

Europeana Learning Scenario

Title

What is PT?

Author(s)

Renata Najman

Abstract

In primary school, students will learn about the chemical elements and their symbols, they will learn how to describe the structure of the periodic table and the method for determining the names of chemical elements.

During the lesson, students have to investigate why chemical elements have symbols, who suggested the labelling principle of the chemical elements, what is the history of their names, etc. The teacher presents some sources of knowledge (books, internet, Europeana portal, the periodic table of elements).

Keywords

Periodic table, atom, chemical elements, chemical symbols, atomic number

Table of summary

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Subject	Chemistry
Topic	Periodic table of elements
Age of students	13 – 14
Preparation time	60 min
Teaching time	90 min
Online teaching material	Kemijski elementi i simboli kemijskih elemenata Periodni sustav elemenata Dmitrij Ivanovič Mendeljejev Europeana: Maria Curie Skłodowska Europeana: John Dalton and his symbols Europeana: J. Daltons formulae for water and ammonia

	Game: Chemical symbols Padlet Wizer: Worksheet Kahoot: Self assessment
Offline teaching material	Paper, pencil, periodic table of elements
Europeana resources used	Europeana: Maria Curie Skłodowska Europeana: John Dalton and his symbols

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Integration into the curriculum

Students apply chemical terminology and symbolism to describe the composition of a substance. They analyze physical and chemical changes, and describe physical and chemical changes.

Aim of the lesson

Student will describe some chemical elements and their symbols, the structure of the periodic table, and method for determining the names of chemical elements.

Outcome of the lesson

Student:

- Applies chemical terminology and symbolism to describe the composition of a substance
- Describes the structure of the periodic table of the elements.
- Observes regularities by generalizing data presented by text, drawing models, tables to graphs.
- Interprets different types of numeric, tabular, and graphical data and transfers one type of view to another.

Trends

PBL: Project Based Learning. Students learn by developing a project in groups, based on a driving question;

Mobile learning: Get access to information and knowledge through smartphones and tablets (learn anytime, anywhere);

Collaborative learning: a strong focus on group work

21st century skills

Collaboration: by working in teams, students will need to interact, plan, make decisions as a group to develop the tasks of this learning scenario.

Creativity: students will be driving to apply their creative skills.

Communication: students will have to present the work developed to their peers. This will allow them to develop communication skills.

Curiosity: another important skill that students will develop.

Activities

Name of activity	Procedure	Time
Presentation	Teacher introduces students with work and with what students have to do: They have to investigate why chemical elements have symbols, who suggested labeling principle of chemical elements, history of names chemical elements etc. Teacher presents some sources of knowledge (books, internet, Europeana portal, periodic table of elements)	10 min
Group creation and roles	There are 4 groups in class. Each group will have 5-6 students. Create roles according to students' profiles. Each group will have a group leader (who gives out other roles and tasks), two investigators (they gather and analyze gathered information), a note-taker (who takes notes and marks down all findings), and a presenter (who presents the results).	5 min
Research and investigation	<p>Each group has its own task. Students will have to do research about the topic, investigate sources provided by the teacher and use others that they considered reliable. They write their solutions on a Padlet</p> <p>The two investigators are the leaders of this activity. In this part, the note-taker edits the Padlet. The presenter prepares for giving the presentation. The leader oversees their progress. The teacher is here to offer any help/assistance and provide guidance.</p> <p>They will have to do research about:</p> <ul style="list-style-type: none"> • History of periodic table Dmitrij Ivanovič Mendeljejev • The origin of the name of the chemical elements Europeana: Maria Curie Skłodowska • Chemical symbols of some of the most common elements 	45 min

Name of activity	Procedure	Time
	<p>Kemijski elementi i simboli kemijskih elemenata</p> <p>Europeana: John Dalton and his symbols</p> <p>Europeana: J. Daltons formulae for water and ammonia</p> <ul style="list-style-type: none"> • Structure of periodic table Periodni sustav elemenata Wizer: Worksheet 	
Communication and discusion	Each team will present the result of their work to the entire class. During the presentations, their peers will evaluate the other teams' work using an online form. The leaders of other teams will ask questions at the end of their respective presentations. The teacher will moderate the discussion. Results will be published after all the presentations and evaluations have been made.	25 min
Conclusion	The teacher will unify all the presented information and give additional explanations and examples. Elements of the periodic table are sorted by their growing atomic number. The periodic table consist of 7 periods and 18 groups. Elements of the same group have similar properties.	5 min
		Total: 90 min

Assessment

[Game: Chemical symbols](#)

1. Kemijski simbol kisika je

- a) O
- b) C
- c) N
- d) H

2. Oznaka za kemijski element dušik je

- a) C
- b) H
- c) N
- d) P

3. P je kemijski simbol za

a) fluor **b) fosfor** c) dušik d) olovo

4. Kemijski simbol natrija je

a) N **b) Na** c) Ne d) niti jedan odgovor nije točan

5. Pb oznaka je za

a) bakar b) živu c) srebro **d) olovo**

6. 5 atoma kalcija označavamo

a) 5 Cl b) 5 C c) 5 ca **d) 5 Ca**

7. Hg simbol je za

a) srebro b) zlato **c) živu** d) olovo

8. Kemijski simbol sumpora je

a) S b) Su c) Sr d) Sp

9. 2 atoma bakra označavamo kao

a) 2 Br **b) 2 Cu** c) 2 Ca d) 2 Ba

10. Kemijski simbol zlata je

a) Au b) Al c) Ag d) Ar

Student feedback

On Kahoot, the teacher will create a Question asking students to provide feedback about the work developed and what were their contributions for this activity.

[Kahoot: Self assessment](#)

Teacher's remarks

The plan was designed during the Europeana MOOC and has not been taught yet.

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.