

How does this module fit into standards I'm required to teach?

- This module has students analyze data about penguin populations and species characteristics. It covers the 7th grade data analysis & statistics standards. It does not cover the standards related to probability.
- Students begin with the context of needing to count all the penguins in Antarctica. They learn about the Penguin Watch Project and spend a bit of time being citizen scientists and counting penguins in some photos for the project. They are introduced to the idea of sampling and using samples from multiple areas of penguin counts to tell the story of population changes over time.
- Students will compare sample data for penguins at different locations. They use Google sheets to calculate measures of center and variation. This allows students to see that well-collected data results in sample information that is similar but will have some small amount of variation. Representative sample data should give an accurate estimate for the entire population.
- Students will look at data for three different species of penguins and compare characteristics such as mass and flipper length. They will do this visually by analyzing histograms and box plots for the different populations. They will look at how the distribution of data is similar and different for different species and sexes. Students will also use calculated measures of center and variation to summarize similarities and differences in species.

What materials & technology are required?

- A projector or large display is needed for watching the Penguin Watch video and looking at MAPPD on day one.
- An internet capable device will be needed for each student when calculating statistics for the adelic penguin samples (or at minimum, one device for two students, with them taking turns calculating measures). Students will need access to Google Sheets.

What may be the most challenging for teachers?

- Students may need help using the Google Sheets formulas to calculate their statistical measures. It may be easiest to start with a single measure, like body mass, and calculate and compare the three sample results as a class before discussing any other variables.