

Data-based solutions with environment data logger

**Lessons:** 1

**Programming languages:** MakeCode

**Target age:** 7-11 yrs

**Subjects & topics:**

* Sciences: Temperature, Light, Environment

# Lesson details

Students can use the BBC micro:bit to collect environmental data (temperature and light) over time and combine their data with community-based environmental protection data and protection measures.

Students can also use the micro:bit to design and engineer solutions to protect resources in their community (e.g. water, renewable energy). Consider working with local experts to create connections between collecting data and designing solutions using science ideas.

## Overall key learning

Learning objectives are at three different levels:

* **Mild** - Using existing code, collect temperature and light data over time. Combine data collected with similar data collected by community-based organisations to help students design solutions to protect the local environment.
* **Medium** - Modify the starter project to code your own environment data logger to collect temperature and light data over time. Combine data collected with similar data collected by community-based organisations to help students design solutions to protect the local environment.
* **Spicy** - Code your own environment data logger to collect temperature and light data over time. Combine data collected with similar data collected by community-based organisations to help students design solutions to protect the local environment.

## Additional skills

# Curriculum links

## CA NGSS Standards

#### 5-ESS3 Earth and Human Activity

* 5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.

## CA CS Standards

* 3-5.DA.8 Organize and present collected data visually to highlight relationships and support a claim. (P7.1)
* 3-5.DA.9 Use data to highlight and/or propose relationships, predict outcomes, or communicate ideas. (P7.1)
* 3-5.AP.11 Create programs that use variables to store and modify data. (P5.2)
* 3-5.AP.12 Create programs that include events, loops, and conditionals. (P5.2)
* 3-5.CS.2 Demonstrate how computer hardware and software work together as a system to accomplish tasks. (P4.4)
* 3-5.CS.3 Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies. (P6.2)
* 3-5.AP.14 Create programs by incorporating smaller portions of existing programs, to develop something new or add more advanced features. (P4.2, P5.3)
* 3-5.AP.17 Test and debug a program or algorithm to ensure it accomplishes the intended task. (P6.2)

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