## **Data-based Solutions with Environment Data Logger**

## Using this projectdecorative

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.

## Standards relevant to this project

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| **Relevant 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. |

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| **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) |

## Find the right level for you and your class

Select the level of integration spice you’ll use:

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| **Mild**  🌶️  30 mins | **Learning outcome:** I can collect environmental data over time using the micro:bit environmental data logger and combine it with information from my community to design solutions that help protect the local environment. |
| **Activity description:** Using existing code, collect temperature and light data over time. Combine data collected with similar data collected by community-based organizations to help students design solutions to protect the local environment. |
| **Medium** 🌶️🌶️  45 mins | **Learning outcome:** I can modify my own environment data logger program to collect environmental data over time, combine it with community data, and design solutions to protect the local environment. |
| **Activity description:** 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 organizations to help students design solutions to protect the local environment. |
| **Spicy** 🌶️🌶️🌶️  45-60 mins | **Learning outcome:** I can create my own environment data logger program to collect environmental data over time, combine it with community data, and design solutions to protect the local environment. |
| **Activity description:** Code your own environment data logger to collect temperature and light data over time. Combine data collected with similar data collected by community-based organizations to help students design solutions to protect the local environment. |

## Let’s get started…Screenshot of Teacher Project Guide for this project

* Use our Teacher Project Guide to plan how to integrate this project into your teaching. The guide outlines the recommended steps for each level, including the relevant code links and helpful hints.
* Use the [Project Quick Reference Chart](https://mbit.io/us-quickreference) as a quick summary of the project, including the key standards covered mapped to integration level.