

# Europeana Learning Scenario

## Title

**Symmetry in Mathematics**

## Author(s)

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## Summary

### Table of summary

Subject	Mathematics
Topic	Symmetry in Mathematics
Age of students	14
Preparation time	15'
Teaching time	90'
Online teaching material	<a href="http://www.padlet.com">www.padlet.com</a> <a href="https://www.mentimeter.com/">https://www.mentimeter.com/</a> <a href="https://www.youtube.com/watch?v=vEro2-qcFqU">https://www.youtube.com/watch?v=vEro2-qcFqU</a> <a href="https://www.khanacademy.org/math/basic-geo/basic-geo-transformations-congruence/line-of-symmetry/a/symmetry-review">https://www.khanacademy.org/math/basic-geo/basic-geo-transformations-congruence/line-of-symmetry/a/symmetry-review</a>
Offline teaching material	/
Europeana resources used	<a href="http://bit.ly/2VZcl8v">http://bit.ly/2VZcl8v</a> <a href="http://bit.ly/2I8r3oX">http://bit.ly/2I8r3oX</a> <a href="http://bit.ly/2Z3DmtJ">http://bit.ly/2Z3DmtJ</a>

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## Integration into the curriculum

This lesson is a part of Mathematics curriculum in the 8<sup>th</sup> grade.



### Aim of the lesson

Students will be able to recognize when figure is (a)symmetrical and how many lines of symmetry the figure has.

### Trends

Collaborative learning, STEM Learning

### 21<sup>st</sup> century skills

- **Environmental literacy:** students learn about symmetry in general, not just strictly in mathematics.
- **Critical thinking and problem solving:** students are required to think about lines of symmetry of figure or object and to conclude if some figure is symmetrical or not.
- **Communication:** students have to communicate and explain the results of their activity.
- **Collaboration:** students work together during the activity.
- **Information literacy:** students learn which websites are reliable to find information about symmetry in mathematics.
- **Further skills:** ICT, media literacy, learning by doing, communication, digital skills, literacy, basic skills in maths and science, learning to learn, cultural awareness.

### Activities

Name of activity	Procedure	Time
<b>Engaging</b>	Students are required to make a simple drawing of a symmetrical figure. They will upload the drawings to a Padlet. The class analyses the drawings.	15'
<b>Brainstorming</b>	For brainstorming, the teacher uses Mentimeter to ask students: <ul style="list-style-type: none"> <li>• What is Symmetry?</li> <li>• What are symmetrical figures?</li> <li>• What are asymmetrical figures?</li> </ul> What are examples of symmetry in nature?	10'
<b>Symmetry in mathematics (geometrical figures)</b>	The teacher introduces to students what line symmetry is by showing the following video: <a href="https://www.youtube.com/watch?v=vEro2-qcFqU">https://www.youtube.com/watch?v=vEro2-qcFqU</a> After watching the video students try to think, conclude and explain which geometrical figures are symmetrical.	15'
<b>Symmetry on Europeana</b>	Teacher shows to students some images that are example of symmetry on the Europeana portal: <a href="http://bit.ly/2VZcl8v">http://bit.ly/2VZcl8v</a> <a href="http://bit.ly/2l8r3oX">http://bit.ly/2l8r3oX</a> <a href="http://bit.ly/2Z3DmtJ">http://bit.ly/2Z3DmtJ</a> Students have to search themselves for images related to Symmetry on the Europeana portal. Suggested keyword is: Symmetry.	15'
<b>Sharing</b>	Students have to work on a short presentation about their work.	15'

Name of activity	Procedure	Time
<b>Assessment</b>	Students are asked about symmetry, line symmetry and symmetrical figures in nature as well as symmetrical geometrical figures.	15'
<b>Review</b>	Teacher shows a review of the subject: <a href="https://www.khanacademy.org/math/basic-geo/basic-geo-transformations-congruence/line-of-symmetry/a/symmetry-review">https://www.khanacademy.org/math/basic-geo/basic-geo-transformations-congruence/line-of-symmetry/a/symmetry-review</a>	5'

**Assessment**

Students will be assessed for:

- Providing the correct information and presentation of symmetry examples found at Europeana portal
- Presentation skills
- Answers to teacher’s questions during the presentation

\*\*\*\*\* AFTER IMPLEMENTATION \*\*\*\*\*

**Student feedback**

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**Teacher’s remarks**

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**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.