



Research project:

«Origami is Mathematics!»

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- The Aim of the project is to study an origin of
- origami and the connection of this art with
- Mathematics.

The Tasks are:

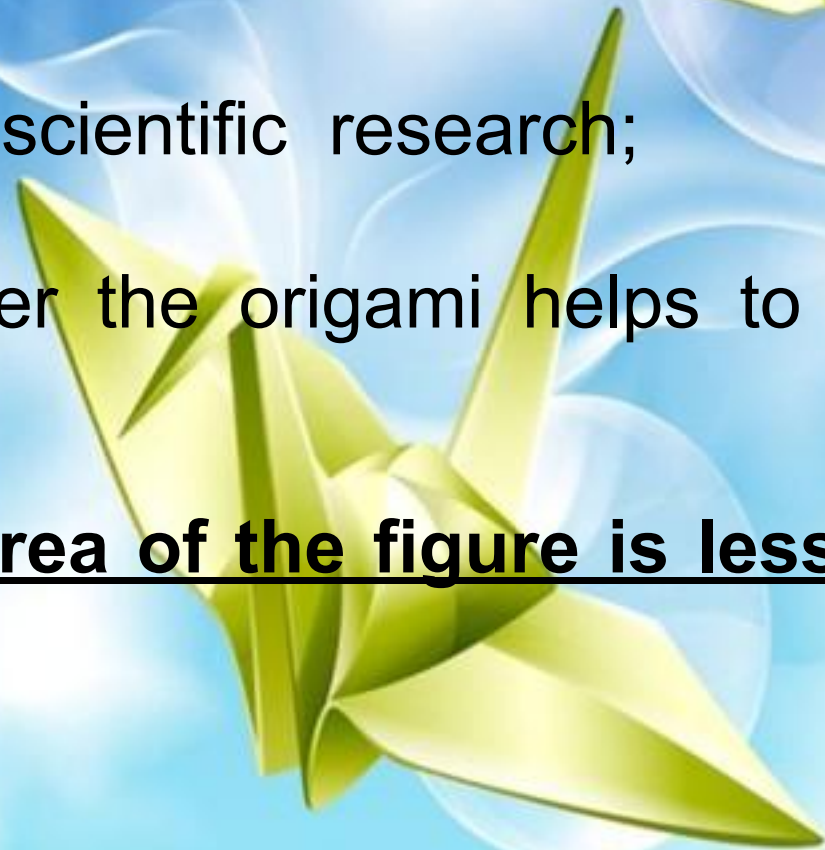
- 1. To study a concept , types , and origin of origami.
- 2. To analyse the connection of origami and mathematics on the example of basic elements origami.
- 3. Solve the mathematical tasks.

Topicality: Recently children have become less and less interested in studying, especially in Mathematics. In this project we want to draw the pupils' attention to the fact that Maths is a creative science;

■ **Research methods** : scientific research;

■ **Hypothesis:** Whether the origami helps to study Maths?

■ **Is it right that the area of the figure is less than that of leaf.**



Origami (Jap (Jap. 折り紙,,: «the fold paper»)-is an art of folding the paper without using the scissors. The Art of origami is originated in Ancient China where the paper was invented.



According to Maths, origami is the exact definition of the location of one or more points of a leaf setting the folds necessary for making a final objects.

The process of folding means making the sequence of certain actions following the common Math rules :

- The accuracy of the following the instructions;

- The points are defined by the lines' crossing points;

- The line is defined by either the sheet edge or the line of a bend of paper.

- All the lines are straight and are divided into two kinds: paralel and perpendicular.

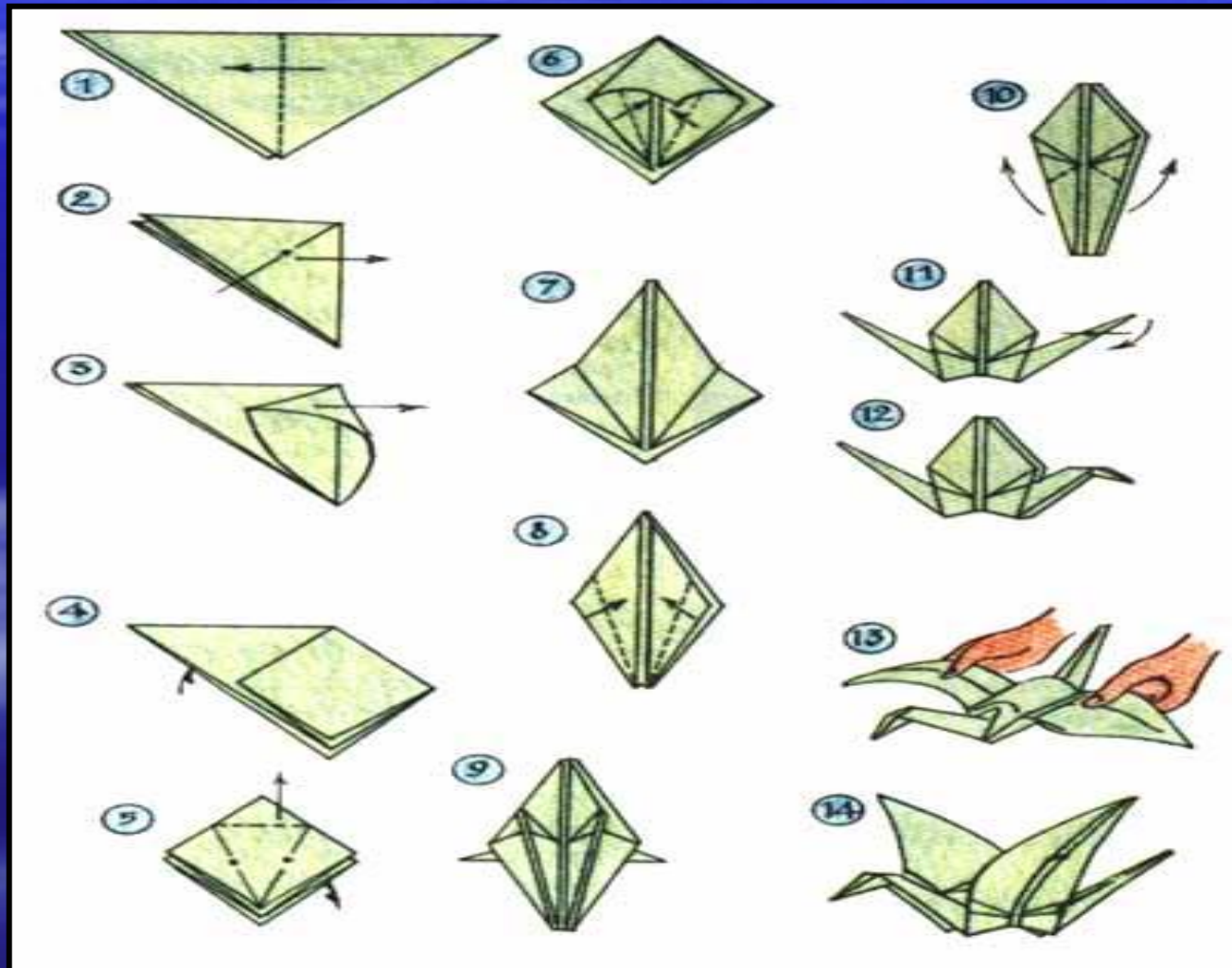
Nowadays it's popular to use the art of origami in different Maths contests.

Modular origami

One of the most popular kinds of origami is the modular origami in which the whole figure is made of the identical parts (modules).



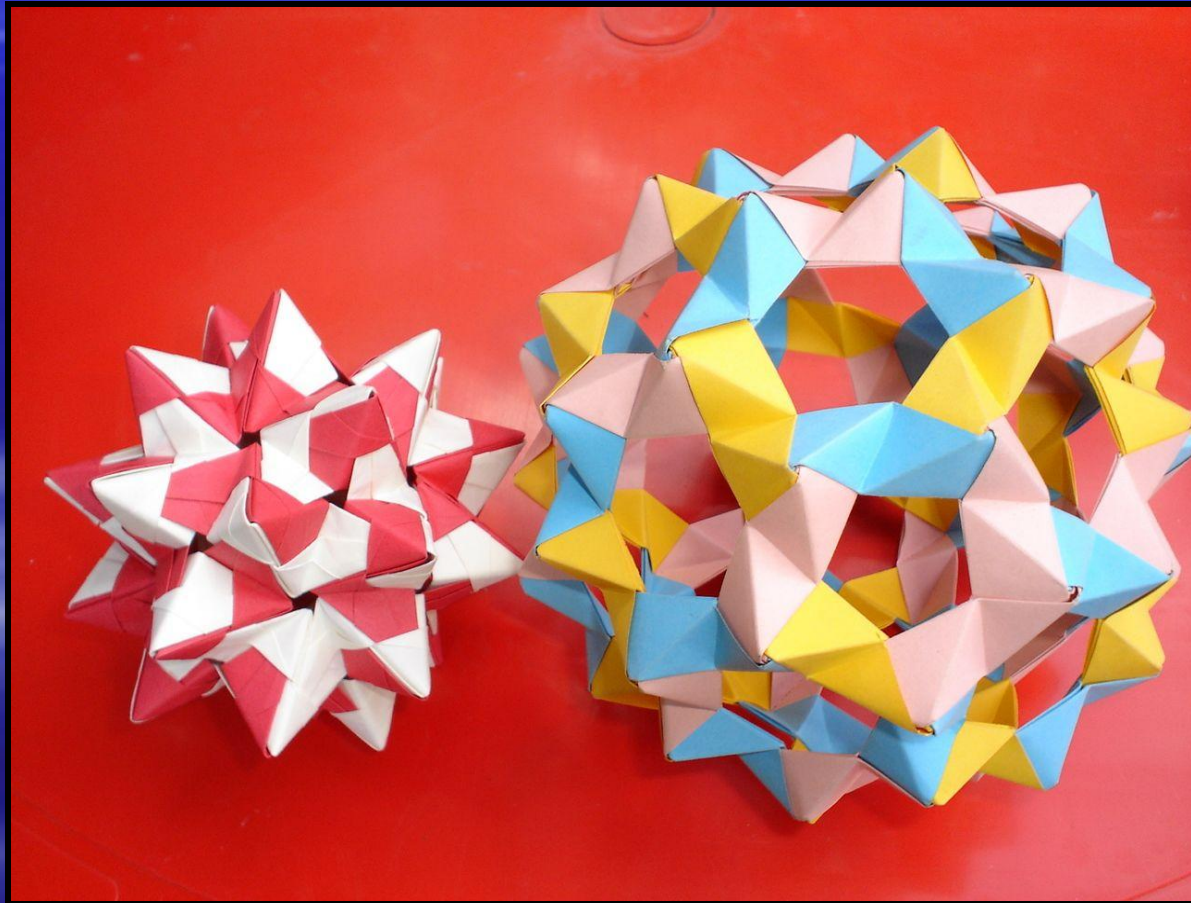
At first it seems that the possibilities of bending include the geometry of the ruler, but it is a mistake. In some cases the folds also have the possibilities of the compasses, though they don't make the circle arches.

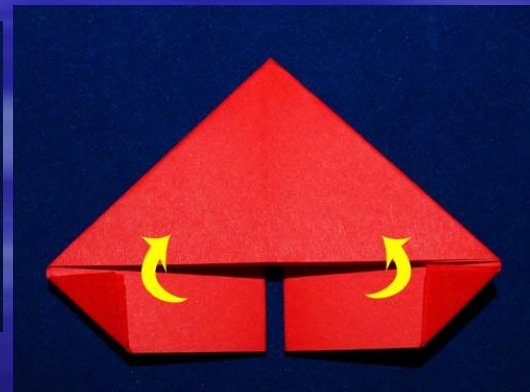
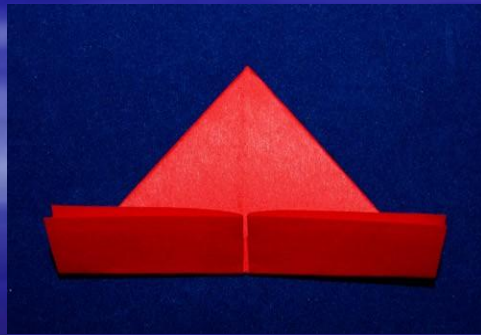
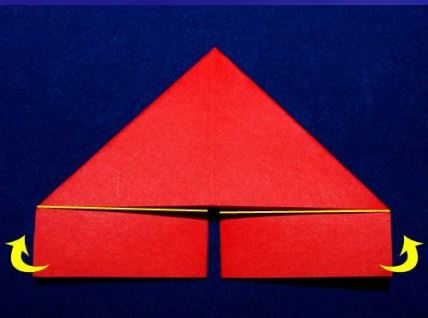
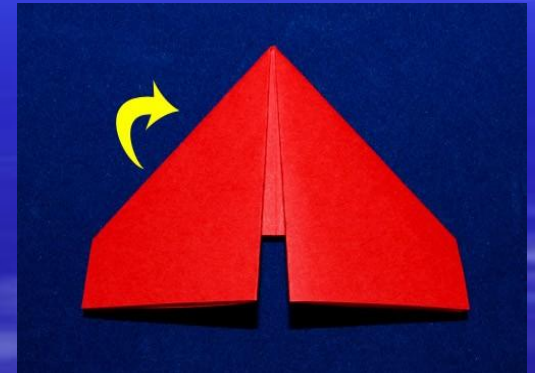
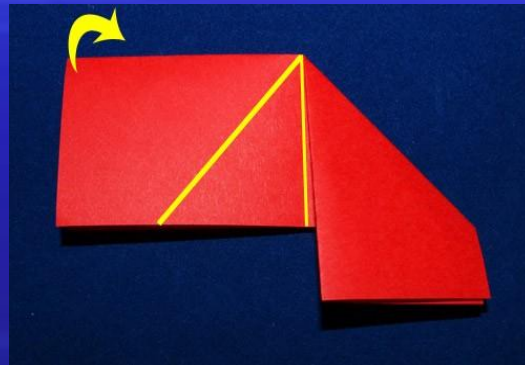
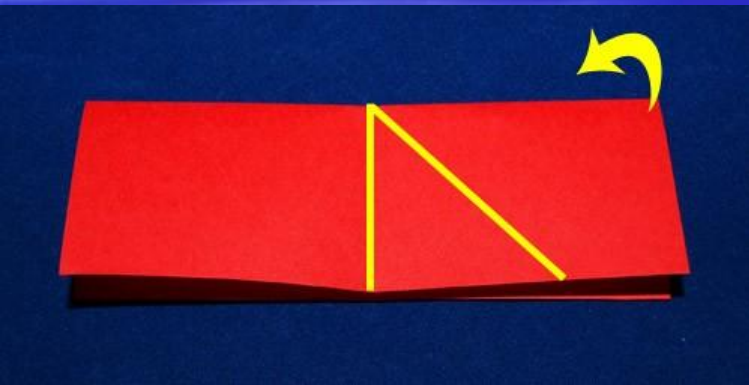
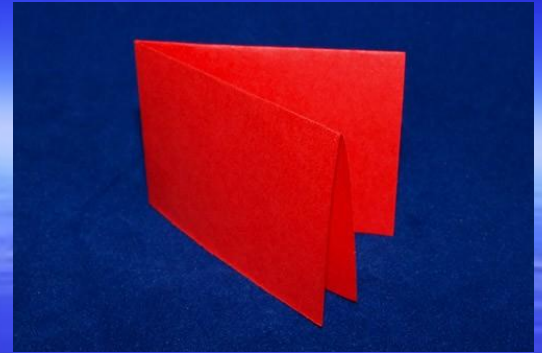
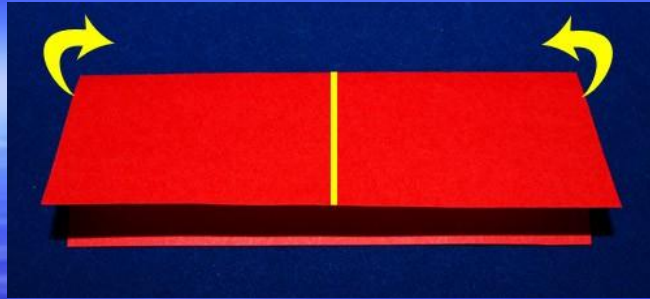
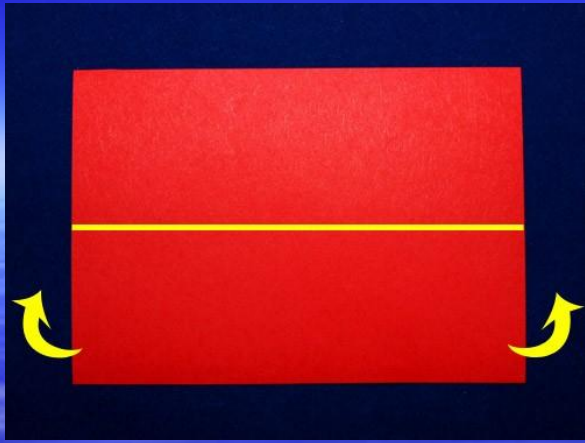


Mathematics is not only the strict science, but also the beauty and the harmony!



***The Japanese proverb says:
«The Great Square has no limits»
Just try to fold a simple thing,
The magic moment it can bring!***





Conclusion

- Folding of origami helps to learn geometrical material better, develops technical skills, memory and intuition.
- Making any model it is necessary to understand the scheme and the direction of folding.
- As a result we've found out some facts:
 - -the quality of work depends not only on the author, but also on material.
 - -the surface area of a figure is less than the area of a leaf of which it is made.
- The hypothesis is right

**Thank you for your
attention**