



Presentation on a project element WATER at the Rome mobility meeting 29.11.2021

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Global Environmental Awareness and Responsibility

– a Toolkit for Inclusive Environmental Education

Project Element: **WATER**



'Ancient peas' - How to cultivate by using only ancient watering systems?



- 5th graders, 21 students
- 27.2. - 31.3. 2020, around 4 weeks
- prior knowledge:
 - studies in biology (the needs of a plant to grow, water circulation)
 - studies in physics, chemistry (states of a matter, small water activities)
 - studies in history (ancient Egypt, antique Rome, Greece) ->the importance of cultivation



- working on project element **Water** from a multidisciplinary view of **STEAM**
 - **Science**
 - **Technology**
 - **Engineering**
 - **Art**
 - **Mathematics**

The idea: collaborative learning and problem solving, cross-curricula

The problem: How to water a plantation (peas) using only ancient watering systems?

The tool: a scale model of a mountain, river, lake, field and a growing pea plantation

The solution: ?

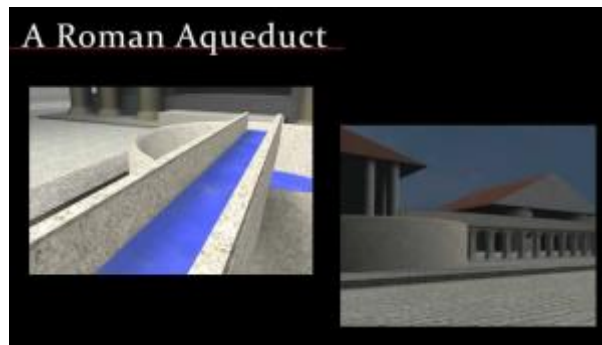
The process



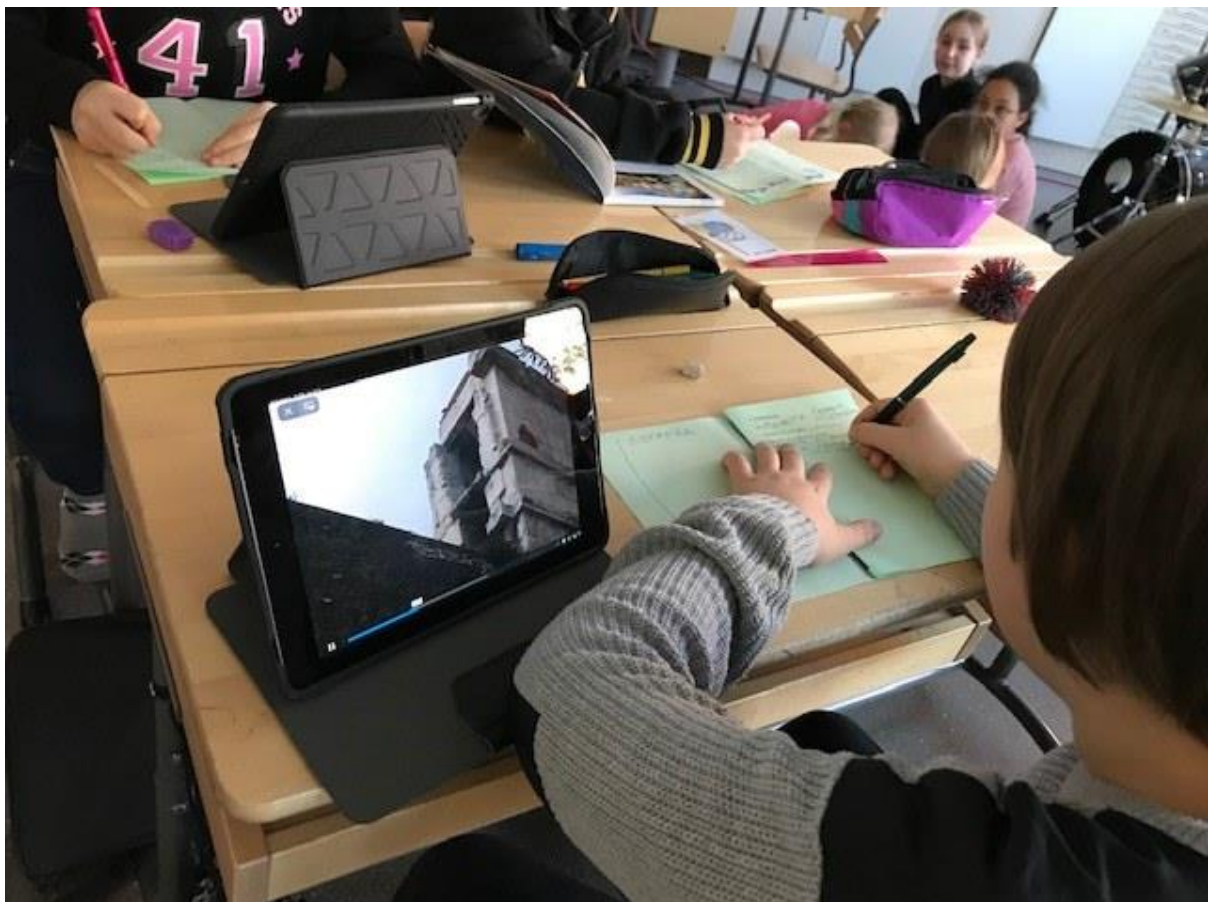
1. Sharing the tasks in project groups (4 students)

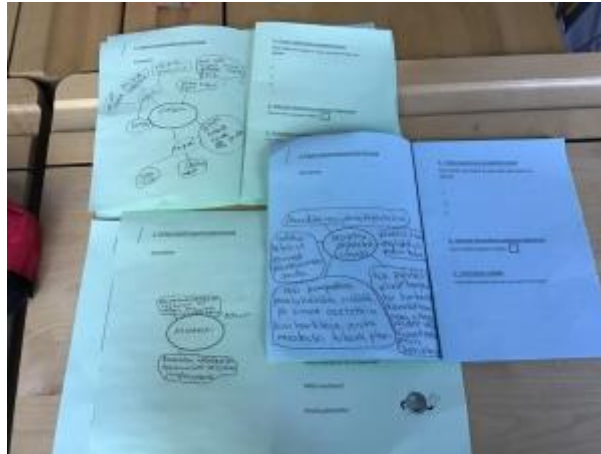


- 4 experts in every project group
- Different information sources for each expert:
 - BLUE: school books
 - GREEN: books
 - YELLOW: Google
 - RED: video links (YouTube)
 - [Archimede screw](#)
 - [A Roman aqueduct](#)
 - [Roman water supply](#)



2. Gathering information in expert groups





3. Sharing information in project groups and creating a PowerPoint - presentation together



<https://sway.office.com/nwkfZUKisvdm1uo6#content=Is7eAfGnibzHMB>

4. Presenting the PP-presentation for other groups



5. Presenting THE PROBLEM:

How can your group water the planted peas when...

...you can only use the water coming down from the mountain?

...the water runs into a lake that is on the other side of the mountain compared to where the peas are?

...the lake is lower than the plantation?

Brainstorm to solve the problem!



6. Building the scale model



<https://sway.office.com/nwzfZUKisvdm1uo6#content=3idRifCxukdG4!>

1 - Testing the prototype

Embed://



<https://sway.office.com/nwkfZUKisvdmIuo6#content=BDeQaT3TPIYXxQ>



<https://sway.office.com/nwkfZUKisvdmIuo6#content=X55SHft4vckoxm>



<https://sway.office.com/nwkfZUKisvdmIuo6#content=OfMYmHlVHezeAD>

7. Planting the peas: 10 peas for each group

8. Growing the peas and measuring them for three weeks



- How many of the peas started to grow?
- How long the shoots are ?
- -> Counting the total length of the seedlings (cm) and the growing rate (%)



8. Enjoying the results of the good growth



Embed://https://rajala.padlet.org/monkkonenanni/herneet<div class="padlet-embed" style="border:1px solid rgba(0,0,0,0.1);border-radius:2px;box-sizing:border-box;overflow:hidden;position:relative;width:100%;background:#F4F4F4"><p style="padding:0;margin:0"><iframe src="https://rajala.padlet.org/embed/qodtq6k38j3dsudh" frameborder="0" allow="camera;microphone;geolocation" style="width:100%;height:608px;display:block;padding:0;margin:0"></iframe></p><div style="padding:8px;text-align:right;margin:0;"></div></div>



The digital platform in seppo.io

CODE B4E84D



<https://sway.office.com/nwkfZUKisvdmIuo6#content=rixu7ahCI4K3qw>

Final conclusions



What did the students learn?

- Science
- Technology
- Engineering
- Art
- Mathematics
- Contents of history, physics, mathematics
- **Social skills:** reasoning, team work, listening, thinking, problem solving skills



- The students loved the project and worked well together
- What to bring more:
 - technology
 - mathematics: diagrams
 - self-assessment of the students

Thank you for your interest!

Anni Mönkkönen, Rajala school Kuopio, Finland