

STEM & IBSE in action: earthquakes and engineering in the classroom

2nd General Lyceum of Oreokastro – Thessaloniki, Greece

What we did:

During the LTTA meeting in Greece of the Erasmus+ “eHAND” mproject from 23-27 April, which took place at the same time as the STEM Discovery Week, a number of activities took place, among which a STEM lesson, a CLIL lesson on “serious games”, earthquake tips and the creation of a booklet «Getting ready for an earthquake»

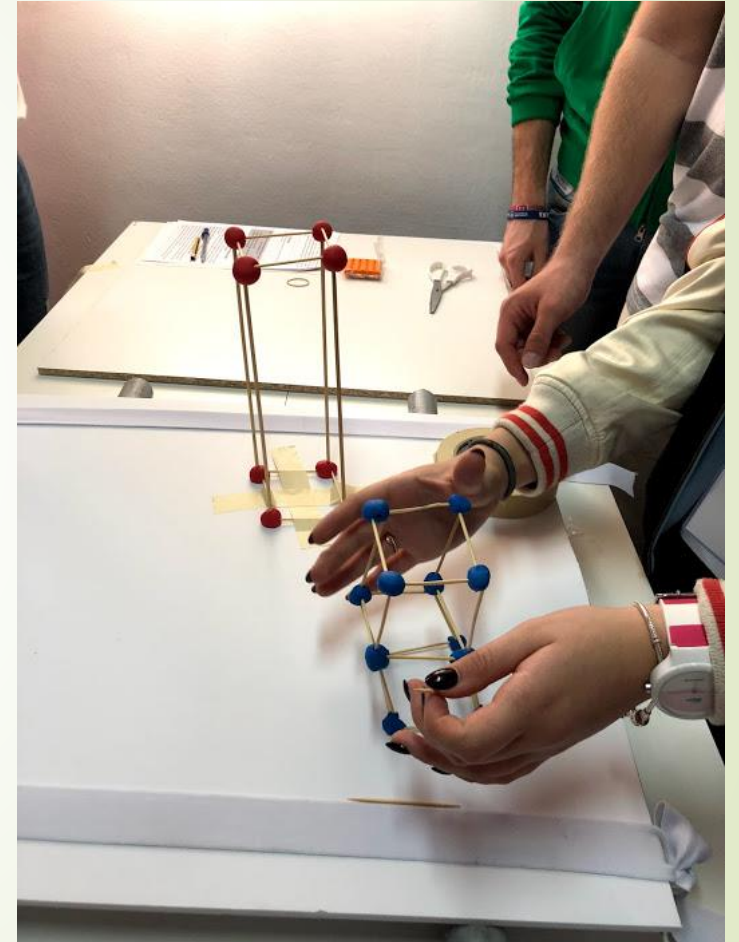


STEM lesson

- Activity 1: Earthquake shaking table
- Activity 2: Earthquake working model
- Activity 3: The power of a shake

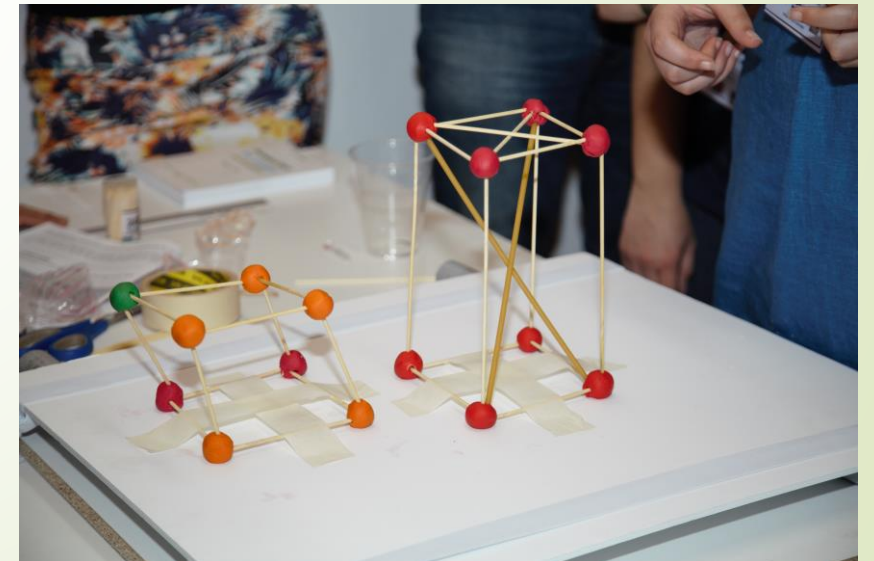
Goals (Cognitive Domain)

- to familiarise students with the theme of earthquakes and seismic waves, their nature and why severe damage occurs to buildings as a result of Newton's law.
- to identify some of the factors that make buildings earthquake-proof, including cross bracing, large "footprints", and tapered geometry.
- to compare a model structure with what it represents.
- to understand why engineers need to learn about earthquakes and how science can benefit the society.



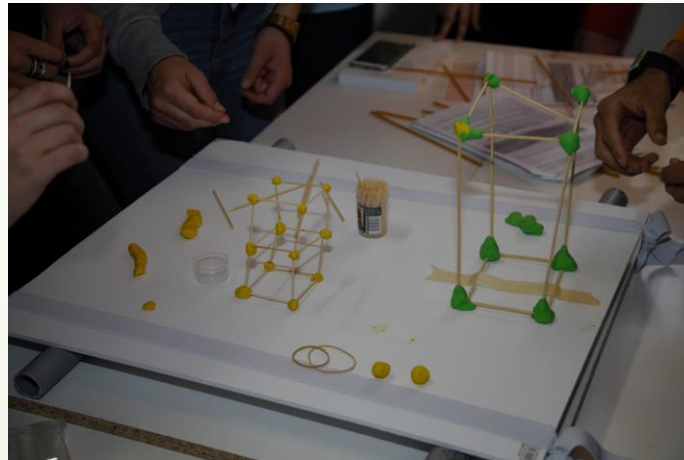
Goals (Affective Domain)

- To listen to others with respect
- To participate in class discussions
- To cooperate in group activities (teamwork)
- To show the ability to solve a problem by using an objective approach.



Goals (Psychomotor Domain)

- ▶ to make quantitative and qualitative judgments relating to seismic waves and their intensity.
- ▶ – to model an earthquake-proof structure using simple materials, by following certain instructions in a manufacturing process.
- ▶ – to perform a mathematical equation (potential energy: $U=mgh$) as demonstrated.



How it went:

- 50 students (5 groups of 8 students) and 25 teachers from 7 different countries participated
- Excellent implementation of the STEM Lesson
- Huge interest on the part of students and teachers alike
- Great participation, interest and cooperation of female students
- A remarkable example of an inquiry-based activity



Recommendations / suggestions for others:

- ▶ Focus on promoting cooperation and team spirit, not only among our students, but also among students and teachers at an international level, rather than simply passing on knowledge.
- ▶ Opt for an experiential approach to teaching Sciences through STEM lessons; they enhance understanding and greater participation of female students, who usually prefer the Arts and Languages when choosing a career.

