

**Szkoła Podstawowa Nr 2**  
**Gliwice, Poland**

## Arts-based Learning Module

**Subject:**  
Mathematics and art

**Topic:**  
Scale in art

**Age of students:**  
13-14

**Required prior knowledge:**  
The general notion of scale and its use in mathematics.

**General objective:**  
The increase of students' knowledge about scale and its use in geometry and art.

### Specific objectives:

- Students know the application of scale,
- Know the examples of rotational bodies,
- Know the formula for the volume of a sphere,
- Can use scale when calculating the area and volume,
- Know the application of the discussed issues in different fields of art (painting, sculpture, architecture).

### Opportunities:

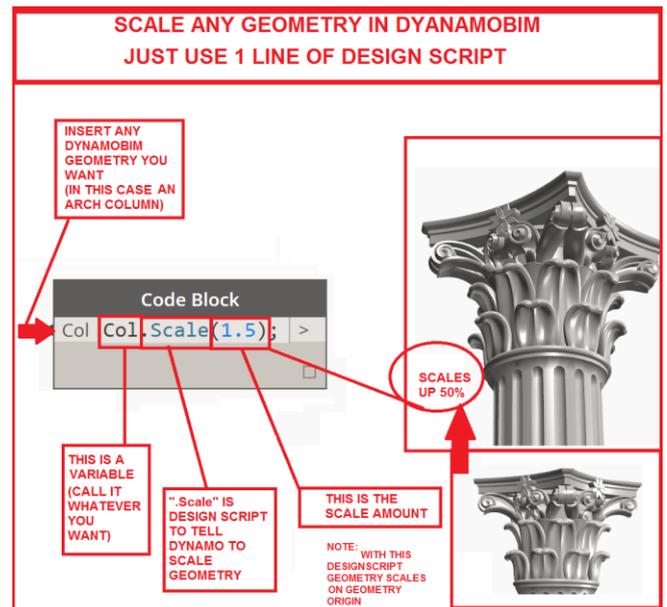
- Students can see the use of scale in everyday life and in art.

### Arts involved:

Sculpture, painting, architecture.

### Resources:

1. PowerPoint presentation available on a website,
2. Interactive blackboard,
3. Modelling clay, paper sheets, pens,
4. Models of solids.



# Learning with the Arts

Erasmus+ School Cooperation Project 2017-2019

**Time frame:**

3 x 45 min

**Methods of work:**

project work (in groups)

**Steps:**

1. Brainstorm about the notion of scale and its use in everyday life and in art.
2. Presentation reminding the notion of scale and how it can be used in art.
3. Presenting the formula for the volume of a sphere.
4. Showing a snowman made out of modelling clay to students. Measuring the diameter of the sphere and calculating its volume.
5. Students create their own models in any scale.
6. Measuring the diameter and calculating the volume of the models created by students.
7. Calculations connected to scale. Comparing the exemplary snowman and the snowmen made by students.

**Carrying out the module in SP 2 in Gliwice:**

- participants were students of Year 6 (22 students) and Year 7 (18 students).
- Classes with Year 6 and 7: 14 and 15.01.2019 (mathematics and art lessons).  
The students participated eagerly in the brainstorm about scale and in the discussion about its application in everyday life and in art. The examples of scale in photography met particular interest. Calculating the volume of other solids, such as cone, could be added to the lesson. Students enthusiastically created their own models of snowman.



Erasmus+