

Coding with Parrot Mini Drones

Terminal Objective 4.1: Collect data using ArduSat space board

Performance Objective 4.1: Using a computer, collect data using an ArduSat space board and read sensor values.

Enabling Objectives:

1. Define what sensors do
2. Identify different types of sensors
3. Set up an ArduSat sensor experiment
4. Record sensor data

Materials and Supplies:

- Computer with internet connection using Chrome browser (plugin required for Arduino)
- ROAVcopter sensor-kit <https://www.becauselearning.com/>

Learning Activities:

1. Video: ROAV mini 4.1 v1
2. *ArduSat Space board Sensors* <https://ehub.ardusat.com/experiments/4709>
3. (Optional) Sensor booklet Activity
[https://s3.amazonaws.com/ardusat-app/lesson_resources/Customize+Your+Sensor\(s\)/Sensor+Booklet+V2.pdf](https://s3.amazonaws.com/ardusat-app/lesson_resources/Customize+Your+Sensor(s)/Sensor+Booklet+V2.pdf)

Formative Assessment:

1. Activity sheet 4.1: Sensors

Summative Assessment:

1. Evaluate students using *Activity sheet 4.1: Sensors*

Supplemental teacher resources:

- ROAVcopter sensor-kit
<https://www.becauselearning.com/>
- ArduSat experiment hub
<https://ehub.ardusat.com/experiments/overview>
- ArduSat Safety video
<https://www.youtube.com/watch?v=17iPwzWK440>

Activity Sheet 4.1: Sensors

Name: _____ Date _____

Part I: Identify different types of sensors

- 1) What is a sensor and what does it do?
- 2) What do the following sensors measure?
 - a) Luminosity Sensor:
 - b) Temperature Sensor:
 - c) Accelerometer:
 - d) Gyroscope:
 - e) Magnetometer:
 - f) Ultra Violet Light Sensor:
 - g) Infrared Thermopile:
 - h) RGB sensor

Part II: Record Sensor Data

1. Connect the ArduSat space board to the Moteino using the grove connector and wires.
2. Connect the Moteino to the computer using the USB cable.
3. Log into the ArduSat ehub then open the sensor experiment found here:
<https://ehub.ardusat.com/experiments/3519>.
4. Find various items to measure using the space board.
5. Fill out the table with the data collected.

Sensor	What item did you measure?	What was the value?
Luminosity Sensor		
Temperature Sensor (ambient)		
Infrared Thermopile (directional)		
RGB sensor		

What was the most exciting thing you measured and why?

Where might you see these sensors used?