

# Scenario submission form Template

## Section 1: Scenario Identity

**Title:** The Women Behind Maths

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**Module:** History of Mathematics

**Unit:** Women Mathematicians

**Subject areas:** Mathematics, Social Studies, English

**Student age (minimum):** 13

**English Language Level (According to the Common European Framework reference for languages):** B2

**Requirements:** This scenario works best, if it is performed in a computer lab, or in a class where there is a whiteboard, internet connection and each group of student has a portable device, such as a tablet or a mobile phone, either their own or provided by the school. It can also be taught in online learning. However, we provide printed worksheets as well, and give alternatives for the teacher, in case none of the above prerequisites is available (eg in a school without technological equipment, or if the internet does not work in the particular day). We also try to provide the teacher with alternatives so that the scenario becomes more accessible (for people with visual problems, or with learning difficulties).

**Duration (in teaching hours):** 2

**Key words:** Mathematics, History of Mathematics, Maths, Gender, Women Mathematicians, Hypatia, Emmy Noether, Karen Uhlenbeck

## Section 2: Key competences

### Key competences that the scenario promotes:

Literacy Competence

Mathematical competence and competence in science, technology, engineering

Digital Competence

Citizenship Competence

### Detailed key competences

#### *Knowledge*

Knowledge of vocabulary, grammar and the functions of language

Awareness of a range of literary and non-literary texts

Understanding of mathematical terms and concepts

Awareness of the questions to which mathematics can offer answers

adopting a critical approach to the validity, reliability and impact of information and data made available by digital means

awareness of the legal and ethical principles involved in engaging with digital technologies

knowledge of contemporary events as well as a critical understanding of the main

developments in national, European and world history movements

awareness of the aims, values and policies of social and political movements and their underlying causes

#### *Skills*

Skill to communicate both orally and in writing in a variety of situations

Ability to distinguish and use different types of sources, to search for, collect and process information, to use aids

Ability to formulate and express one's oral and written arguments in a convincing way appropriate to the context

Critical thinking and ability to assess and work with information

Skill to follow and assess chains of arguments

Ability to reason mathematical, understand mathematical proof and communicate in mathematical language

ability to use digital technologies to support active citizenship and social inclusion, collaboration with others

ability to use digital technologies to support creativity towards personal, social or commercial goals

ability to engage effectively with others in common or public interest, including the sustainable development of society

develop critical thinking and integrated problem solving skills

develop arguments and constructive participation in community activities as well as in decision-making at all levels, from local and national to the European and international level

#### *Attitudes*

Disposition to critical and constructive dialogue

Appreciation of aesthetic qualities and an interest in interaction with others

Respect for truth and a willingness to look for reasons and to assess their validity

engagement with digital technologies and content with a reflective and critical, yet curious, open-minded and forward-looking attitude to their evolution

support for social and cultural diversity, gender equality and social cohesion, sustainable lifestyle

promotion of culture of peace and non-violence

develop an interest in political and socioeconomic developments, humanities and

intercultural communication to ensure social justice and fairness

## Section 3: Learning Outcomes

### Learning Outcomes

By the end of the lesson the students will:

- Have realised that mathematics is a human creation
- Have posed themselves the question if mathematics is an area that is mainly dominated by males
- Have challenged stereotypes, concerning the gender, age, time, etc of the people involved with mathematics and with science in general
- Have developed their English language vocabulary and their oral and written skills, by reading authentic texts and producing different types of output
- Have become acquainted with the use of various digital tools

## Section 4: Digital material

The scenario folder: P1S08Y1

The scenario script file: ScriptP1S08Y1

List of digital files: Worksheet1\_P1S08Y1  
Worksheet2\_ P1S08Y1  
Preparation1stActivity3Mathematicians  
NoetherEmmyText\_glossary

- a) **List of OER used in the scenario:** By Bruce The Deus - Own work, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=99756086>
  - b) By Preply.com Images - <https://www.flickr.com/photos/194356589@N04/51664070998/>, CC BY 2.0, <https://commons.wikimedia.org/w/index.php?curid=112410878>
  - c) Boy writing on the whiteboard vector graphics <https://publicdomainvectors.org/en/free-clipart/Boy-writing-on-the-whiteboard-vector-graphics/11722.html>, Public Domain, source <https://openclipart.org/>,
  - d) By Chicas En Tecnología - Own work, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=66182673>
  - e) By Unknown author, derivative work Lämpel - Emmy Noether (1882-1935), Public Domain, <https://commons.wikimedia.org/w/index.php?curid=58102122>
  - f) Girl with pencil and calculator in a cloud of math symbols, drawn in comic style <https://openclipart.org/image/400px/191351> , by [scout](#) , Public Domain, source <https://openclipart.org/>
  - g) Emmy Noether faced sexism and Nazism – 100 years later her contributions to ring theory still influence modern math <https://theconversation.com/emmy-noether-faced-sexism-and-nazism-100-years-later-her-contributions-to-ring-theory-still-influence-modern-math-163245> by Tamar Lichter Blanks, published in “The Conversation” CC, BY ND
  - h) Emmy Amalie Noether, [https://mathshistory.st-andrews.ac.uk/Biographies/Noether\\_Emma/](https://mathshistory.st-andrews.ac.uk/Biographies/Noether_Emma/)  
By J J O'Connor and E F Robertson, published in School of Mathematics and Statistics, University of St Andrews, Scotland CC, BY SA
  - i) Macquire, K. (2021, August 31). **Hypatia of Alexandria: The Female Mathematician, Astronomer and Philosopher**. *World History Encyclopedia*. Retrieved from <https://www.worldhistory.org/video/2639/hypatia-of-alexandria-the-female-mathematician-ast/>, CC, BY NC SA
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**List of URLs used as resources:**

- a) <https://open.spotify.com/episode/3RtNfprdYwHmaxYnCzli8y?si=7FBYa7HrQWOw3WZaM9NrrA>
- b) [Crossing fields | symmetry magazine](#)
- c) [https://en.wikipedia.org/wiki/Karen\\_Uhlenbeck](https://en.wikipedia.org/wiki/Karen_Uhlenbeck)
- d) [https://www.youtube.com/watch?v=BqFQtmuxrHI&ab\\_channel=wikipediatts](https://www.youtube.com/watch?v=BqFQtmuxrHI&ab_channel=wikipediatts)
- e) <https://www.tovima.gr/2019/03/25/science/karen-oulinmpek-poia-einai-i-proti-gynaika-mathimatikos-pou-kerdizei-to-vraveio-abel/>

**List of digital tools used in the scenario:**

- a) [mentimeter](#)
- b) Quizlet
- c) [Storyjumper](#)
- d) [Random group generator](#)
- e) [Google forms](#)