Erasmus+
Programme Your Future

COMPUTATIONAL THINKING - LESSON SCRIPT

Author information:	Name:	Renata Cieploch
	School:	Middle School nr 3 under the name of the European Union in Sieradz, Poland
Lesson information:	Subject:	Geography
	Duration:	2x45 min
	Grade/level:	2nd grade/3rd educational stage
	Age:	14-15
	Topic:	The population of Europe.
The curriculum specifications and requirements:	The core curriculum of teaching Geography for the 3rd educational stage. Point no. 9. Europe. Relations nature-human-economy. Pupil: 3) Describes the regional, national and religious diversity of modern Europe on the basis of thematic maps and gives the most important reasons and consequences of that diversity.	
Previous knowledge:	The section of the core curriculum of teaching Geography Point no. 9. Europe. Relations nature-human-economy. Pupil: 1) shows the knowledge about the political division of Europe.	
The forms of work:	• individual work • teamwork	
The methods of work:	• moderate discussion, • the method of inductive reasoning, finding patterns and rules on the basis of the given data, • practising cause-effect reasoning.	
Teaching aids:	• for teacher: the computer with the access to the Internet, projector, interactive board • for pupils: the ICT classroom with the access to the Internet (one computer for two students with the program with spreadsheet installed, the spreadsheet Microsoft Excel or Open Office/Libre Office Calc	
The range of using ICT:	• presenting information • searching for information	
The course of lesson:	1. Introduction - organisational activities.	

- **Teacher activities**
- **Pupil activities**
- **The schedule**

Greeting the pupils, checking the register, giving the topic of the lesson and introducing the aims of the lesson.

5 min

2. Reminding information about Europe.

Pupils on the map www.google.com/maps show Europe and countries in Europe. Teacher asks in what way do these countries differ. Teacher leads the discussion and guides pupils so that they would tell about the age structure of the population as one of the differences.

10 min

3. Developing the topic of the lesson

On the basis of the chart "The age structure of population on the continents" http://epodreczniki.pl/reader/c/140479/v/latest/t/student-canon/m/iC6cEVo26X#iC6cEVo26X_d5e435 pupils come to the conclusion that there are not many children in Europe and there are more and more old people in comparison to other continents so Europe is getting old. Teacher tells pupils that this information comes from 2010.

Teacher introduces the notion of natality and students formulate mathematical dependence (inductive reasoning).

10 min

4. The teaching of computational thinking

A problem question: How did natality of Poland, Estonia, Finland and Spain change over the past few years?

Pupils answer the questions (formulating the specification of the problem).

Pupils discuss:

a) What kind of information do they need to solve the problem? (number of births, deaths, total number of people in the country)
b) What would we get as a solution to the problem? (rate of natality)
c) Which formulas and dependencies do they need?
d) Which IT tools can be used to solve the problem?

10 min

Teacher informs that current data concerning different statistics can be found in the European base Eurostat www.ec.europa.eu

Teacher gives the websites in the Eurostat base where statistics needed to solve the problem can be found

Number of births
http://ec.europa.eu/eurostat/web/products-datasets/-/tps00204
(view table)

Deaths by age and sex
http://ec.europa.eu/eurostat/web/products-datasets/-/demo_magec
(view table)

Population for the 1st of January
http://ec.europa.eu/eurostat/web/products-datasets/-/tps00001
(view table)

Pupils design a table for the task in the spreadsheet. Then they look for necessary information concerning given countries and enter the data to the spreadsheet. Pupils enter proper formulas to calculate natality and create a chart which presents the change of natality in the given countries over the past 3 years.

45 min

5. Evaluation

Teacher asks pupils to present their work. Pupils check the correctness of their solutions. Pupils draw the conclusion concerning the change of natality in the given countries.

10 min

Specific information: • **Programs** • **Links** • **Etc**	Microsoft Excel – spreadsheet from package Microsoft Office or OpenOffice/Libre Office Calc - it is redisplayed on the GNU General Public Licence Materials on http://www.epodreczniki.pl available under GNU GPL licence
Attachments: • **Worksheets** • **Programs** • **files necessary** • **Etc**	Data from Eurostat: http://ec.europa.eu/eurostat/web/products-datasets/-/tps00204 http://ec.europa.eu/eurostat/web/products-datasets/-/demo_magec http://ec.europa.eu/eurostat/web/products-datasets/-/tps00001