

## MA.2.DP.1.2

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

### **Benchmark of Focus**

MA.2.DP.1.2: Interpret data represented with tally marks, tables, pictographs or bar graphs including solving addition and subtraction problems.

### Benchmark Clarifications

*Clarification 1:* Addition and subtraction problems are limited to whole number with sums within 100 and related differences.

*Clarification 2:* Data displays can represent both horizontally and vertically. Scales on graphs are limited to ones, fives, or tens.

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### **Related Benchmark/Horizontal Alignment**

- MA.2.NSO.2.3
- MA.2.AR.1.1

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### **Vertical Alignment**

#### **Previous Benchmarks**

MA.1.DP.1.2

#### **Next Benchmarks**

MA.3.DP.1.2

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### **Terms from the K-12 Glossary**

- Categorical data
- Bar graph

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### **Purpose and Instructional Strategies**

The purpose of this benchmark is to extend the work of grade 1 to interpretation of various data representations and solving problems involving addition and subtraction.

- Instruction includes questions that focus on the context of the situation.
- Instruction includes the idea that a picture can represent a single piece of data or a fixed amount.
- Interpretation of data includes both factual and reasoning-based questions.

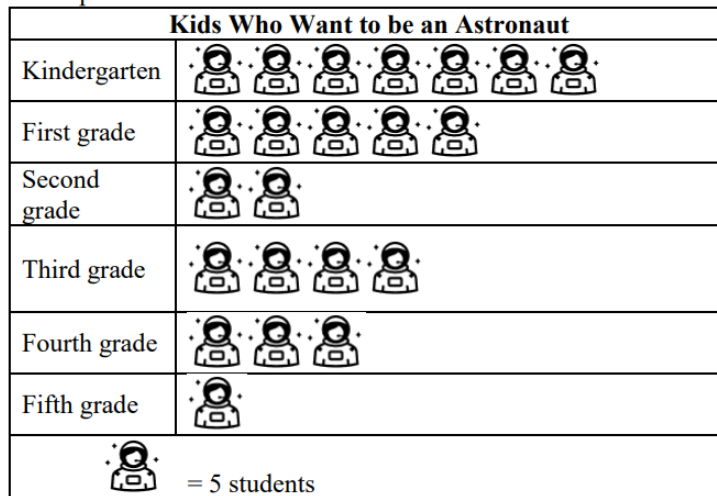
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### **Common Misconceptions or Errors**

- Students may miscount the number of pictures in a pictograph graph or misread the height of a bar in a bar graph.
  - Students may think that one picture of an item in a pictograph represents only one item.
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## Strategies to Support Tiered Instruction

- Teacher provides a pictograph and reads accompanying questions with students, checking for understanding along the way. The teacher focuses on students accurately counting the items in each category, paying special attention to the scale while ensuring that students are utilizing addition and subtraction strategies to accurately respond to each question. Teacher reviews related vocabulary such as fewer, more, in total, and less. Additionally, the teacher aids in accurately counting the items in each category, especially on graphs or tables that require skip counting by 2s or 5s. Ensure students are utilizing addition and subtraction strategies to accurately respond to each question.
  - Example:



Part A. How many astronauts does one  represent? (Point to the scale if student is unsure.)

Part B. In what grades did fewer than 20 students want to be astronauts? Part C. In what grades did at least 5 students want to be an astronaut?

Part D. How many students wanted to be an astronaut in First grade and Fourth grade? (Aid student in skip counting 5, 10, 15, 20, 25, 30, 35, 40.)

Part E. How many more students wanted to be an astronaut in kindergarten than in first grade? (Review “more” with students in this context and provide the sentence equation frame \_\_\_ - \_\_\_ = \_\_\_ to aid them if needed.)

- Teacher provides a bar graph and accompanying questions, reading each question, and checking for understanding along the way. The teacher focuses on accurately reading the height of each bar in the bar graph, paying special attention to the scale and ensuring students are utilizing addition and subtraction strategies to accurately respond to each question.
  - Example:



- Part A. On which night did Timmy read for 35 minutes?
- Part B. How many more minutes did Timmy read on Tuesday and Friday than on Monday?
- Part C. On which nights did Timmy read more than 20 minutes?
- Part D. On which night did Timmy read fewer than 35 minutes, but more than 15 minutes?
- Part E. If Timmy read for 30 minutes on Saturday night, what would the bar look like?

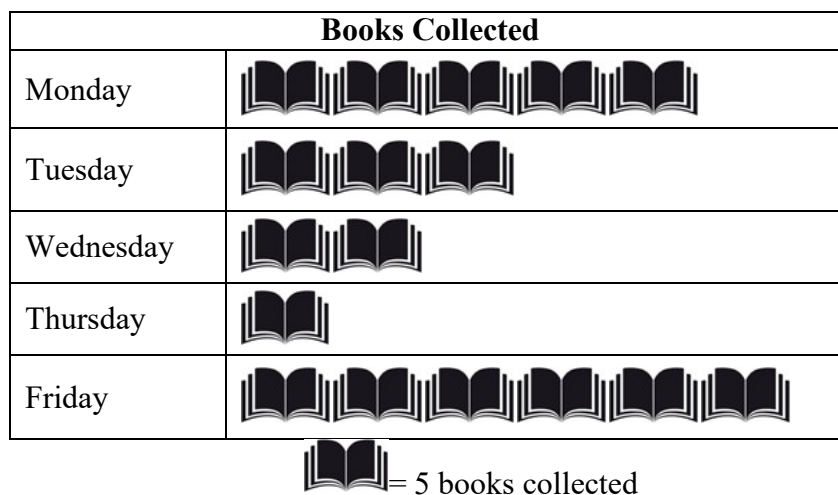
**Questions to ask students:**

- **According to the bar graph, how many more students like soccer than basketball?**
  - Sample answer that indicates understanding: *4 more students like soccer than basketball. I can see how many students like basketball and then I can count on to the number of students that like soccer. My answer is 4 because 12 is 4 more than 8.*
  
- **What is the scale/key of the graph? Why is it important to pay attention to the scale/key?**
  - Sample answer that indicates understanding: *The key on the graph shows that each smiley face is 10 people. That is important to know when answering questions about the graph; you will need to count each smiley face as 10.*
  
- **Point to a pictograph and ask how much is represented in two categories combined (example: "How many books were collected on Monday and Tuesday?")**
  - Sample answer that indicates understanding: *The key shows that each picture of a book represents 5 books. So, on Monday they collected 5, 10, 15, 20 books and on Tuesday they collected 5, 10 books. So, on Monday and Tuesday together, they collected 30 books.*
  - Sample answer that indicates **misunderstanding**: *There are 4 books on Monday and 2 books on Tuesday. They collected 6 books on both days. (Disregards the key)*

**Instructional Tasks**

*Instructional Task 1 (MTR.7.1)*

A grade 2 class is collecting books to donate. They graph the number of books collected in a pictograph below.



Part A: If the goal was to collect at least 20 books, by how many books did the class exceed their goal?

Part B: On which days did the class collect at least 6 books?

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### Instructional Items

#### *Instructional Item 1*

A group of students were surveyed about what sport they prefer to play. According to the data on the table below, how many more children prefer to play soccer and tennis compared to the number of children who prefer to play basketball.

Soccer	Basketball	Tennis	Running
6	11	8	5

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### Additional Resources:

[CPALMS Resources](#)

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### Resources/Tasks to Support Your Child at Home:

Have your child poll family members on their favorite things (food, animal, color etc.) and create a graph to display the data. Ask addition and subtraction questions about the data like *"How many more family members like the color blue than the color red? How many family members like cats and dogs?"*

[FuzzBugs](#) allows students to sort objects and answer addition and subtraction questions about the graph they created.

Play the SoftSchools [Online Pictograph Game](#) with your child.

Point out tables, bar graphs, and pictographs when you see them at home in magazines or on the news. Ask your child questions about the scale or key. Ask questions that require your child to interpret and solve addition and subtraction problems about the data.