



DATA LAB FOUNDATIONS

Demand for data scientists is strong, according to the Bureau of Labor Statistics. The number of data scientist jobs is expected to grow 22% through 2030 which is considered much faster than average.



OVERVIEW

Students will learn that data science is a process that is used to help us make better choices in life. The activities in this kit will introduce students to the importance of observing and collecting data, making sense of data, and making decisions based on data. Students will collaborate with peers to conduct scientific investigations, make observations, collect and record data, and create visual representations based on the outcomes. Students will find patterns, make predictions, and reflect on how data collection can help scientists solve problems.

Minimum Instruction Time: 7 hours

IN THE KIT

- Mini Spheros
- Notebooks
- Plastic Attribute Blocks
- The Legend of Rock Paper Scissors (Book)
- Dogs and Data Science (Book)
- Florence The Data Scientist and Her Magical Bookmobile (Book)
- The ABCs of Data Science: By Real Data Scientists, For Future Data Scientists (Book)
- Uncovering Student Ideas in Science Vol. 4 by Page Keeley (Book)

SOFTWARE/APPS

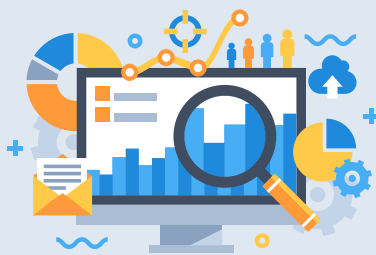


SPHERO PLAY
iOS and Android

Device Compatibility: iPads, most Chromebooks with Google Play Store



DATA OBSERVATIONS



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OVERVIEW

How can students use data to learn about the world in a meaningful way? The activities in this kit will address the need for students to become data collectors, analyzers, and communicators. It will support students as they explore the concepts of energy, and Earth's systems through interaction, investigation, and data analysis. Students will work with multiple forms of data collection and follow proper safety procedures using equipment.

Minimum Instruction Time: 7 hours

IN THE KIT

- Climate Tags
- Bluetooth Dongles
- Energy Sticks

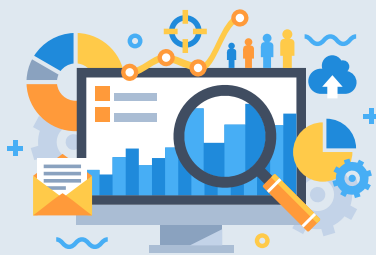


Mantis EDU
iOS and Android

Device Compatibility: iPads, most Chromebooks with Google Play Store



BIG DATA, BIG IDEAS



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OVERVIEW

Students will work with their own weather station data to process and visualize weather phenomena. They will be introduced to the Python programming environment where they will use the Python Data Science and Mathematics libraries to write code which can process and plot their weather data sets. Finally, they will run their code on large online historical weather data sets to visualize extreme weather events from the recent past.

Minimum Instruction Time: 13.5 hours

IN THE KIT

- Climate Tags
- Bluetooth Dongles



Mantis EDU
iOS and Android

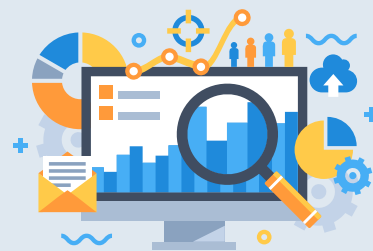
Device Compatibility: iPads, most Chromebooks with Google Play Store



DATA LITERACY AND VISUALIZATIONS



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OVERVIEW

Students will be introduced to data analysis and communication in Part 1 of Introduction to Data Science. They will reflect on how science observations are made, how we record these observations, and the differences between short term and long-term investigations. In Part 2, students will collect and review real-world data on food waste and climate change. Students will then analyze the data and communicate their findings. In addition, they will identify a problem revealed by the data and design a solution to that problem.

Minimum Instruction Time: 6.5 hours

Device Compatibility: any device with internet capability