

Lesson Title: My Year in Data

Essential Question(s):

- What can data tell us about our lives?
- How do scientists communicate data?
- Can data tell a story?
- How can artistic choices improve scientific communication?
- How can different people represent the same data differently?

Time: (*Repeated monthly*)

- 30 min to introduce topic
- During collection week, students will spend 5-10 min/day to collect data
- 2 class periods (~50 min each) to create visualizations after data collection
- 30 min to share visualizations

Overview:

Students become “data storytellers” by observing their own lives and the world around them. Each month, students spend one week collecting data about a specific topic. After analyzing their data, they design an artistic hand-drawn data visualization inspired by Dear Data. Rather than simply making graphs, students communicate a story through symbols, color, layout, and design.

The goal is to strengthen data literacy by helping students recognize that data exists everywhere, not just in science labs, and that thoughtful visualizations can communicate complex information in meaningful ways.

Learning Objectives:

- I can collect accurate data.
- I can develop a method for recoding data.
- I can identify patterns within datasets.
- I can create an original visualization to communicate data.
- I can interpret and critique visualizations of data.
- I can reflect on bias or limitations in data collection.

Arizona Standards:

SEPs

- Analyzing and interpreting data
- Obtaining, evaluating, and communicating information
- Using mathematical and computational thinking

CCCs

- Patterns

- Cause and Effect
- Scale, Proportion, and Quantity
- Systems and System Models

Materials:

- Student notebook
- Colored pencils/markers/watercolor
- Cardstock/copy paper
- Rulers
- Graph paper
- Reflection sheet

Lesson Flow of Introductory Month

(Timing can be adjusted after the first month, once students become familiar with the expectations.)

Day 1 (30 min, in class)

1. Introduce the month's topic.
 - For the first month, assigning a topic is best so that the teacher can guide the process. After the first month, if they are ready, student's can be given free choice on their topic.
2. Show examples from Dear Data.
3. Discussion Questions:
 - a. What counts as data?
 - b. What should be recorded?
 - c. How can observations stay consistent?
4. Design a recording sheet together that students will use to collect their data.

Days 2-8 (5-10 min/day, in class or at home)

Students collect data throughout their normal lives and record it on their data sheet. Remind students that "messy" data is still valuable.

Day 9 (20-30 min, in class)

1. Students should count totals and look for patterns within their data.
 - a. Calculate percentages or averages, if appropriate.
2. Discussion Questions:
 - a. What surprised you?
 - b. What questions do you have about your data?

Days 10-11 (2 class periods, ~50 min each)

1. Students sketch visualization ideas.

2. Students create a key that explains any symbols, colors, sizes, and shapes used in the visualization.
3. Produce a final visualization of their data.
4. Reflect on their final product.
 - a. What story does your data tell?
 - b. Would another week produce different results?
 - c. What limitations did you experience?

Day 12 (30 min, in class)

1. Students share their visualization in the format of teacher choosing
 - a. Gallery Walk
 - b. Partner Share
 - c. Small Group Share
2. Classmates will attempt to interpret each visualization before reading the key.
3. Discussion questions:
 - a. What worked well?
 - b. What made the visualization easy or difficult to understand?
 - c. How could the visualization be improved?

Differentiation

Beginning Learners	Advanced Learners
Provide data sheets Offer symbol template Assign topic or limit options	Track two variables Compare two weeks of data Create interactive digital visualizations Compare personal data with class averages

OPTIONAL

Final Showcase

At the end of the year, students can choose their favorite monthly visualizations into a gallery. Then write an artist's statement reflecting on how their understanding of data, observation, and visual communication has evolved. Students compare their first visualization to the last, discussing improvements in accuracy, creativity, and storytelling. This final project showcases the idea that every student's experiences can become meaningful scientific data when observed carefully and communicated thoughtfully.