

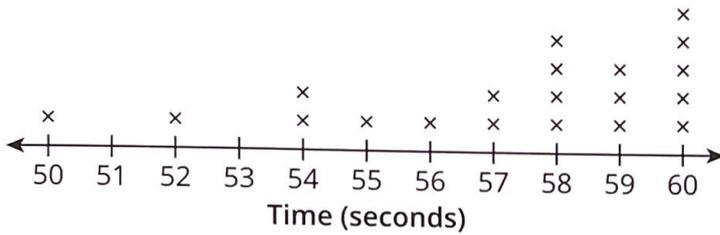


Rock-Climbing Competition

Ms. Nicholson poses the question, **“Which grade has the fastest average rock-climbing time if each student attempts one climb?”**

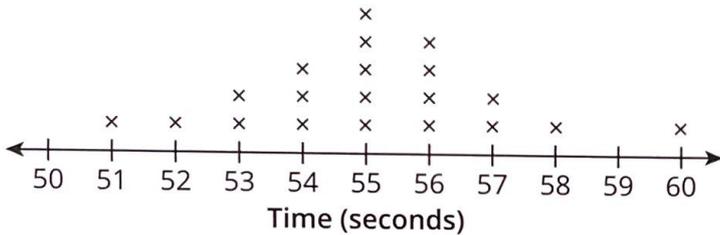
To answer this question, Ms. Nicholson ran an experiment with one class from each grade level. She recorded the time it took for each student to climb the rock wall and created three different data displays.

Rock-Climbing Times (6th Grade)



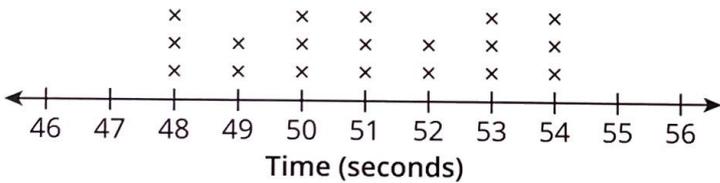
Sixth Grade Completion Times (seconds):
 60, 50, 58, 59, 60, 54, 55, 58, 59, 60, 52, 54, 56, 57, 57, 58, 60, 60, 59, 58

Rock-Climbing Times (7th Grade)



Seventh Grade Completion Times (seconds):
 51, 52, 53, 53, 54, 54, 54, 55, 55, 55, 55, 55, 56, 56, 56, 56, 56, 57, 57, 58, 60

Rock-Climbing Times (8th Grade)



Eighth Grade Completion Times (seconds):
 48, 54, 53, 50, 54, 52, 48, 49, 51, 54, 53, 48, 50, 50, 49, 51, 51, 52, 53

1 How are these data displays similar? How are they different?

*All displays show each students time.
The x's are spread out differently*

2 What can you observe from a data display that you cannot see from looking at the numeric data?

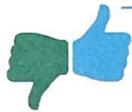
*You can easily see different groups on the graph
You may not see in the data.*



Creating and Analyzing Dot Plots

The 2018 Winter Olympics were in Pyeongchang, South Korea. While watching the Olympics, Jessica and Maurice decided to pose statistical questions about the Games.

- 1 Jessica asked, "How many medals did the United States win? How many of those were gold?" Maurice thought a better set of questions was, "What is the typical number of medals won? What is the typical number of gold medals won by a country?" Who's correct? **Explain your reasoning.**



Maurice is correct.

His questions are statistical. There will be a variety of answers.

HABITS OF MIND

- Model with mathematics.
- Use appropriate tools strategically.

The table located on page 645 lists the number of gold medals and the total medals won by all medal-winning countries for the 2018 Winter Olympics.

- 2 Analyze the data shown in the table.
- a) What conclusions can you make about the numbers of total medals won at the 2018 Winter Olympics?

Norway won the most total medals.
United States won the fourth most.

ASK YOURSELF...

Do countries who win gold medals tend to win more medals in general?

- b) Are the data in the table categorical or quantitative? **Explain your reasoning.**

Quantitative
They are numeric values.

- c) Are the data in the table discrete or continuous? **Explain your reasoning.**

Discrete
You can't win a partial medal.



One way to describe a set of quantitative data is by drawing a graphical display of the data.

A **dot plot** is a data display that shows discrete data on a number line with dots, Xs, or other symbols. Dot plots help organize and display a small number of data points.

WORKED EXAMPLE

This dot plot shows the data for total medals won. The number line represents the total number of medals. Each X above a number represents the number of countries that won that many medals.



3 Use the dot plot in the worked example to answer each question.

(a) What do the two Xs above the number 14 represent?

2 countries won 14 medals

(b) What do the six Xs above the number 1 represent?

6 countries won 1 medal

(c) Why are there no Xs above the number 4?

No country won 4 medals

(d) Use the dot plot to determine the number of countries that won medals in the 2018 Winter Olympics. **Explain your strategy.**

30 countries won medals

each x represents 1 country



2018 Winter Olympics All Countries with Medal Wins

Country	Gold Medals	Total Medals	Country	Gold Medals	Total Medals
Norway	14	39	Finland	1	6
Germany	14	31	Great Britain	1	5
Canada	11	29	Belarus	2	3
United States	9	23	Slovakia	1	3
Netherlands	8	20	Australia	0	3
Olympic Athletes from Russia	2	17	Poland	1	2
South Korea	5	17	New Zealand	0	2
France	5	15	Slovenia	0	2
Switzerland	5	15	Spain	0	2
Austria	5	14	Hungary	1	1
Sweden	7	14	Ukraine	1	1
Japan	4	13	Belgium	0	1
Italy	3	10	Kazakhstan	0	1
China	1	9	Latvia	0	1
Czech Republic	2	7	Liechtenstein	0	1



➤ Create a dot plot to display the number of gold medals won as listed in the 2018 Winter Olympics data table.

4 First, analyze the data set and set up the number line.

(a) What will you name your dot plot?

Gold Medals won ~~by~~ by countries at the 2018 winter Olympics

(b) What numbers will begin and end your number line? Why did you select these numbers?

0 → 14

These are the least and greatest values

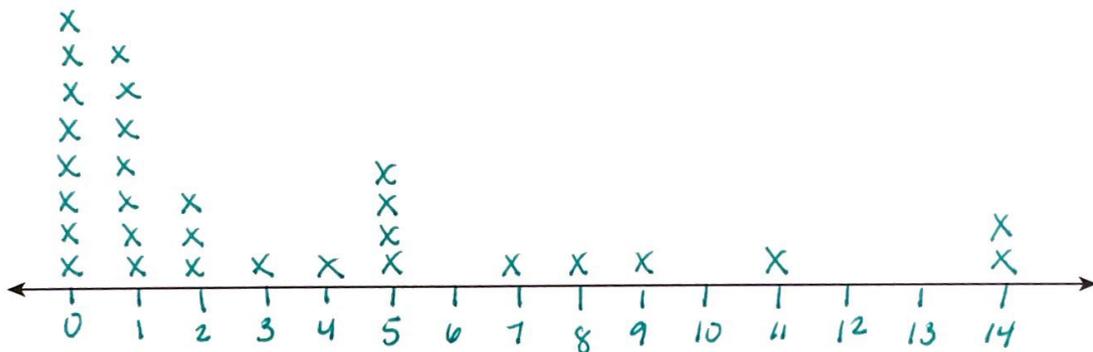
(c) What interval will you use on your number line? Why did you select this interval?

interval of 1

You can put an x inbetween #'s if you don't list them all

5 Create your dot plot to display the data for the gold medals won at the 2018 Winter Olympics.

Gold Medals won by Countries at the 2018 Winter Olympics



6 Write a brief summary to report the results of your data analysis back to Maurice and Jessica to help answer their questions about gold medals and all medals won at the 2018 Winter Olympics.

Most countries win only a few medals, and they do not win many gold medals.

A few countries tend to dominate the overall medal count.

