Some typical graphing questions

Wisconsin Test Prep Forward Exam Practice Mathematics for Grades 3, 4 and 5.

The pictograph below shows how long Tammy spent at the computer each week day.

Monday	💻💻💻💻
Tuesday	💻💻💻💻💻💻
Wednesday	💻💻💻💻💻
Thursday	💻💻💻
Friday	💻💻

Each 💻 means 10 minutes.

On which day did Tammy spend the least time at the computer? Write your answer below.

How many minutes did Tammy spend at the computer on Monday? Write your answer below.

How much more time did Tammy spend at the computer on Tuesday than Thursday? Write your answer below.

Sally is making a pictograph to show how many students are in grade 3, grade 4, and grade 5.

Grade 3	☺☺☺☺☺☺☺☺☺☺
Grade 4	☺☺☺☺☺☺☺☺☺☺☺☺
Grade 5	

☺ = 5 students

There are 65 students in grade 5. Which of these should Sally use to represent 65 students?

Ⓐ ☺☺☺☺☺☺☺☺☺☺☺

Ⓑ ☺☺☺☺☺☺☺☺☺☺☺☺

Ⓒ ☺☺☺☺☺☺☺☺☺☺☺☺☺

Ⓓ ☺☺☺☺☺☺☺☺☺☺☺☺☺

Priya measures the lengths of pieces of timber, in inches. The lengths measured are listed below.

$2\frac{1}{4}, 2\frac{3}{4}, 2\frac{1}{2}, 2\frac{1}{2}, 2\frac{1}{4}, 2, 2\frac{1}{4}, 2\frac{1}{2}, 2\frac{1}{4}, 2\frac{3}{4}$

Use the data to complete the line plot below.

Priya uses all the timber pieces with the most common length. What is the total length of the pieces Priya uses? Write your answer below.

The students in fourth grade held a vote on where to go for a field trip. The results are shown below.

Location	Number of Votes
Museum	16
Cinema	24
Zoo	36
Town Hall	12

Use the data in the table to complete the picture graph below.

Student Votes for Field Trip Location

Museum	✓✓✓✓
Cinema	
Zoo	
Town Hall	

✓ = 4 votes

Which two locations had the same number of votes in total as the zoo had? Write your answer below.

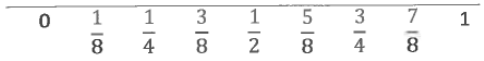
The list below shows data a science class collected on the diameter of hailstones that fell during a storm.

Hailstone Diameter (inches)

$\frac{1}{4}, \frac{1}{4}, \frac{1}{2}, \frac{5}{8}, \frac{1}{2}, \frac{3}{8}, \frac{5}{8}, \frac{1}{4}, \frac{7}{8}, \frac{3}{4}$

Plot the data on the line plot below.

Hailstone Diameter (inches)



What is the difference in diameter between the largest hailstone and the smallest hailstone? Write your answer below.

The line plot below shows how many goals each member of a soccer team scored in the season.

Which statement is true?

Ⓐ Each player scored at least 1 goal.

Ⓑ Only one player scored more than 3 goals.

Ⓒ The same number of players scored 2 goals as scored 3 goals.

Ⓓ More players scored 1 goal than scored no goals.

Graphing Expectations

CCSS.MATH.CONTENT.3.MD.B.3

Draw a **scaled picture graph** and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*

CCSS.MATH.CONTENT.3.MD.B.4

Generate measurement data by **measuring lengths** using rulers **marked with halves and fourths** of an inch. Show the data by making a **line plot**, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.

What to do

Picture graphs

Look for good data to collect. Are there ways you could incorporate surveys into your content?

Graph with both a unit scale and a non-unit scale

Try graphing the same data with several different scales.

Use grid paper to make sure the pictures in your picture graph are all equally spaced and the same size (important and hard to do without a grid!)

Make a whole-class graph by giving each student a small sticky note to put on the board in the category they choose. Discuss how this could be a picture graph (where the sticky notes are each a picture), a bar graph (if we stack the sticky notes next to each other), and we can make it a scaled picture graph by putting pairs of sticky notes together (one on top of the other).

Ask questions about scaled graphs: how many are represented in a category? How many more are in one category than another? Is any category twice as much or half as much as another?

Line plots/Dot plots

Look for things to measure. What can you find to measure in fourths of an inch?

Important steps for making a line plot

The word *line* in "line plot" is the number line. The first thing to do is to make a number line. This is the trickiest step to remember

- Find your smallest data value and your largest data value
- Make a number line starting with your smallest value, and going up by equal amounts every time until you get to the largest data value (don't skip numbers!)

Then, put a dot or an X above each number every time that number appears in your data list.

Ask questions about your line plots: which number was most frequent. Where are most of the numbers? What can you say about most of the data? Are any numbers off by themselves (outliers)? Compare the largest to the smallest (range).

This is almost always also good data for finding averages.