Learning with the Arts

Erasmus+ School Cooperation Project 2017-2019

Gefördert durch Erasmus+ Schulbildung

Subject: Mathematics, Art

TOPIC of the module: **My body, mathematics and arts: understanding, grasping and experiencing maths and art with or through our bodies**

Age of students: 11,12

Number of students: One class (up to 30)

Required prior knowledge: none

Objectives:

At the end of the module the students will be able to

- use their own body as a tool for different measurements
- be conscious of their body in three-dimensional space
- recognisze the necessity of standardized measuring
- calculate averyages
- estimate the correctness of their results
- relate body measurements to standardized measuring

Opportunities:

At the end of the module students will

- appreciate aesthetic and cognitive results
- learn with all their senses
- get a better understanding of their body
- work in groups and with a partner

Arts involved: drawing, sketching, photography

Time frame - number of lessons and duration of lessons: 6-8 45-minute lessons

Methods of work (individual, pair work, group work, …) all types of settings/methods

Procedure / steps

1. Mind storming: How can you measure when you don‘t have measurements? Discovery studio: Using your body for measuring a classroom: hand span, foot, body length, cubit, step,etc. collect information, take notes, sketch body part on card and add information (each pair or group works with one body part) (1-2 lessons)
2. Use information on cards to estimate measurements of parts of the classroom (partner work)
3. Exploring different dimensions: How can we find the average body size of the whole group? Collect ideas and prove them, take notes (e.g. get into line according to our body size, visualize our body size by drawing body sihouettes,establish a relation between body parts and elements from the metric system (mm,m,mm), measure our body parts and calculate our average size) (3 lessons)
4. Fermi-question: How many students fit into our assembly hall for a Christmas concert? Try to solve the question with all the tools that are available to you. (partner and/or group work) (1-2 lessons)
5. Posiible further steps: Working with different scales, play memory game with measurements (relating body parts to metric system, visualize different diagrams)

Evaluation summary and comments about how the module went: engagement of the students, difficulty, effectiveness, improvement suggestions …)
As this was our first module, we did not do an exact evaluation of it. The maths teacher who helped us with ideas said she would happily employ the module in her maths classes and suggested this could also become part of fostering learning maths for girls which is being discussed at our school in the context of the STEM-programme.
From the comments of the students, they were very committed and enjoyed engaging their bodies into mathematical tasks. At the end of the module they were able to find a solution for the Fermi-question and felt much more able to tackle problems. They were fully able to take notes during discussion phases independently and came up with all three ideas of how to find our average body size themselves.

For photos from the module please see our power point presentation “Preliminary Activities!

Preliminary Activities 20017.pptx