

Europeana Learning Scenario

Title - "How did people learn to measure time?"

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Summary

Table of summary

Subject	Mathematics, Science, History, Home Economics and Shop Class
Topic	Concept of time, units of time, using analog watches, making models.
Age of students	11– 15
Preparation time	30 minutes
Teaching time	160 minutes inside the class + project
Online teaching material	Opening game: https://www.jigsawplanet.com/?rc=play&pid=1f6d051e2dad GoogleDocs Europeana.eu https://learningapps.org/watch?v=ppyggikat19 Articles: https://www.wikihow.com/Make-a-Sundial https://nrich.maths.org/6070 https://www.quora.com/How-did-ancient-people-measure-the-time https://www.instructables.com/id/Simplest-Solar-watch/
Offline teaching material	Paper, scissors, glue, scale
Europeana resources used	Photos from Europeana: <ol style="list-style-type: none"> 1) Stemplingsur - Innskrift:Made by The Cincinnati Time Recorder Co. Cincinnati, Ohio, U.S. (Primær)https://www.europeana.eu/portal/record/2022608/HAM_HAM_01_314.html. Aluminiummuseet - http://digitaltmuseum.no/011025239826. CC BY-SA - http://creativecommons.org/licenses/by-sa/3.0/ 2) Late Roman oil lamp - https://www.europeana.eu/portal/record/2064910/https_www_searchculture_gr_aggregator_edm_Digital_Pylia_000045_3A11596_229.html. CC BY-NC-SA - http://creativecommons.org/licenses/by-nc-sa/4.0/ 3) Clocks: an elaborate astronomical clock in Strasbourg, with onlookers. Lithograph, n.d. [c.1875?] - https://www.europeana.eu/portal/record/9200579/k9r9k9jk.html. Wellcome



Collection - <https://wellcomecollection.org/works/k9r9k9jk>. CC BY - <http://creativecommons.org/licenses/by/4.0/>

- 4) Timeglass - https://www.europeana.eu/portal/record/2022608/HS_SSJ_00714.html.
Kommandør Chr. ChristensensHvalfangstmuseum - <http://digitaltmuseum.no/011025407098>. CC BY-SA - <http://creativecommons.org/licenses/by-sa/3.0/>

Other sources:

- 1) Water clock, Egypt, Ptolemaic Period, reign of Ptolemy II, 285-246 BC, limestone, carnelian beads - Oriental Institute Museum, University of Chicago - DSC07912.JPG Exhibit in the Oriental Institute Museum, University of Chicago, Chicago, Illinois, USA. This work is old enough so that it is in the public domain. Photography was permitted in the museum without restriction. https://commons.wikimedia.org/wiki/File:Water_clock,_Egypt,_Ptolemaic_Period,_reign_of_Ptolemy_II,_285-246_BC,_limestone,_carnelian_beads_-_Oriental_Institute_Museum,_University_of_Chicago_-_DSC07912.JPG
- 2) Merkheth, Science Museum London <http://broughttolife.sciencemuseum.org.uk/hommedia.ashx?id=11715&size=Large>, CC BY-SA

and others chosen by students

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Integration into the curriculum

Mathematics: units of time

Science: the Sun, the Moon,

Technology: Designing and building a prototype that delivers a solution to a technological problem

History: history of development of clocks

It also develops the multilingual competence, digital competence, personal, social and learning to learn competence, citizenship competence and cultural awareness and expression competence.

Aim of the lesson

The aim of the lesson is to make students realise what time is and what consequences it brings into people's lives.

The other objectives are:

- To encourage students to use their creativity, browse on Europeana and other websites for suitable materials,
- To develop students' digital and social skills.

The main aim of this interdisciplinary project is to produce an exhibition where attendants can familiarise with history of clocks and measuring time.

Trends

Project Based Learning, Collaborative Learning, Student Centred Learning, Flipped Classroom, Peer Learning, Mobile Learning, Cloud Based Learning, BYOD, Social Media Learning

21st century skills

Creativity, Collaboration, Communication, Information literacy, Media literacy, Technology literacy, Flexibility, Initiative, Productivity

Activities

Describe here in detail all the activities during the lesson and the time they require. Remember, that your learning scenario needs to use Europeana resources.

Name of activity	Procedure	Time
Opening game	To introduce the topic, ask students to take their smartphones and go to: https://www.jigsawplanet.com/?rc=play&pid=3dad3d54c32f Let them try to guess the topic of the lesson. After the activity you can say: "Today we will be talking about the history of time. But before I would like to introduce to you the Europeana.eu platform where you can find useful content." Show them how to search the platform and tell them about credits.	15 minutes
Group work	The class is divided into four groups. Each group has one topic to develop: <ol style="list-style-type: none"> 1) How can we use natural events to measure time? 2) How could the Sun and the Moon help us measure time? 3) New inventions (oil lamp, candles, ...) 4) Mechanical clocks 	30 minutes

	Every group make a presentation using Google Docs or another app and pictures from Europeana.	
Presentation	Group leaders present briefly their presentations. The rest of students can ask questions and give feedback to presentations	20 minutes
Group work	Use the app http://pickatrandom.com/ . Enter this list of items: 1) sundial 2) oil lamp 3) candle clock 4) water clock 5) sand glass 6) merkheth 7) solar watch , one at a time, in the box above (just enter some text and hit enter). When you're ready to randomly select an item, just click 'Thrill Me' and your selection will appear at the top. Each group have to build one thing. Give students some time to come up with a solution to the problem how to build their clock. After it each group introduce their project briefly.	25 minutes
Group work	Students again work in the same groups and make their clocks. Give them as much time as they need. You can extend the activity after the class. Tell them about the chosen deadline.	depends
Presentation II	Students present "the various clocks" to the whole class. Finally, they have to find the most similar picture to their object on Europeana. Give students the game to assess their knowledge: https://learningapps.org/watch?v=ppyggjkat19	25 minutes
Making an exhibition	Students create an exhibition in a relevant place of the school with their projects. The educational community of the school is invited to attend the exhibition.	45 minutes

Assessment

The Learning Apps game will be used to assess the knowledge.

Student feedback

STUDENT ASSESSMENT RUBRIC				
CATEGORY	4	3	2	1
Contributions	I gave useful ideas in my group all the time. I was one of the leaders of the group who put a lot of effort on this task.	I often gave useful ideas in my group. I was a very important member of the group and I did my best to carry out this task.	Sometimes I gave useful ideas in my group. I did what it was required to carry out this task.	I rarely gave useful ideas in my group. Sometimes I refused to participate.
Quality of Work	I was providing work of the highest quality.	I was providing high quality work.	I was providing work that occasionally needed to be checked/redone by other group members.	I was providing work that usually needs to be checked.
Time-management	I was managing time well throughout the project.	I usually used time well throughout the project, but may have skipped one thing.	I tended to be on time, but always I got things done by the deadlines.	I rarely got things done by the deadlines.
Problem-solving	I was actively looking for and suggesting solutions to problems.	I Refined solutions suggested by others.	I did not suggest or refine solutions, but I was willing to try out solutions suggested by others.	I did not try to solve problems or help others solve problems.

Attitude	I have never been publicly critical of the project or the work of others. I always have a positive attitude about the task(s).	I rarely was publicly critical of the project or the work of others. I often had a positive attitude about the task(s).	I occasionally was publicly critical of the project or the work of other members of the group. I usually had a positive attitude about the task(s).	I often was publicly critical of the project or the work of other members of the group. I often had a negative attitude about the task(s).
Preparedness	I brought needed materials to class and I was always ready to work.	I almost always brought needed materials to class and I was ready to work.	I almost always brought needed materials but sometimes I needed to settle down and get to work	I often forgot needed materials or I was rarely ready to get to work.
Working with Others	I almost always listened to, shared with, and supported the efforts of others. I tried to keep people working well together.	I usually listened to, shared, with, and supported the efforts of others.	I often listened to, shared with, and supported the efforts of others, but sometimes I was not a good team member.	I rarely listened to, shared with, and supported the efforts of others.
Relevance to students interest	The content of this lesson was very important for me. I enjoyed it very much because it was about my interest	The content of this lesson was important for me and connected with my life.	The content of this lesson was a little bit connected with my interest.	The content of this lesson was not connected with my interest in any aspect.
Creativity	The lesson had a cross-curricular aspect, I was involved in new type of activity, and creating my own learning materials.	The lesson allowed me to create my own learning materials and I learned only some new skills.	I was involved in some activities but I did not learn anything new	The lesson focused only on Europeana resources and did not encourage me to use others contents/ subjects.
Using ICT tools	I used ICT tools which I needed. Everyone could use it and the tools were indispensable.	I used some ICT tools but not everyone could use it.	I did not use the ICT tools because I did not need it OR I use ICT tools but the tools were distracting for me.	I did not use any ICT tools even if I asked for one.

Teacher's remarks

I applied this learning scenario with students who had not been aware of Europeana.. The subject was prepared for 10th grade students in math class (16-year-old group) So, the learning scenario is built on Europeana resources, and it fits the aim of the lesson and the age of the students.

As the introduction, the teacher gave a short overview of Europeana, its history, function and collections. The students were divided into three teams. Students have some basic knowledge of Europeana. Thanks to this site they have learned that they can access many unique resources. Especially the photos they reached about our country excited them.

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 34 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.