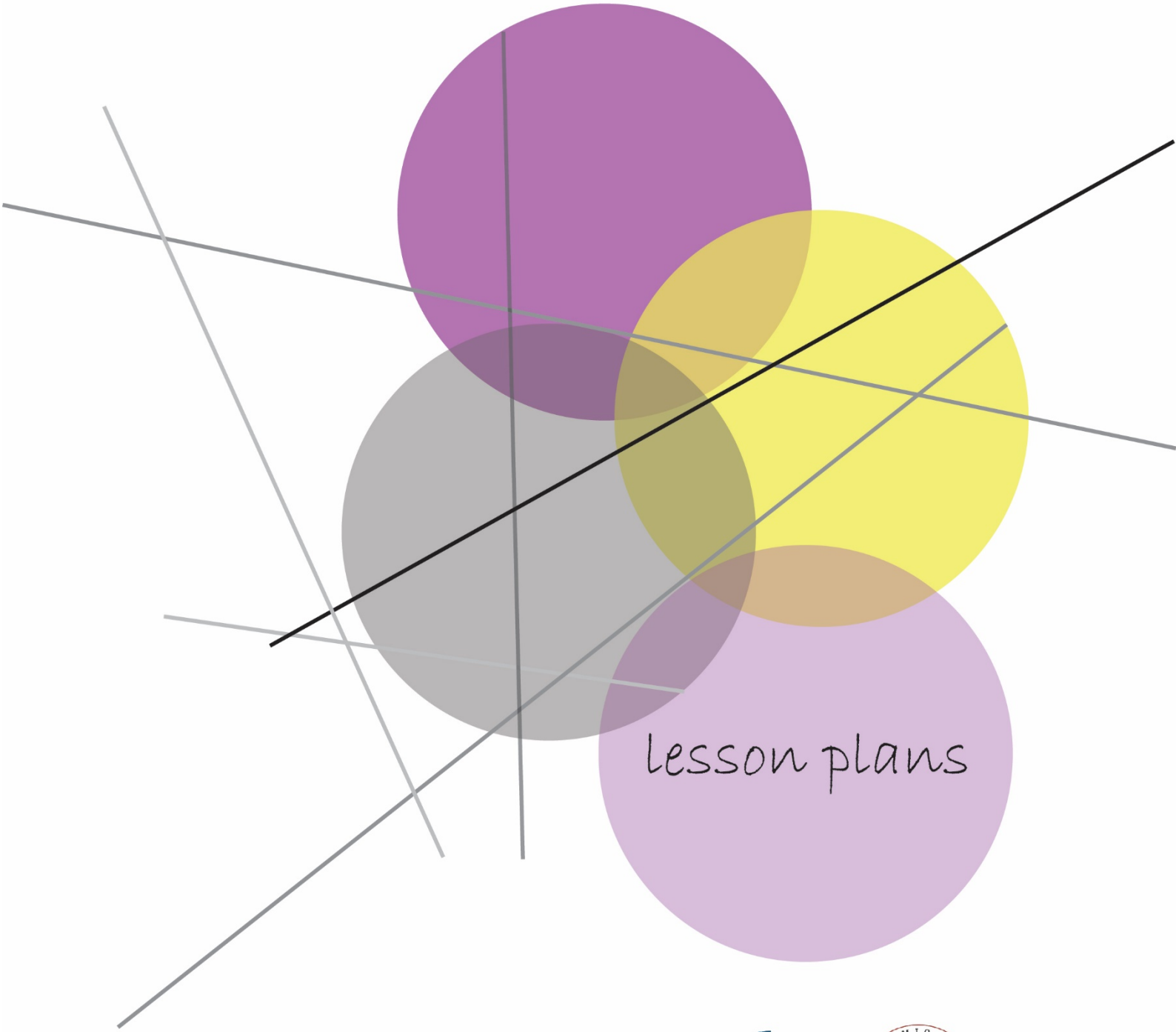
g* | paideia

where have all the women inventors gone?



lesson plans

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GECM

ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΙΑΣ
ΕΤΟΣ ΙΔΡΥΣΗΣ 1984

Introduction to activity

Workshop leader: Conducting classes on the issue of gender equality requires constant reflection on the part of the lecturer on their beliefs, stereotypes and prejudices. It is worth conducting a self-analysis before class. Encourage both girls and boys to express their views, take initiative and act. Do not stereotypically assign tasks: boys will move benches and girls will attach paper to the board, etc.

Using language which is conscious of equality (feminine forms of nouns and verbs): Children and young people often unknowingly use gender stereotypes. If this happens, you can take the opportunity to sensitise participants to this problem and reflect on it. E.g. Are all girls more interested in dance than new technologies?

WHEN WE TALK ABOUT GENDER STEREOTYPES IN SCIENCE, we mean roles and skills that seem "suitable" for women and men involved in exact sciences (for example, engineering and construction are more often associated with men than women).

Classroom space required to conduct classes you will need a closed space with tables and chairs that can be freely rearranged so that the participants can work individually with the textbook, in small groups making a poster and discussing in a circle

Learning outcomes:

- Acquiring knowledge about many historical and contemporary figures of women scientists, researchers and inventors.
- Understanding and recognising the socio-cultural mechanisms of gender inequality and mechanisms blocking the scientific development of girls and women.
- Increasing the awareness of students about the negative impact of gender stereotypes on their own perceptions of the world of science and technology.
- Presentation of various specialisations and professions related to science and arousing students' interest in them.
- Sensitising students to female forms of language used in science.

Key vocabulary

Biological sex is a set of innate traits of men and women resulting from biology (genetics, hormones).

Socio-cultural sex (gender) is a set of characteristics attributed to women and men by a given society, a way of understanding femininity and masculinity that changes with time and place and depends on culture. It is also a set of rules for women and men (what and how they should do, how to look, how to behave), which introduces a certain hierarchy in society (who is better at what, who is more important, who is more suitable for what, etc.).

Gender-related stereotypes are generalisations, features that we assign to people due to gender and which we treat as characteristic of women and men, girls and boys

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(disposition, skills, tendencies, preferences, external appearance, behaviour, roles, professional development, etc.) They are usually false because people are very different from each other. Stereotypes are the reason why we are inclined to assign these attributes to representatives of different sexes even before we get to know them (example of a stereotype: men think rationally and women are guided by emotions, women do not have a sense of orientation, girls are gentle and quiet, men are more technical, girls are less physically fit than boys, etc.).

Resources needed: Chairs arranged in a circle or semi-circle, history textbook, flipchart or sheet of paper (A2) hung on a wall or board, sticky notes, markers, gong / bell / stopwatch to indicate the time, a space to work individually or in pairs, work sheet 1. A cut list of female scientists with a specialisation in the form of a 'feminative' (one name on one strip of paper), worksheet 2. Poster, smartphone / tablet / computer with online access (one for each participant), A3 sheets of paper

Time: 45 min

Lesson Plan Development

STARTER ACTIVITY

Workshop participants sit in a circle and are asked to individually go through the history textbook they are currently using and to find in the text or illustration the characters of women inventors and scientists.
Names written on sticky notes (one sticky note – one person) should be placed on a sheet of paper hung on the wall.
Participants are asked to look at the collected results of the textbook analysis and then list all the names of the scientists that come to their minds. The workshop leader writes suggestions next to the sticky notes.

MAIN ACTIVITIES

Activity 1
Participants draw one character of the scientist from the attached (Worksheet 1.) or extended list.
Then, using online resources – pupils (individually or in pairs) find as much information as possible about a given character. (The most important – when did the person live, what education did she have, what difficulties she encountered in the development of her educational and scientific career).
Based on the collected information, the participants prepare posters on A3 sheets (according to the Worksheet 2 template).
The finished posters are hung on a previously prepared wall, blackboard, next to each other.

ATTENTION: The person leading the workshop, with the consent of the group, takes photos of the finished materials, which can be sent after the workshop to all participants.

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Activity 2

The workshop leader asks the participants, in turn, to list all the difficulties and barriers encountered by women on the path of their scientific development and their causes, writes them on a flipchart, referring to the concepts of gender, stereotypes and prejudices.

ATTENTION: The person leading the workshop, with the consent of the group, takes photos of the finished materials, which can be sent after the workshop to all participants.

Further tasks

Extra homework, with the aim to prepare an exhibition at school.

Participants could research further examples from *Women Changing the World: Map of Women's Excellence in Science and Technology*

Task for participants: Write a biographical note of the inventor or scientist and prepare a poster/lapbook or an article for the school newspaper about her.

Reflection / Evaluation

Women constitute half of humanity – by limiting girls' development, the ability to learn what they want – not only do we make specific people miserable, but we also waste huge potential and lose the opportunity to develop as societies and humanity. The characters we gather information about are unusual characters. Many of them lived at a time when even the most talented women in science, art or sport, because of harmful stereotypes, had no chance for development. However, they had enough strength, determination, and courage to resist the social pressure to pursue the "only right" stereotypical path of a woman's "calling." They broke patterns and fought numerous superstitions about women's 'nature'. They risked a lot and sacrificed a lot. Some of them experienced a lack of understanding, harassment, and rejection. What helped them survive and succeed was their confidence in themselves, their competences and talents, passion, willingness to change the world for the better, some luck and everyday hard work. Unfortunately, most likely students will never read about any of them in any textbook.

The lack of female role models has its consequences. Studies on girls' education and their subsequent life choices and careers clearly show that the number of girls who develop their diverse talents and are interested in science and art doubles when they have an inspirational role model. Fascinating and unusual characters, both of today's women and heroines of the past, can therefore have real power to support and strengthen contemporary girls! It is also an important and inspiring impulse for boys who have a chance to change their, often-stereotypical, way of looking at friends and adult women.

The facilitator invites and moderates the discussion on what gender stereotypes regarding the interests and passions of girls and boys are currently the most common

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Finish this sentence: it is believed that girls are most often interested in ....., it is believed that boys are most often interested in ..... .

and how you can support all children in the *development* of scientific interests (without gender divisions). The list of stereotypical interests and ideas to support scientific passions can be written by a person on a separate sheet of paper during the discussion or, if there is no time to ask to write down the answers on sheets of paper, then collect them and present them to the group at the earliest opportunity.

Suggested follow-up activities

- Exhibition of posters, biographies and lapbooks presenting the figures of women inventors in the school space.
- Digitized posters / lapbooks / reviews can be put together into one e-book or presentation and placed on the school's website or school newsletter
- Volunteers can prepare a presentation about a given character and discover and present her in a history, mathematics, physics or chemistry lesson.
- Organizing a photo session, in which girls dressed as scientists would appear. Photographs together with the comments of girls justifying their choice can be presented in the form of an exhibition or e-book, presentation on the school website.

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