Europeana Learning Scenario

Title

Inventions: Rome Wasn't Built in a Day

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Abstract

Inventors and inventions have always fascinated students' minds. The idea of imagination, innovation and pioneering work inspires and stimulates creativity. In this learning scenario, we will track and probe into the evolution of two popular electronic devices, mobile phones and computers. Next, the pupils will become familiar with strange and unusual inventions and finally, they will make their own inventions and present them to the public, inviting prospective 'customers' to purchase them.

This learning scenario hopes to instill the idea that 'Rome wasn't built in a day', and that progress moves through trial and error. Additionally, it aims to familiarize students with the Europeana and Historiana platforms, as well as other web 2.0 tools, like timelines and infographics.

Keywords

Inventions, innovation, technology, evolution, history

Table of summary

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Subject	English, Information Technology, Technology, History
Topic	Inventions, creative thinking and 21st century skills (4Cs)
Age of students	12
Preparation time	2 hours
Teaching time	5 sessions of 45 minutes, depending on how knowledgeable students are about the use of web 2.0 tools.
Online teaching material	Online tool for farming random groups: Random Team Generator Online tool for polls : Mentimeter Online tool for presentation and voting: Padlet Online tool for timelines : Prezi Online tool for Infographics : Canva Recommended sources of information and images Europeana

Co-financed by the Connecting Europe Facility of the European Union

	Can you guess? Gallery on Europeana Remarkable 20th Century Inventions on Europeana The Evolution of Mobile Technologies on Historiana
Offline teaching material	PCs, overhead projector, pdf worksheet (created with Canva) which students will have at their disposal both in electronic and physical form, paper, coloring pencils.
Europeana resources used	Can you guess? Gallery on Europeana Remarkable 20th Century Inventions on Europeana Europeana as a source of pictures

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Integration into the curriculum

English - In the Greek Primary Education Curriculum of the 6th grade, inventions and the evolution of technology are discussed in the 4th and 5th Units, which deal with the history of the airplane and the evolution of transportation respectively. It can also be linked to the Secondary Education Curriculum, as the subject of pioneers and inventors is also dealt with in Unit 4 of the 1st Grade and Unit 2 of the 2nd Grade (7th and 8th Grade internationally).

Technology- The subject of Technology in Secondary Education (7th, 8th and 9th Grades internationally) traditionally deals with inventions and technology, involving students in project work regarding inventions, technology and constructions.

Aim of the lesson

By the completion of the proposed activities, the students are expected:

- To have assimilated that evolution of technology is a painstaking and time-consuming effort.
- To discover the basic principles that make an invention successful.
- To hone their language skills in English (reading and scanning for specific information, deducing and summary writing, improving their knowledge of the Simple Past, Past Continuous and used to).
- To familiarize themselves with the Europeana and Historiana platforms and become aware of copyright issues.
- To familiarize themselves with various web 2.0 tools (e.g. timelines, infographics, polls, etc.)

Outcome of the lesson

The students will create a timeline or infographic depicting the evolution of computers. Then, they will design, draw and describe an invention of their own, inviting the public to vote for it (i.e., to “buy” their product).

Trends

Project-Based Learning, Collaborative Learning, Peer Learning, Assessment, Visual Search and Learning, Learning Materials.

Key competences

This Learning Scenario aims to assist students in developing:

- Literacy skills (students will deepen their understanding of grammatical and lexical concepts and improve literacy in the English Language as they approach written and visual texts, interpret and evaluate them critically, produce oral and written texts for specific purposes in the target language)
- Digital Competence (they become familiar with online tools as the ones mentioned above, and use them for specific communication purposes)
- Social Competence (functioning as part of a team, collaborating, compromising and reaching a consensus))
- The 4 Cs of 21st century skills (students communicate and collaborate to produce written and oral texts, approach material in a critical way, and try to think creatively outside the box).

(Source: European Commission, Directorate-General for Education, Youth, Sport and Culture, Key competences for lifelong learning, Publications Office, 2019, https://data.europa.eu/doi/10.2766/291008)

Activities

Name of activity	Procedure	Time
	1st session (45'): The evolution of mobile technology	
	Students have already become familiar with the terms 'invention', 'innovation', 'pioneer' in the previous lessons, as they have talked about the evolution of flight technology and the pioneers of flight (the Wright Brothers, the Montgolfier Brothers, Igor Sikorsky, Amelia Earhart). Sessions 1-3 are covered by Worksheet 1.	
Brainstorming	The teacher informs the students that they are going to talk about modern technology and asks them to vote on the invention that they think is the most important nowadays. Students follow a link to a polling tool (Mentimeter) and write down their thoughts. The teacher presents the results and a discussion follows whereby students justify their choice.	5'

Name of activity	Procedure	Time
Reading Comprehension of multimodal texts	Students are divided into groups. The teacher asks the students some questions to discover the students' previous knowledge and introduce the subject. Recommended questions: • Do you have a smartphone? What can you do with it? • When do you think mobile technology was invented? What human need did it answer? • What do you think the first mobile phones looked like? Next, students follow a Historiana link that depicts the evolution of mobile communication and are asked to navigate through the pages. The teacher reminds them that they are reading for general information, so they do not need to understand every word in the text, she/he refers them however to an online dictionary or clarifies any unknown words that hinder comprehension. A short discussion ensues. Recommended questions: • What did you learn from this timeline that you were not previously aware of? • Why was mobile technology invented? • Is there anything more that you would like to know about mobile technology? • What can you tell from the fact that mobile technology went through so many changes and took on so many forms?	10'
Tiered activity: Sequencing	The teacher has prepared two (or more) different timelines on an online tool (in this case, Prezi 1 and Prezi 2), depending on the students' linguistic competence and IT skills. In version 1, the events are outlined in the correct chronological order but the text contains mistakes, and students are asked to refer back to the page and correct them. In Version 2, the information from the Historiana source collection is in jumbled order and students are asked to refer back to the page and arrange the events in the correct chronological order.	35'
	2nd session (45') : The evolution of computers	
Webquest	Before the lesson, students are asked to search various online sources and collect information on the evolution of computers and take down notes. They are also referred to the Europeana platform, where they have to search for pictures to accompany their timeline, making sure they do not infringe on any copyright laws. Alternatively, this activity can take place in the classroom, allowing for an extra 45'. A History of the Computer timeline Computer facts for kids A History of Computers for Kids History of the Computer for Kids The Europeana platform	

Name of activity	Procedure	Time
Organize material	In class, students are asked to work in the groups assigned in the previous session, compare notes and decide on the information they are to include in their timeline.	10’
Make a timeline	Students create their own timeline infographics using text and image on an online tool. (in this case, Canva)	35’
	3rd session (45’) What makes an invention a hit or a flop?	
Guessing game	The teacher presents students with some inventions found in the following Europeana collection and asks them to guess what these devices are. They have to guess based on appearance and the name of the product; the names of the products are not in English, so the students have to make an effort to make cross-linguistic associations and guesses. A short class discussion ensues. Recommended questions: • Where the devices easy or difficult to guess? • Are these devices successful and popular or not? Why do you think so? • What plays a role in how successful a product is? (elicit answers about the importance of a product’s name and design).	15’
Strange inventions	Before the activity, the teacher asks the students why people invent things, tries to elicit answers, and lead students to the conclusion that inventions try to satisfy human needs or solve problems. The teacher then asks the students to visit the following Europeana link and look through some strange inventions. In pairs, students are asked to choose an invention, present it to the class and explain why they think it was not successful. They are encouraged to combine the answers they came up with regarding the human need inventions meet, the name of the product and its appearance.	20’
The creative process	The students watch a YouTube video on creative thinking, and complete a worksheet with the stages of the creative process. (see Worksheet 2). Link (duration 3:53’)	10’
	4th session (45’) Creating our Inventions	
Creative thinking	In groups students brainstorm ideas, decide on their product, its name and its properties, writing down their thoughts. They go on to design in paper and write a short text describing their product, urging prospective buyers to purchase it. After the brainstorming, students are advised to assign roles to their members, i.e. designer, script writer, proof reader etc. As soon as the students finish, they photograph their invention and upload it on the Padlet that has been created for this learning scenario. A poll is	45’

Name of activity	Procedure	Time
	created and publicly shared so that fellow students and teachers can vote for the best invention. Alternatively, the inventions can be displayed in a prominent place in the school, and students can vote with stickers.	
	5th session (45') Wrapping Up	
Presentation and Assessment	Students review the outcomes of the scenario: they review their timelines, they see the results of the voting and complete an exit slip stating their opinion on the learning scenario, as well as discussing what led voters to vote for the winning invention.	45'

Assessment

Students' literacy and informational competence will be assessed throughout the scenario, based on the texts they produce and the efficiency with which they use the web tools required for the implementation of the scenario. More specifically, their timelines and infographics will be checked for accuracy, while their presentations of inventions will be evaluated on accuracy of language and whether they serve the communicative purpose assigned.

********** **AFTER IMPLEMENTATION** **********

Student feedback

The students fill in their answers in the following exit slip, provided to them in the printed form:

Exit Slip

- The most important thing I learned from this project was…
- I would like to know more about…
- I had difficulty….
- I believe (this invention) won because…

Draw a smiley or a sad face

- I enjoyed learning about inventions
- I liked making my own invention
- I understood the material
- I had no difficulty searching for information on the platforms of Europeana and Historiana

- I had no difficulty making my own timelines and infographics
- I worked well with my classmates
- The worksheets and instructions were easy to understand

Teacher's remarks

The implementation of the learning scenario went as planned, the only downside being the fact that students of lower grades could not access the online voting, so we had to be flexible and devise a sticker poll, whereby the students stuck a sticker on their favourite invention. The students learnt how to navigate the Europeana and Historiana platforms quickly and effectively, which goes to prove that the platforms are easily accessible to students at the primary level. Also, they grasped the concept of copyright very fast and made sure that they did not infringe on any copyright laws. All in all, it was a successful scenario, the students collaborated efficiently, and produced work that met the scenario expectations.

About the Europeana DSI-4 project

Europeana is Europe's digital platform for cultural heritage, providing free online access to over 53 million digitised items drawn from Europe's museums, archives, libraries and galleries. The Europeana DSI-4 project continues the work of the previous three Europeana Digital Service Infrastructures (DSIs). It is the fourth iteration with a proven record of accomplishment in creating access, interoperability, visibility and use of European cultural heritage in the five target markets outlined: European Citizens, Education, Research, Creative Industries and Cultural Heritage Institutions.

European Schoolnet (EUN) is the network of 32 European Ministries of Education, based in Brussels. As a not-for-profit organisation, EUN aims to bring innovation in teaching and learning to its key stakeholders: Ministries of Education, schools, teachers, researchers, and industry partners. European Schoolnet's task in the Europeana DSI-4 project is to continue and expand the Europeana Education Community.

Annex

Useful links:

1. Link to Padlet.

List of pictures used:

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