

STEM for inclusive schools

School Education ERASMUS+
Project: KA220-NW-23-30-151162

Period:
from **03.09.2023** to **02.03.2026**
(30 months)

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STEM for inclusive schools



12th of March 2024

Universitatea „Dunărea de Jos” din Galați - Școala Gimnazială Nr. 7 Galați

"Dunărea de Jos" University, Galati – Secondary School No. 7, Galati



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After TPM 1 activities

Link to the institutional website of the partner, where the project is described in short

<https://www.scoala7galati.ro/index.php/activitati/proiecte-internationale/proiecte-erasmus/stem-for-inclusive-schools>

Link to the facebook or a social media page of the partner

<https://www.facebook.com/scoala7galati>

First presentation of the project and its ideas and goal in local press or an online press portal

<https://sellification4education.ro/pedagogie-creativa-revista-educatorului-sellification/#pdf-demo-revista-educatorului-sellification/57/>



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STEM activities ideas

Benefits for the students and the educational process

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- ✓ Presentation of making video tutorials
- ✓ Presentation of rapid prototyping technologies
- ✓ Presentation of 3D scanning technologies
- ✓ Presentation of mechatronics kits (elements).

- Creating digital lessons (on-line, distance?)
- Building of 3D models (possibly carried out at UDJG during workshops, The Green Week, Open Gates day)
- Scan models made by pupils
- Robot models (using Lego-type kits)

- On-line lessons
- Learning support materials
- DIY Tutorials

- Models for science lessons
- Geometric figures
- Examples for geometry problems in space
- Historical artifacts
- 3D models of landforms

- Sketching and making a class logo
- Designing a mascot
- Scanning of natural objects (shells, snail shells, stones, etc.)

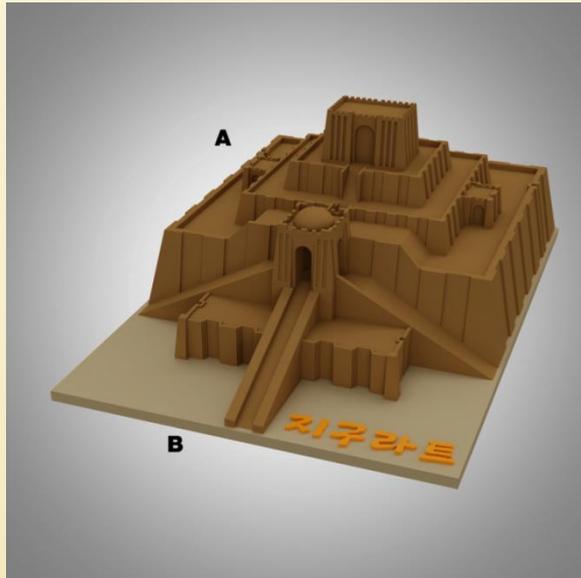
Reverse engineering elements

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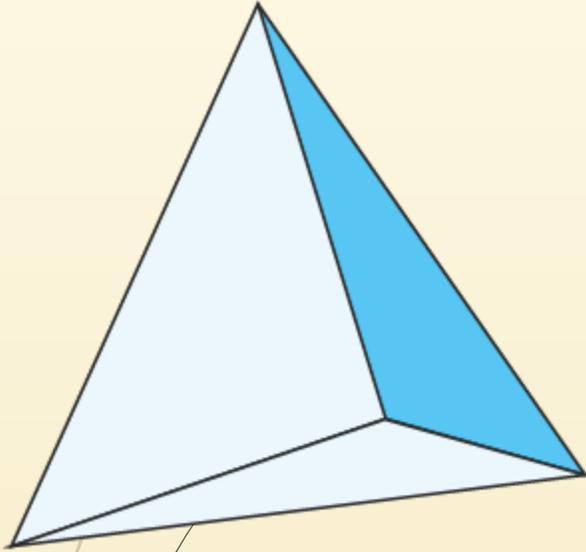


Models of historical artifacts

- **Accessibility:** Many historical artifacts are fragile, rare, or located in museums far away. Models provide a safe and accessible way for students to examine these objects up close.
- **Engagement:** Models can make history more tangible and engaging for students. They can be manipulated, studied from different angles, and even used for role-playing activities. This hands-on approach can spark curiosity and make learning more enjoyable.
- **Connection to the Past:** Holding a model of a historical artifact can give students a stronger connection to the past. It can help them imagine what life was like for the people who used the original object.



How can you build 4 equilateral triangles using 6 matchsticks?



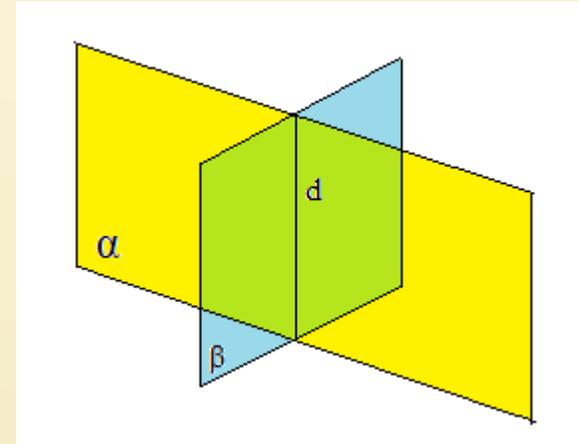
•**Improved Comprehension:**

By interacting with a physical model, students can gain a better understanding of the size, scale, and functionality of an object. This can be particularly useful for complex objects or for understanding how different parts fit together.

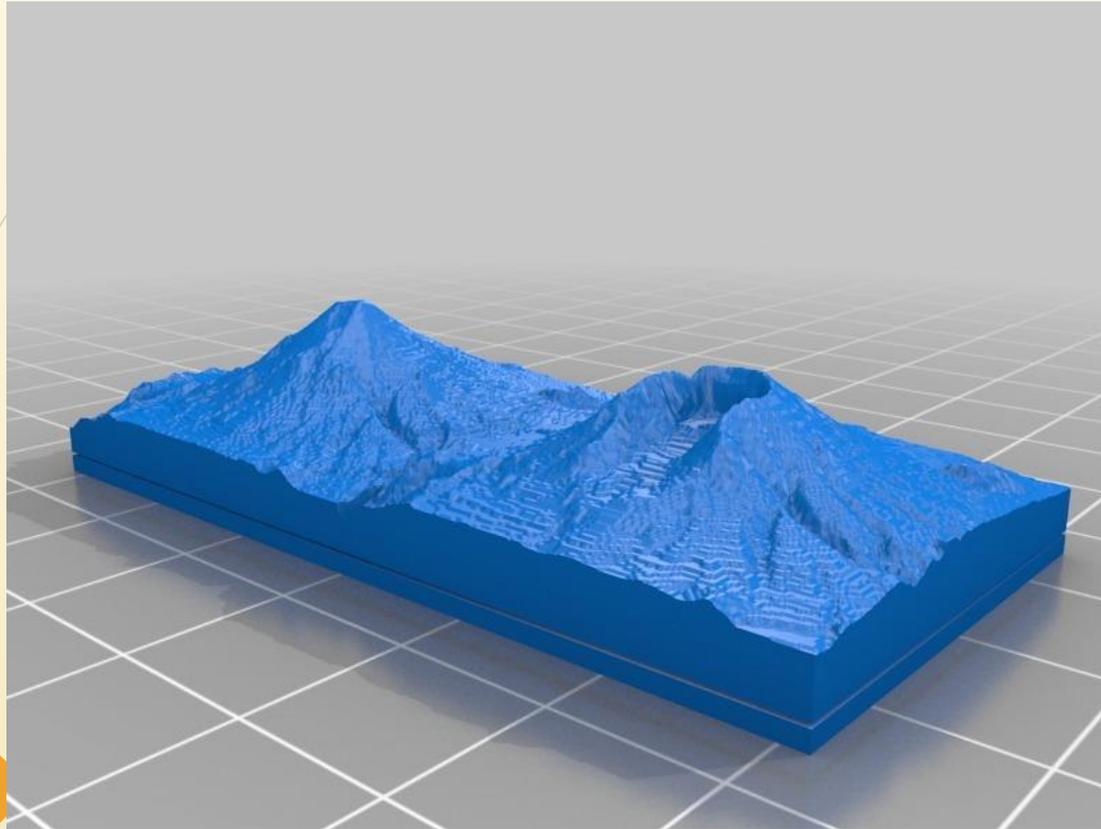
•**Critical Thinking:** Models can be used to encourage students to think critically about the making process. By examining a model, they can ask questions about how it was made, what it was used for.

- Visual appeal and engagement**
- Manipulation and exploration**
- Improved problem-solving skills**

3D models for geometry problems



Three-dimensional map of an imaginary (or real) world (land forms, contour lines, etc.)



It can be designed in a graphics program (even for free) and printed at the University.

•**Enhanced Spatial Understanding:** By presenting geographical features in three dimensions, 3D maps allow students to grasp the relative elevations, sizes, and shapes of mountains, valleys, rivers, and other landforms. This goes beyond memorizing locations and fosters a deeper understanding of the Earth's physical geography.

Puzzle with countries, regions, counties, etc.



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•**Improved Visualization:** 3D maps can bring geographical concepts to life. Imagine visualizing volcanic eruptions, ocean currents, or weather patterns – all become more impactful and easier to understand in a 3D environment. This can significantly improve information retention and engagement.



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Designing and making a class logo or mascot

Students can make the model from clay, chalk, in Tinkercad
It can be scanned at the college and possibly 3D printed
It may be possible to make a competition for classes, groups.

- School Spirit and Unity
- Engagement and Fun
- Teamwork and Collaboration
- Motivation and Positive Reinforcement
- Memory and Identity



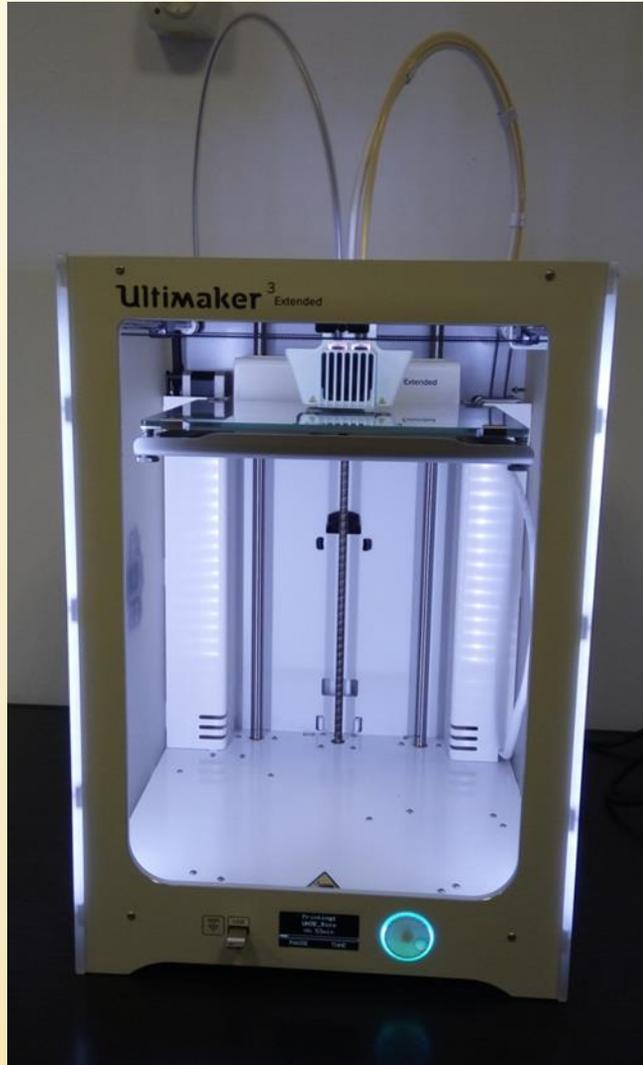
Scanning of natural objects



- **Enhanced Observation and Detail**
- **Accessibility and Remote Learning**
- **Interactive Learning and Exploration:** Many 3D scans can be manipulated and interacted with in digital environments. Students can virtually dissect a flower, peel back layers of a rock, or explore the internal structure of a seashell. This interactivity fosters deeper engagement and a more hands-on learning experience.
- **Preservation and Sustainability:** 3D scanning can be a valuable tool for preserving fragile or endangered natural objects. By creating digital replicas, we can minimize handling of the originals and ensure they are available for future generations of students to study.
- **Data Analysis and Measurement**



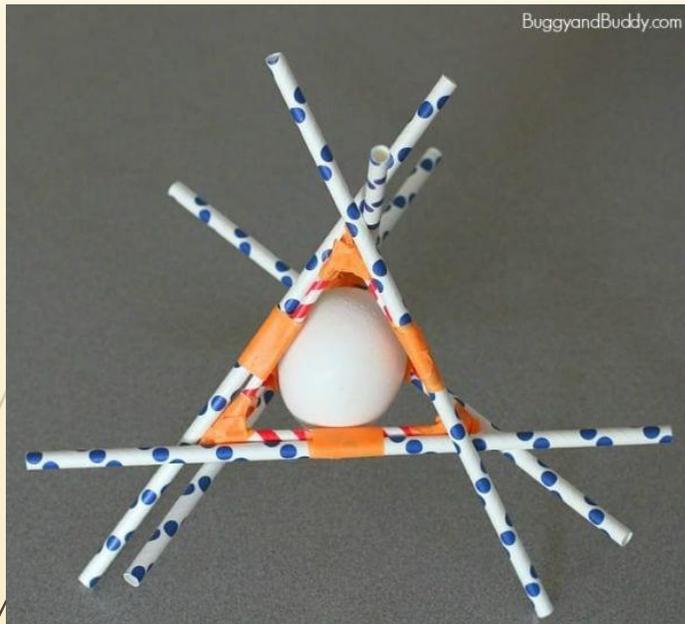
Laboratory equipment



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STEM activities - Examples





Other benefits for students while using STEM

- Help improve engagement
- Real world connections
- Explain with hands-on experiences
- Involve students in real learning
- Use all learning styles
- Teaching differently according to needs
- Apply theory in real life with simulation and models
- Support collaboration
- Help improve critical thinking
- Logical sequence while building a product
- Holistic approach and understanding of terms
- Develop soft skills
- Apply abstract theoretical concepts
- Emphasis on Problem-Solving
- Assistive Technologies (text-to-speech software or screen readers)
- Increased Confidence and Self-Esteem
- Diverse Career Paths

