and **5.** in the other side..

7.

8.
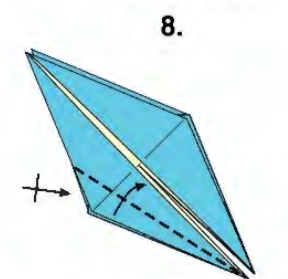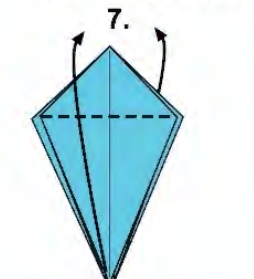
This fold in the other side too..

9.

10.

11.

12.
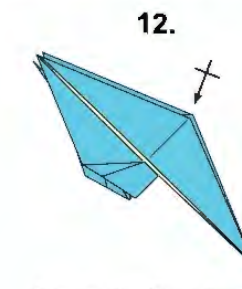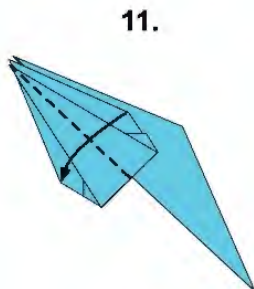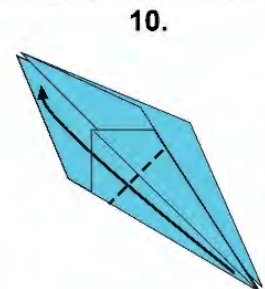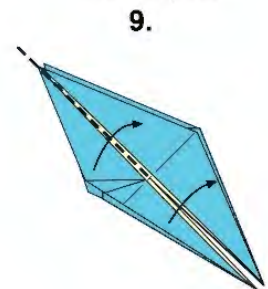
Repeat the Steps from
8. to **11.** in this side..

13.
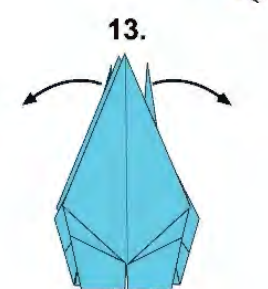
Move a little
this tips to the outside..

14.
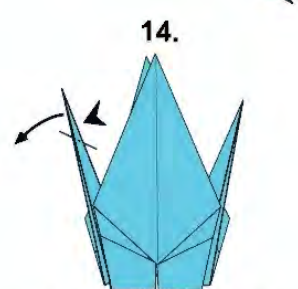
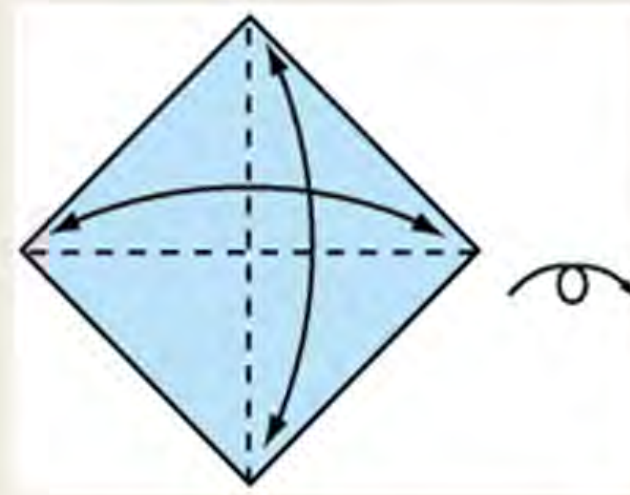This tip to the inside for form
the head

15.

Open the wings..

16.
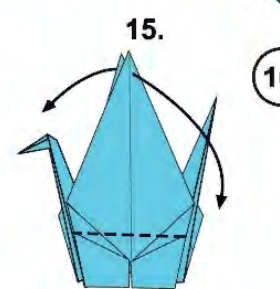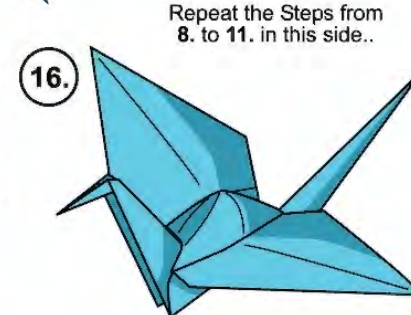
STEP 1

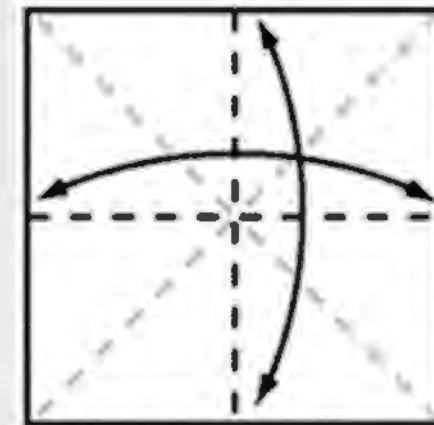Start with a square piece of paper, coloured side up.

Fold the top corner of the paper down to the bottom corner. Crease and open again. Then fold the paper in half sideways.

STEP 2

Turn the paper over to the white side.

Fold the paper in half, crease well and open, and then fold again in the other direction.
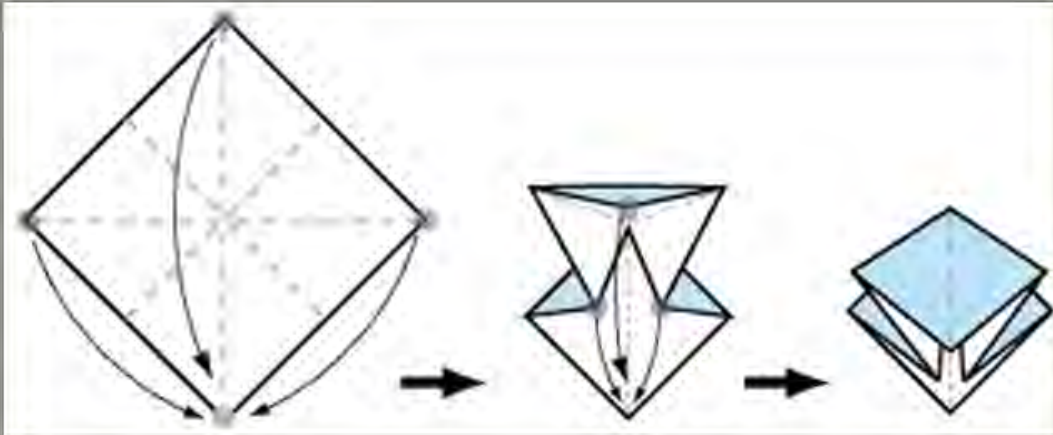
STEP 3

Turn the paper over to the white side.

Fold the paper in half, crease well and open, and then fold again in the other direction.

Using the creases you have made, Bring the top 3 corners of the model down to the bottom corner. Flatten model.

STEP 4

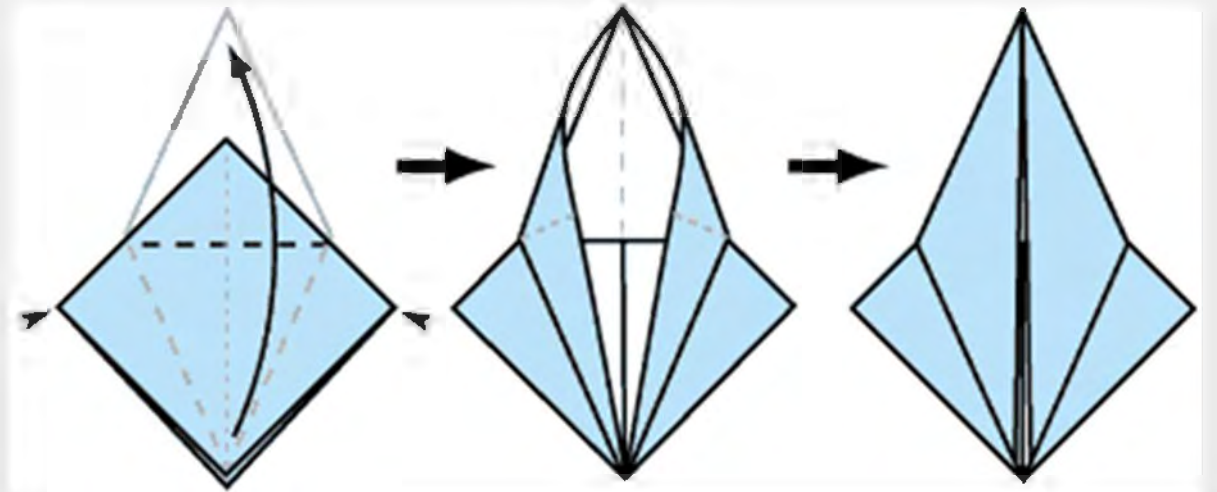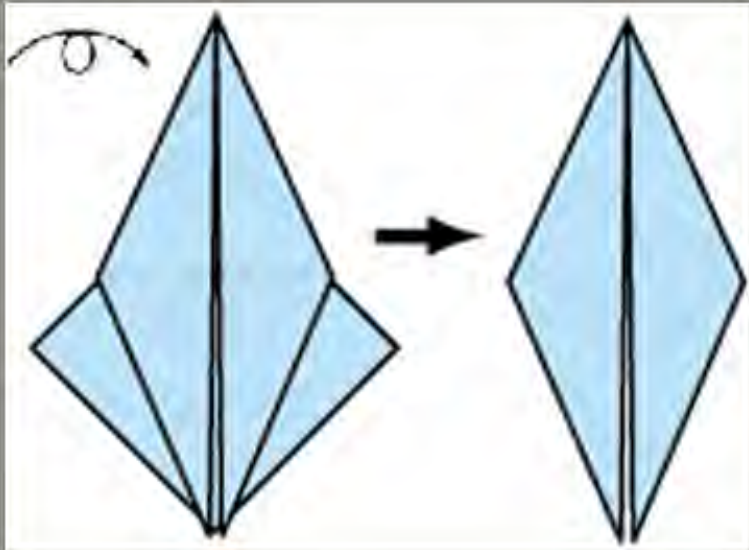Fold top triangular flaps into the centre and unfold.

STEP 5

Fold top of model downwards, crease well and unfold.

STEP 6

Open the uppermost flap of the model, bringing it upwards and pressing the sides of the model inwards at the same time.
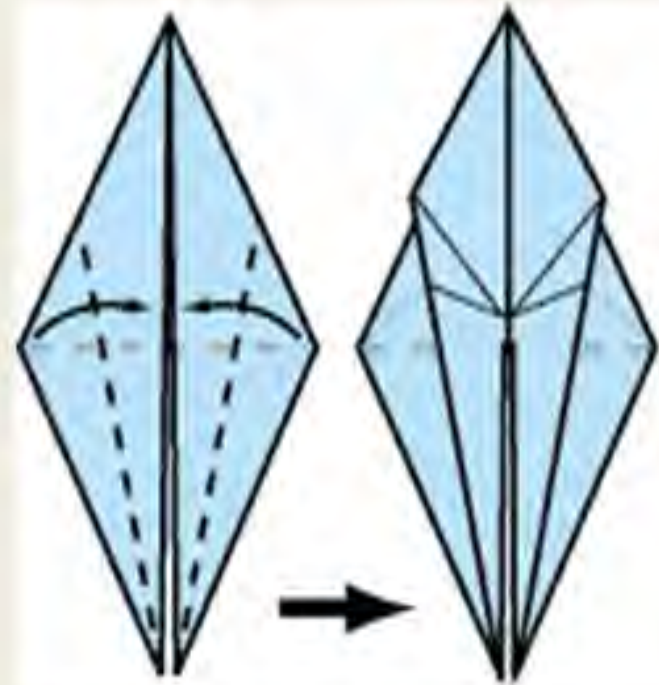
STEP 7

Turn model over and repeat Steps 4-6 on the other side.
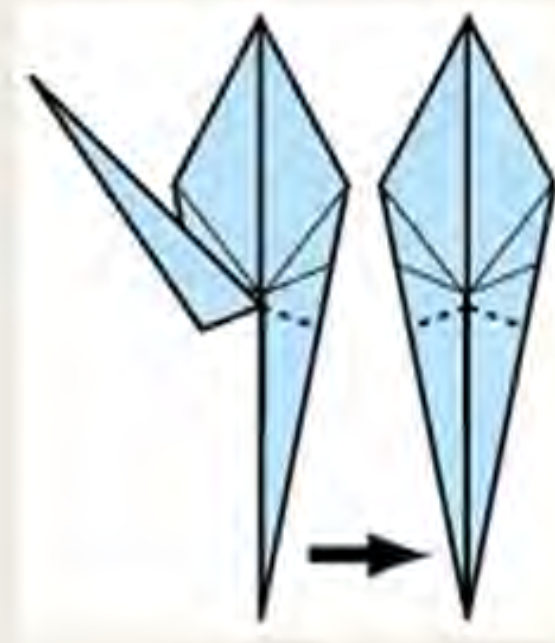
STEP 8

Fold top flaps into the centre.

STEP 9

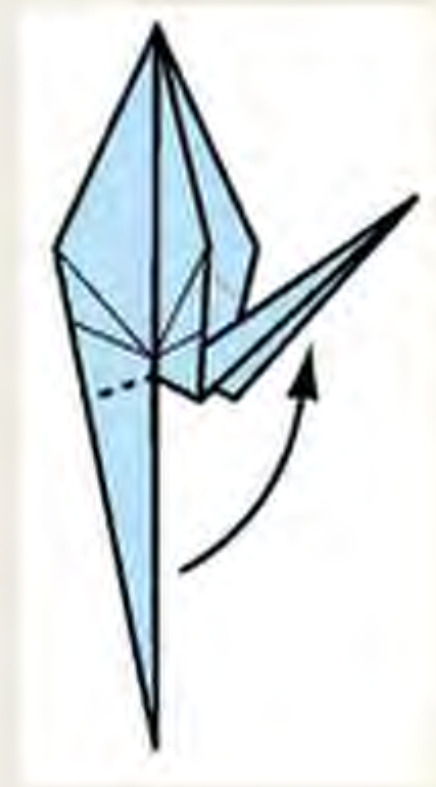Repeat on other side, so your model looks like this

STEP 10

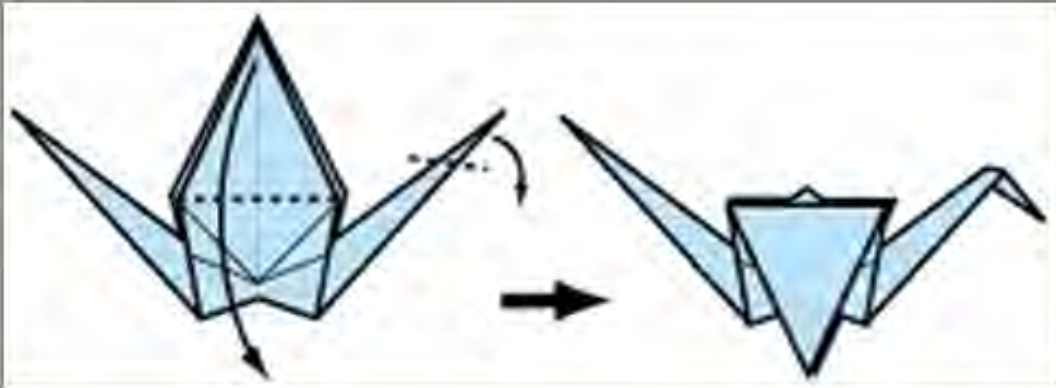Fold both 'legs' of model up, crease very well, then unfold.

STEP 11

Inside Reverse Fold the "legs" along the creases you just made.

STEP 12

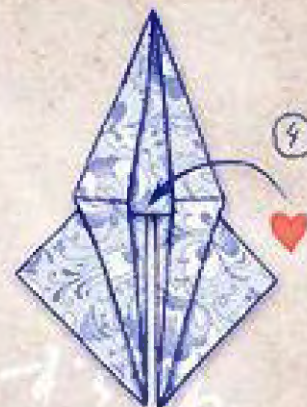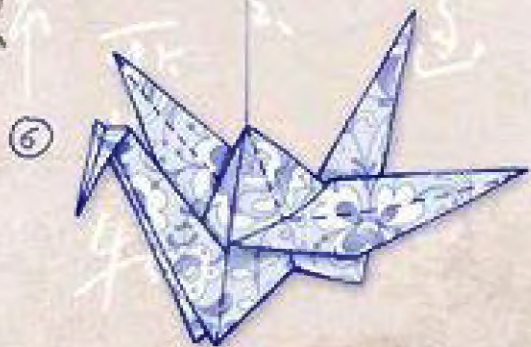Inside Reverse Fold one side to make a head, then fold down the wings.

⑦ шагоt превращения Flurero во Что-то...