

14 (59)

Learning Scenario Identity

Title	“Gas sensor”
Creator	Rallis Spiros
Main Idea / Description	Students create a shelter in Mars to effectively protect them and provide themselves a safe place. They decide to make a gas sensor to measure the CO and CO2 in the air and to make an effort to reduce it or inform people to wear masks or leave away in case the concentration is high.
Target Group (students’ age, learning level, background, disabilities)	Students aged 10 – 11 years old with no special needs
Curriculum & Learning Subjects	Computer Science and Physics
Competencies (References to the CoTA and other competencies)	<input type="checkbox"/> problem solving, <input type="checkbox"/> decomposition <input type="checkbox"/> algorithm <input type="checkbox"/> debugging

Learning Scenario Framework

Pedagogical Method	Haptic and Real life learning
Software & Materials (Games, blog, videos, forum, maps, web links, other tools)	Arduino software, Tinkercad circuit
Evaluation Tools	Worksheets

Learning Scenario Implementation

Learning Activities

(Description, duration, worksheets....)

Description

Students should choose the appropriate sensor for detecting CO and the most suitable software to use. Afterwards, they should figure out how to connect the gas sensor and how to program it. At the end of the course students will be able to understand that several detection gadgets could be built and use them in several cases.

(Duration: 1 -2 Hours)

Worksheets:

https://docs.google.com/document/d/1ap5CSUtMICZF_BCPIICGVTsdLnJOuIDXMoW217WXj6k/edit

1. Open the software WWW.TINKERCAD.COM

- Choose “CREATE CIRCUITS and open the main work area of the tinkercad:

Materials

- Arduino board
- Breadboard
- Gas sensor
- Red Led
- 2 resistors
- And wires

2. Connect Arduino with breadboard and Gas Sensor, Led

3. Program the Arduino Board:

- Create a variable in order to parse sensor data.
- Use an IF – ELSE statement to observe what sensor returns and decide if the amount of hazardous gases is large or not

Let's think ...!

1. Could we use this sensor to detect and improve our school bus with view to become more eco -friendly?

2. Could we also use it to detect if our parents' cars are eco-friendly?

3. Could we build the same gas detection for other gases that pollute the environment?



