



Erasmus+  
Programme Your Future



## COMPUTATIONAL THINKING - LESSON SCRIPT

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<b>Lesson information:</b>	Aine: Physics Kestvus: 2 x 45 minutes Klass: 8 Vanus: 14 Teema: Reflection of light. Model of coloured surface
<b>The curriculum specifications and requirements:</b>	The core curriculum requirement of teaching Physics for the 3rd educational stage. 8th grade Student: <ul style="list-style-type: none"><li>● knows the major features of reflection of light</li><li>● describes the relationships with other phenomena</li><li>● uses them in practice</li></ul>
<b>The aims of the lesson:</b>	Student: <ul style="list-style-type: none"><li>● captures knowledge of the reflection of light from different coloured surfaces</li><li>● develops the issues related to the topic</li><li>● Student carries out robot tests</li></ul>
<b>Previous knowledge:</b>	Student <ul style="list-style-type: none"><li>● knows the properties of the light absorption and reflection</li><li>● has a basic level abilities of the learning robot EV3</li></ul>
<b>The forms of work:</b>	<ul style="list-style-type: none"><li>● A pairwork</li><li>● Working with the model in computer</li><li>● Programming</li></ul>
<b>The methods of work:</b>	<ul style="list-style-type: none"><li>● Carrying out the experiments</li></ul>
<b>Teaching aids:</b>	<ul style="list-style-type: none"><li>● Internet-connected computer</li><li>● projector</li><li>● Computers (tablets) for every student</li></ul>
<b>The range of using ICT:</b>	<ul style="list-style-type: none"><li>● submission and transmission of information</li><li>● LEGO EV3 Driving Base robot , one for each pair</li></ul>

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- Tablets for programming
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**The course of lesson:**

- Teacher activities
- Pupil activities
- The schedule

**Introduction (2 min)**

- Greeting and informing the aims and objectives of the lesson

**Evocation (6 min)**

- The teacher opens a video <https://www.youtube.com/watch?v=DOsro2kGjGc>
- The teacher binds the video and the principle of operation at the robot colour sensor explaining it with the presentation

**Learning and programming ( 34 min)**

- The pair of students read have the worksheets
- A teacher demonstrates the sample program with a projector on the wall to conduct an experiment in a worksheet
- The students work according to the rules given their worksheets, erect hypothesis, planning and carrying out the experiments, forming the results and conclusions
- The teacher will instruct and assist as necessary

**Reflection (3 min)**

- Discussions about their work and making conclusions
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**Specific information:**

- Programmid
- Failid

- EV3 robots have been prepared before, make sure the batteries are charged
  - Robots have been programmed with previously installed program. Students use the sample program.
  - There is a possibility to fill the worksheet in the tablets. Worksheets made by Heilo Altin are available on the webaddress <https://www.robotika.ee>
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**Attachments:**

- Worksheets
- Programs
- files necessary
- Etc

- Slides (in Estonian) about the principle of the colour sensor of the EV3 robots  
[https://docs.google.com/presentation/d/1XhrOojre4QdjZtKWXsuCrc3N-0P1jCDd4n\\_BNywclqM/edit?usp=sharing](https://docs.google.com/presentation/d/1XhrOojre4QdjZtKWXsuCrc3N-0P1jCDd4n_BNywclqM/edit?usp=sharing)
  - Worksheets:  
<https://drive.google.com/file/d/13VSF0WAOzRIQeCf2K7FBXC0g07BOz0bm/view?usp=sharing>
  - The sample of the program
    - ev3fail-  
<https://drive.google.com/file/d/13VSF0WAOzRIQeCf2K7FBXC0g07BOz0bm/view?usp=sharing>
    - And the picturefail  
<https://drive.google.com/file/d/1jAkP8fN3lkfvau-IPYXnBQ6X3VxU7u9n/view?usp=sharin>
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