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STEAMTeach

STEAM Education for Teaching Professionalism

STEAMTeach Austria RESOURCES

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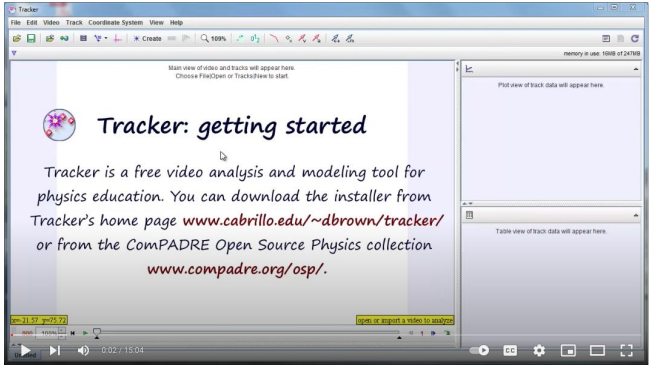
Analysing Sporting Performace

Tracker Free Software
https://physlets.org/tracker/

Original HP Analysing Sporting Performance
https://sites.google.com/site/cciteasp2/home

Analysing Sporting Performance PDF
https://docs.google.com/document/d/1mfmUIQ2VpJ7F4eimdRNxSJLxB3vOFeaZ/edit?usp=sharing&ouid=116785179076121452044&rtpof=true&sd=true



Getting Started with Tracker - D. Brown
https://youtu.be/La3H7JywgX0

3D Modeling and Printing

Using art to create 3D models additionally inspired teachers to collaboratively create their own tools to utilize in their lessons. This showed us that using art as a motivating factor can help teachers to focus on and enjoy the opportunities of a technology and overcome resentments.

1.1 Project Overview

Participant age: From 20 to 65	***No. of participants:*** Groups of 10 to 20 people	***Duration:*** 5 to 6 hours, 2 parts
Level of knowledge: Basic Knowledge of GeoGebra, PC user, owner and user of a smartphone	***No. of teachers:*** 2 to 3 people would be perfect, one is the minimum	***Type of venue:*** A mix between a computer classroom and a makerspace with 3D printers
Learning methodologies: Collaboratively working on problems, task based	***Involved disciplines:*** all STEAM disciplines are involved	***Technological needs:*** Computers, two tablets, internet, 3D printers
Most emphasised learning methodology: Collaboration and problem based learning, modelling	***Main addressed topics:*** 3D thinking, mathematical modelling	***Estimated project cost:*** 1500 €

3D printable puzzles [12] to play and models created on GeoGebra [6] platform > Passive enjoyment

Real life object > 3D print > Active engagement

2.2 Content

DISCIPLINE	CURRICULAR CONTENT ADDRESSED
Science	Temperatures, slopes, shrinking of material, chemical components of materials, glass and melting points, ...
Technology	The use computers and CAD programs that are easy to use from 10 years and above
Engineering	The use 3D printers and create models that can be created in the real world
Arts	design objects that not only fulfill a purpose but that also express one's inner world
Mathematics	mathematical modelling, geometry, vertices, calculus, mirroring, scaling, ...

3D Modeling and Printing PDF

https://docs.google.com/document/d/19L2IkRpUBqH-es0HNjHE9iqpIYhc7_A7/edit?usp=sharing&ouid=116785179076121452044&rtpof=true&sd=true

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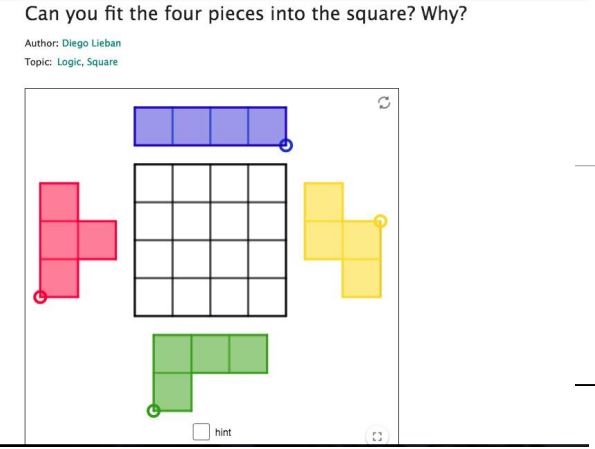
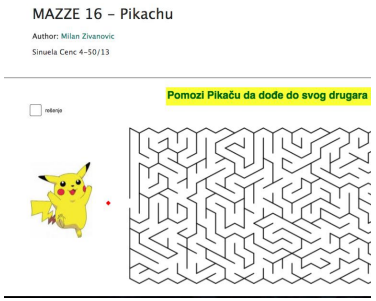
STEAMTeach

Student-generated Microgames

Microgames PDF:
https://www.steamteach.unican.es/wp-content/uploads/2021/11/STEAMTeach-Activity_Imam.pdf

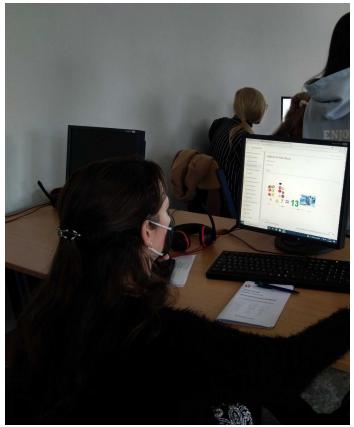


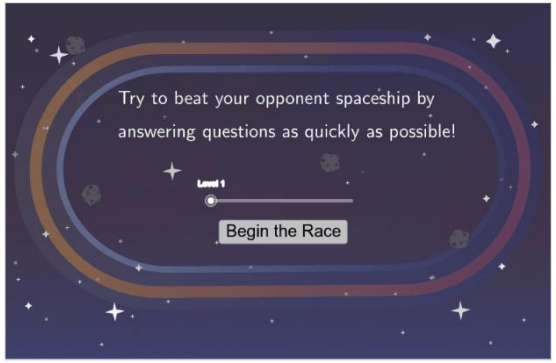


The present activity promotes students and teachers to be able to develop microgames on the GeoGebra platform. The activity could empower them to explore arts in connection to science, technology, engineering, and mathematics. Students and teachers could start expressing their creativity by designing a very short and small game with mathematical contents. This process is followed by constructing the design on GeoGebra so that they can apply science, technology, and engineering during the game developments. The process of designing and developing microgames can be done individually or in collaboration with peers. They may also share the created games to their peers for testing.

1.1 Project Overview

Participant age: 15 - 45	***No. of participants:*** Groups of 3 - 5	***Duration:*** 5 hours
Level of knowledge: Basic of GeoGebra, computer, and programming	***No. of teachers:*** 2 - 3	***Type of venue:*** Regular classroom Computer laboratory
Learning methodologies: Project-based learning Collaborative learning	***Involved disciplines:*** Science Technology Engineering Arts Mathematics	***Technological needs:*** Paper and pencil Computer Internet
Most emphasised learning methodology: Project-based learning	***Main addressed topics:*** Mathematical games	***Estimated project cost:*** 500 €





2 CURRICULAR CONTEXT

2.1 Key competences

The present activity develops students and teachers competences on digital literacy and STEAM.

2.2 Content

The content of this activity is described in the following table.

DISCIPLINE	CURRICULAR CONTENT ADDRESSED
Science	Proof of game concept
Technology	Computer and programming
Engineering	Coding and programming
Arts	Design and visualisation
Mathematics	Mathematical contents

Zero Cost Energy Scrap Bike

DIy Electric Bike From Scrap ||
Homemade Electric Bicycle

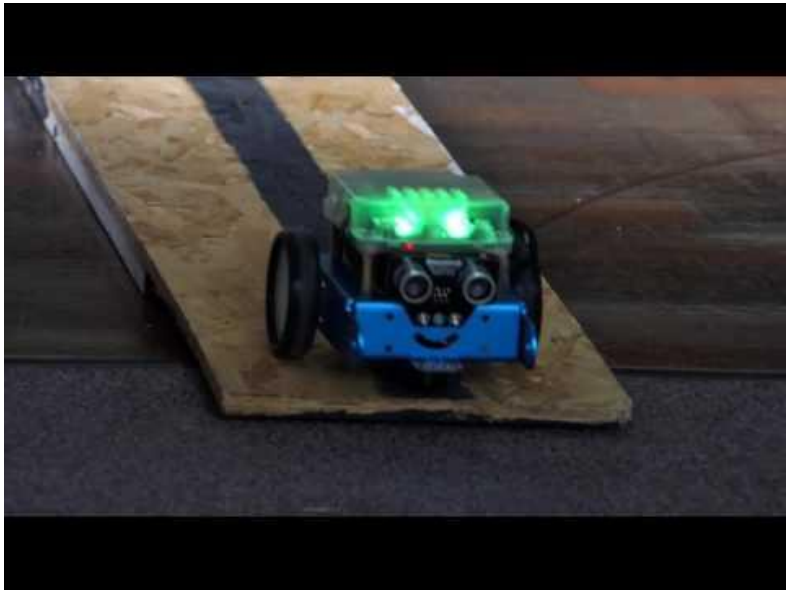
https://www.youtube.com/watch?v=giu_vrSfARM

Scrapyard articles, prices…jobs, family livelihoods

https://youtu.be/nrukZNcAqnw

Chain Reaction

Rube Goldberg Machine **https://youtu.be/863z_eHGlJw**



Westbridge Chain Reaction https://youtu.be/j7dodM5Esjw