



Erasmus+
Programme Your Future



COMPUTATIONAL THINKING - LESSON SCRIPT

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Lesson information:	Subject:	Physics
	Duration:	1x45 min
	Grade/level:	3rd grade of middle school / 8th grade of primary school
	Age:	15
	Topic:	Mensuration of resistivity of a light bulb.

The curriculum specifications and requirements:	The core curriculum of Physics for the 3 rd educational stage 4. Electricity. Pupil: 9) uses the idea of resistivity, applies Ohm's law in simple electrical circuits; 9. Experimental requirements. Pupil: 8) determines resistivity of a resistor or light bulb with the use of voltmeter and ammeter;
	Since 2017 the core curriculum of Physics in grades 4-8: VI. Electricity. Pupil: 12) uses the idea of resistivity as property of a conductor; uses connection between current voltage and amperage and resistivity in calculations; employs unit of resistivity; 16) experimentally: e) determines resistivity of a conductor by measurements of voltage on its ends and amperage of power which flows through it.

The aims of the lesson:	Pupil: <ul style="list-style-type: none">• knows the idea of resistivity of a receiver• knows the formula needed to calculate resistivity• can experimentally determine resistivity of a light bulb
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Previous knowledge:	Pupil knows: <ul style="list-style-type: none">• the idea of electric current intensity• the idea of electric tension• constructs simple electrical circuit on the basis of given scheme (knowledge of symbols of elements is needed: link, resistor, light bulb, circuit breaker, voltmeter, ammeter);
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The forms of work: • group work

The methods of work: • practical method
• prescinding
• discussion
• optimisation
• inductive method – inference from detail to totality

Teaching aids: For every group: ammeter, voltmeter, light bulb, elements of electrical circuit: cables, 3 links with option to regulate voltage computer/laptop (one for 2 students with a spreadsheet program MS Excel or OO Calc)

The range of using ICT: Presenting information

The course of lesson: 1. Introduction - organisational activities
● Teacher activities Greeting the pupils, checking the register, giving the topic of the lesson and
● Pupil activities introducing the aims of the lesson, preparing workstations
● The schedule **5min**

2. Pupils research a problem: Is there a relation between amperage flowing through a conductor to current voltage put at its ends?

Pupils discuss:

1. How to measure electric tension?
2. How to measure amperage?
3. What factors don't have influence on the measurement of electric tension and amperage?
4. How to construct electrical circuit to measure electric tension and amperage?
5. How to research whether there is a relation between amperage flowing through a conductor to current voltage put at its ends?

10 in

3. Pupils in groups construct electrical circuit according to the scheme http://www.epodreczniki.pl/reader/c/140589/v/latest/t/student-canon/m/i0nzwbccs4#i0nzwbccs4_1447835563791_0

Pupils measure electric tension and amperage while adding next links. They note the results of measurements in the table of spreadsheet and add the formula that calculates proportion of current voltage to electric current intensity.

20 min

4. Groups present received results. Pupils come to the conclusion that electric current intensity is directly proportional to current voltage and proportion of current voltage to electric current intensity is constant. Teacher introduces the idea of resistivity and defines Ohm's law.

10 min

Specific information: Microsoft Excel – spreadsheet from package Microsoft Office Microsoft Office- word processor from package Microsoft Office

- Programs
- Links
- Etc

Attachments: circuit.png
table.xls

- Worksheets
- Programs
- files necessary
- Etc
