

MA.2.DP.1.1

Overarching Standard: *MA.2.DP.1 Collect, categorize, represent and interpret data using appropriate titles, labels and units.*

Benchmark of Focus

MA.2.DP.1.1: Collect, categorize and represent data using tally marks, tables, pictographs or bar graphs. Use appropriate titles, labels and units.

Example: A class collects data on a number of students whose birthday is in each month of the year and represent is using tally marks.

Benchmark Clarifications

Clarification 1: Data displays can be represented both horizontally and vertically. Scales on graphs are limited to ones, fives, or tens.

Related Benchmark/Horizontal Alignment

- MA.2.GR.1.2

Vertical Alignment

Previous Benchmarks

MA.1.DP.1.1

Next Benchmarks

MA.3.DP.1.1

Terms from the K-12 Glossary

- Categorical data
- Bar graph

Purpose and Instructional Strategies

The purpose of this benchmark is to gather, sort, represent and make comparisons about data using several methods. In grade 1, representation of data was limited to tally marks and pictographs. At this grade level, students will select the most appropriate representation, use appropriate titles, labels and units.

- Instruction includes context for data representations.
- Instruction includes understanding that different types of graphs are useful in representing different contexts.
- Instruction includes the understanding that data can show trends or frequency.

Common Misconceptions or Errors

- Students may formulate questions that involve only mathematical data.
- Students may ignore categories and only list data points.
 - For example, students may be collecting data on favorite color (8 red, 5 blue, 7 green) and may only list 8, 5 and 7.
- Students may put the data totals in the incorrect categories.
- Students may misrepresent the count for each data point.

Strategies to Support Tiered Instruction

- Instruction includes opportunities to create a bar graph to represent the data. The teacher
- guides students in the creation of the bar graph by posing the following questions:
 - Question 1: What should the title of the graph be? (Ensure students write an appropriate title on the title line.)
 - Question 2: What do the numbers on the side represent? (Ensure students understand that the scale represents the number of students that chose each breakfast food.)
 - Question 3: What labels should I put along the bottom of the graph?
 - Question 4: What numbers should each bar stop at for each breakfast food identified? (Ensure students draw the bars correctly.)
- Teacher verifies that students answer each question completely and accurately, guiding students in creating bars of an appropriate height, with appropriate labels for each individual breakfast food category.
 - Example:

Number of Students	Favorite Breakfast Food
8	Cereal
3	Yogurt
4	Muffins
6	Pancakes
5	Donuts

Questions to ask students:

- **What are some ways you can organize and represent data?**
 - Sample answer that indicates understanding: *You can organize data in a table with tally marks, and you can represent the data using a pictograph or bar graph.*
- **How does a bar graph help you understand data you collected?**
 - Sample answer that indicates understanding: *When I look at data in a bar graph, I can easily see which category has the least and which category has the most.*
- **If you were making a pictograph, what parts would be important to include?**
 - Sample answer that indicates understanding: *It would be important to include a title, labels for the categories, and a key to show how much each picture represents.*

Instructional Tasks

Instructional Task 1

Allow students an opportunity to gather data based on several pre-selected categories. Students can then visually represent their data using a method they choose, and discuss the similarities and differences based on the representation chosen. Students can be guided to determine the appropriate label, unit and scale based on the amount of data that needs to be represented

Instructional Items

Instructional Item 1

A class is collecting data about the type of pets in their house. The following data were collected. Create a bar graph to represent the data.

Number of Students	Type of Pets
5	cat
6	dog
4	hamster
2	fish

Additional Resources:

[CPALMS Resources](#)

NCES Kid's Zone: [Create a Graph](#)

Resources/Tasks to Support Your Child at Home:

Point out bar graphs and picture graphs when you see them at home in magazines or on the news. Ask your child what data the graph represent. Ask which categories had the most, the least, and how many categories the graph(s) includes.

Gather data at your house and create graphs! Your child can make a chore chart and track how often certain chores are completed with a picture or bar graph. Your child can also poll family members on favorites (food, animal, color etc.) and create a graph to display the data.

Students can practice making their own bar graphs [here](#).