

Grade / Age: 6-10 years old

Topic: Geometry, STEAM

Subject area: plane isometries

Keywords: reflection, reflection symmetry

Single/ team work: single/pair

Language: (English or Local) English

Duration: 2 hours

Description of the Task:

1. Collect symmetrical plants (leaves, flowers, fruits), objects. Make a picture from them together.

Cut up the fruits to find their symmetry.

2. Move in front of the mirror, move away, move closer, stop, observe your reflection, the reflection of your partner, imitate each other's reflection.

3. Collect words that are the same in reverse, this is called palindromic symmetry.

4. Fold a sheet of drawing paper in half, then paint patches on one side, different patterns, then fold it up. What do you find?

5. Fold a sheet of paper several times, cut out some small pieces, then unfold the sheet. What do you find?

6. Open the following GeoGebra file, move the blue dot, how does the red dot move?

<https://www.geogebra.org/classic/tuwpvhsw>

Solutions of the Task:

1.



With the children we go for a walk in nature. The children work in pairs. Each pair gets a list of things that are easy to find in nature (in autumn). These are the list items the children have to collect during the excursion.

Before the walk, discuss with the children what these natural items have in common: they are all related to autumn, they are found in nature, they are Symmetrical (To make it easier to understand, we will look for examples of symmetry together in the classroom first.)

The children can collect more symmetrical natural elements during the walk, they can even look for such objects in the classroom.

Pair work continues after the walk by putting the collected objects together. The children make a picture of these plants and objects.

The pictures can depict people, events, animals, anything the children can imagine. We take photos to decorate the room in the fall.

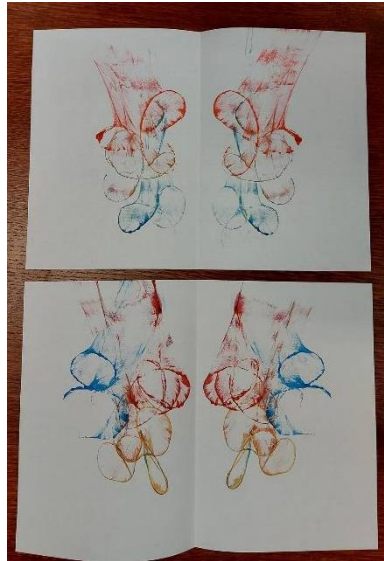
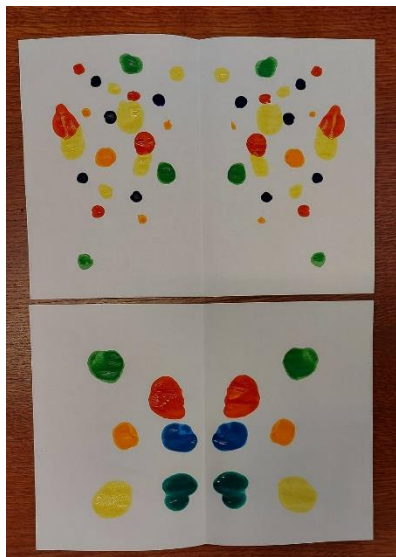
The main aim of the lesson is for the children to notice how many beautiful symmetrical shapes they can find in nature and to appreciate the natural environment around them.

Competences to be developed during the curriculum: environmental awareness, protection of natural values, problem solving, logical thinking, spatial awareness, aesthetic appreciation, creativity, observation

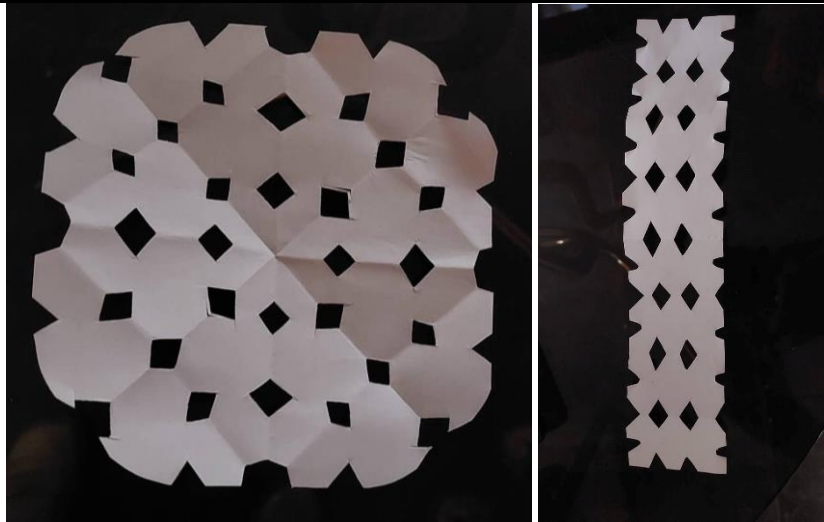


3. Palindrome symmetries: picking out symmetrical words from word cards, searching independently in the active vocabulary, collecting words for homework (dad, did, eye, kayak, level, madam, noon, refer...etc.)

4. Folding a sheet of drawing paper in half, placing painted spots on one half of the sheet, then folding it (Butterfly).



5. Sample cutting from multi-folded paper.



Prior knowledge:

Comments:

The exercises described above deal with symmetry.

It develops the pupils' attention, observation skills, the ability to analyse and synthesise in their thinking.

It develops creativity, a sense of beauty, and insight.

Groups of children particularly enjoy the above observations and games. It can be interesting to build on these groups of tasks, trying them out one after the other, focusing the child's attention on symmetry, to move from playful activities to solving the textbook tasks. If children are introduced to the observation and realisation of symmetry in this playful, active way, it will arouse their interest, so that they will be able to walk in the world with open eyes, enjoy the mathematics lesson and its tasks, because it is clear that it is not fulfilled on paper, but in their whole lives, in the environment around them.

Connection to other subjects/topics/areas:

biology, drawing, technology