# Modeling Data: One-Variable Statistics

**What is this?**

This project is about getting to know your class community by using data representations to answer the question, "In what ways are we alike and in what ways are we different?"

**Why am I doing it?**

You are doing this project to make sense of different types of data representations and learn how they can help you discover information about our everyday life, your classmates, and your community.

**What am I supposed to do?**

Individually, you will create a data representation based on a question you choose to ask your classmates. As a group, you will summarize your data representations and write a group analysis and reflection.

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## Driving Question

How can you use data to describe how students in your class are alike and how they are different?

The driving question identifies the purpose, product, and audience.

## Mission

Introduce your class to the rest of the school community using XQ Math. Think about demographic data, qualities, or attributes that might represent your class. Choose one question to ask every student—something that reveals a meaningful or interesting characteristic. Your goal is to collect a single value from each student that helps illustrate something about the group as a whole. For example, are most students taller than 60 inches? Is one Zodiac sign more common than others, and by how much? Use the data you collect to design a 4" × 6" class profile card that gives others a snapshot of your class identity.

## Requirements for Individual Product

You will create a class profile to share with the school community. While your product is individual, you are encouraged to collaborate and share ideas with other students during the process. Your profile will highlight one aspect of the class on a 4" x 6" card and should include:

Each project has an individual product and a group product.

- A question that all students in your class have answered, and a clear and organized way to present the results
- A graphic to represent your data, with clearly labeled features
- An analysis of the key statistics from your data
- A statistical finding that shows how common the attribute is in your class, using an appropriate measure (e.g., mean, median, mode, range, IQR, or standard deviation)
- A neat and easy-to-read design so that others can understand the information at a glance

The teams support the individuals throughout the sprints.

## Requirements for Team Product

Your team's job is to support each other and combine your work into a polished final product.

The team product is a culmination of the individuals' learning.

As a team:

- Review each other's cards and give helpful feedback.
- Decide on a shared design format for your group's set of class profile cards.
- Prepare your group's final set of cards for display.
- Write a group summary that tells the story of your process, from choosing a question to analyzing the data.

Your group summary should include:

- A description of how your group chose questions, surveyed classmates, and organized and analyzed the data
- Which practices would you recommend to other statisticians?
- How would you improve your process next time to ensure the data shared on your card is accurate, comprehensive, and representative?

- Why did you choose the statistical measure(s) you used (mean, median, mode, range, IQR, standard deviation) in your class profile?

Use your team's profile cards and group summary to tell a story about how your class is alike and how it is different. Your final product should be clear, engaging, and informative—something other groups can learn from or replicate.

## Learning Goals

When you can find and use measures of center and variability, you can make sense of data and find patterns. You'll be able to analyze information accurately and make informed decisions in real-life situations. By demonstrating proficiency in these concepts and skills, you'll be better equipped to solve problems and answer questions that come up in everyday life and academic settings.

Each week, students identify when and how they have met the content expectations.

## In this project, we will learn to

- Engage in the modeling cycle. (111.a)
- Develop statistical questions in the course of modeling with one-variable measurement data. (111.b)
- Interpret differences in shape, center, and spread in the context of data sets, accounting for the possible effects of extreme data points, or outliers. (111.c)
- Use measures of center and variability to describe one-variable measurement data. (111.d)
- Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. (111.f)

Content expectations are reinforced through the other activities (5MMs, NOWs, INTERRUPTERs, ENDs) in the module.