

Data Analysis

Focus Question

How can picture graphs, bar graphs, and line plots help me interpret data?

HEAVY RAINFALL

Hi, I'm Hugo.

I want to be a meteorologist. I can tell from a graph how many rainy days we have each month. Understanding graphs will be an important part of my job.

Rainfall Data

Month	Rainy Days
Jan	2
Feb	2
Mar	3
Apr	4
May	3

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STEM video | **GO ONLINE**

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Name _____

Mystery Data

	3	0	6	7
	4	5	1	5
	1	4	2	3
	5	2	6	3
	3	4	2	1

1. What do you notice about the information shown in the table?

2. What do you wonder about the information?

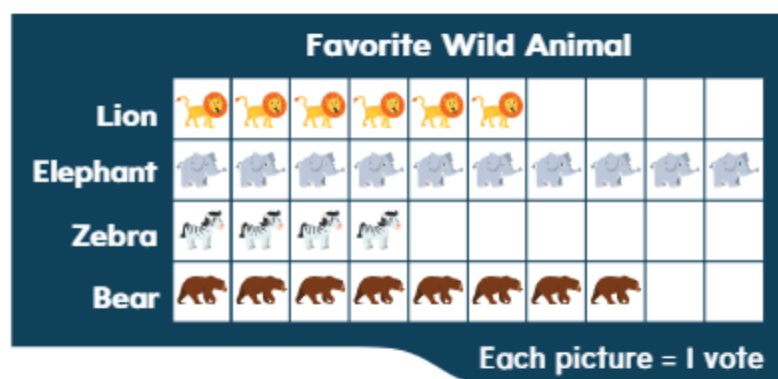


Understand Picture Graphs



Be Curious

What do you notice?
What do you wonder?



Math is... Mindset

What helps you make sense of a situation?

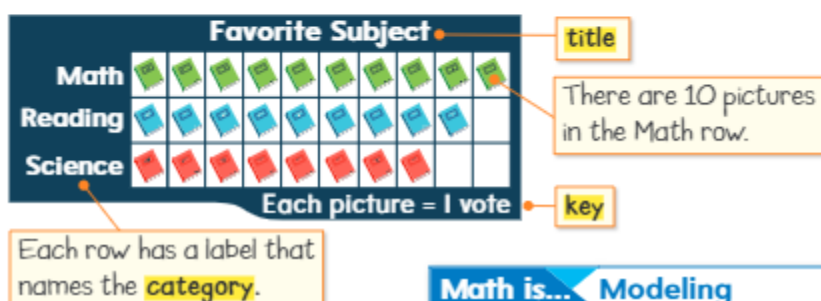
Learn

Izzy asks some students about their favorite subject. The tally chart shows the information she collected.

What subject is the most common?

Favorite Subject	
Subject	Tally
Math	
Reading	
Science	

You can show the information, or the **data**, in a **picture graph**. Each picture shows one data point.



Math is the most common favorite subject.

Math is... Modeling

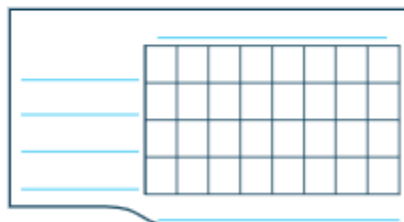
Why is it helpful to display the data in this way?

Drawing picture graphs can be a useful way to display data.

Work Together

How can you show the data using a picture graph?

Favorite Season	
Season	Tally
Spring	
Fall	
Summer	
Winter	



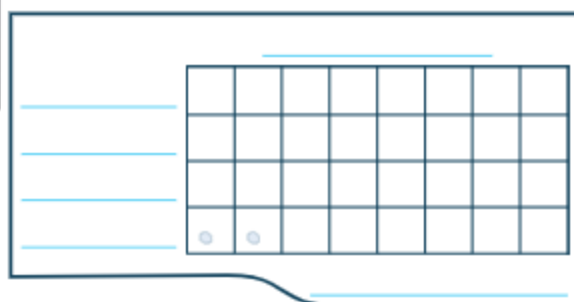
On My Own

Name _____

How can you represent the data using a picture graph?
Use the tally chart to make a picture graph.

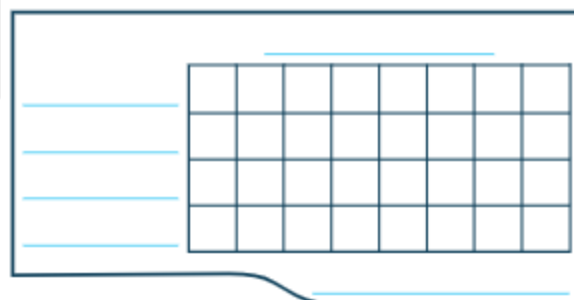
1. **Favorite Sport**

Sport	Tally
Baseball	
Football	
Basketball	
Soccer	



2. **Favorite Fruit**

Fruit	Tally
Banana	
Apple	
Grapes	
Pear	



Use the picture graph to answer the questions.

3. What popcorn flavor was chosen the most?

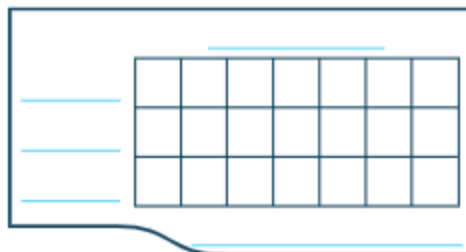
4. How many people chose butter flavor?

5. **Error Analysis** Kayla says the least favorite flavor is strawberry because it is in the bottom row. How do you respond to Kayla?



6. Extend Your

Thinking There are 3 yellow houses and 1 blue house on Gio's block. There are 2 more white houses than yellow houses. How can you show the data using a picture graph?



Reflect

Why might you draw a picture graph to show data?

Math is... Mindset

What has helped you make sense of a situation?

Understand Bar Graphs



Be Curious

How are they the same?
How are they different?



Math is... Mindset

What can you do today to help build a good relationship with a classmate?

Learn

Raju makes a tally chart to record his friends' favorite museum exhibits.

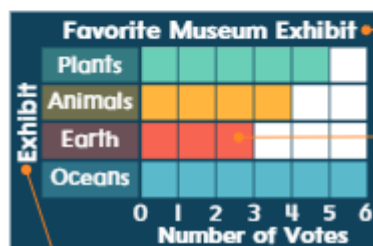
Which exhibit do the fewest friends choose?

You can show the data in different ways.

Favorite Museum Exhibit	
Exhibit	Tally
Plants	
Animals	
Earth	
Oceans	

You can draw a **bar graph**.

A bar graph uses bars to show the data.



title

3 friends choose the Earth exhibit as their favorite.

labels

Math is... Modeling

What could be another way to show the bars?

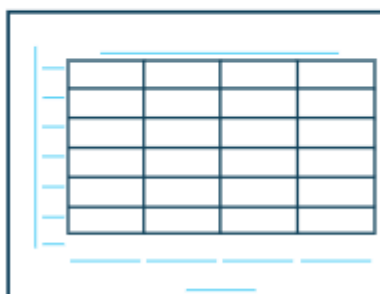
The fewest friends choose the Earth exhibit.

Bar graphs are a useful way to display data.

Work Together

How can you represent the data using a bar graph?

Paper in a Craft Box	
Color	Tally
Red	
Blue	
Green	
Yellow	



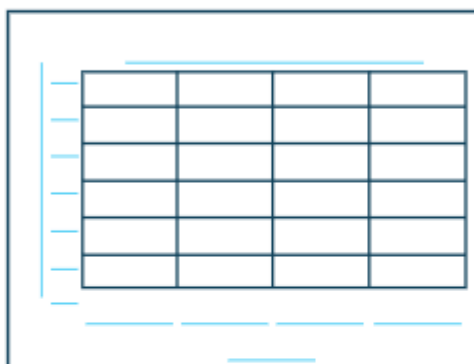
On My Own

Name _____

Use the data to answer the questions.

1. Yi's class voted for their favorite pets. Each student voted once. How can you represent the data using a vertical bar graph?

Favorite Pet	
Pet	Tally
Dog	
Cat	
Bird	
Fish	

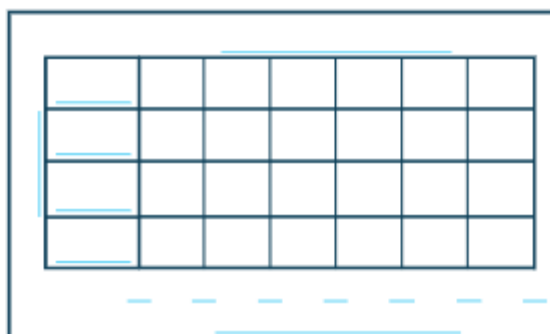


2. How many students chose fish as their favorite pet?
3. What pet was chosen the most?
4. What pet was chosen the least?
5. How many students voted? Explain how you know.

Use the data to answer the questions.

6. Morris surveyed his friends about their favorite flower. How can you represent the data using a horizontal bar graph?

Favorite Flower	
Flower	Tally
Daisy	
Tulip	
Rose	
Lily	



7. What 3 observations can you make about this data?

8. **Extend Your Thinking** If you have 4 bars in a bar graph that are all the same length, what does that tell you?

Reflect

Why might you draw a bar graph to represent data?

Math is... Mindset

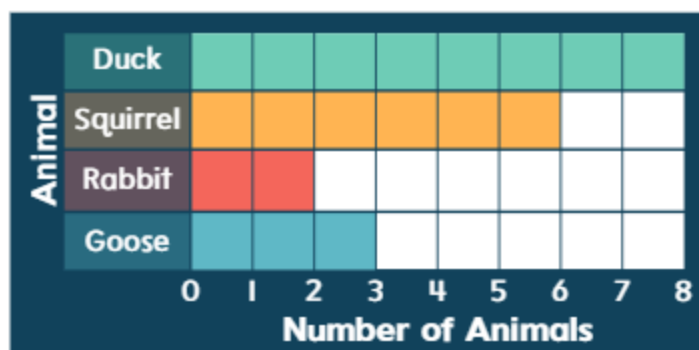
What have you done today to help build a good relationship with a classmate?

Solve Problems Using Bar Graphs



Be Curious

What do you notice?
What do you wonder?



Math is... Mindset

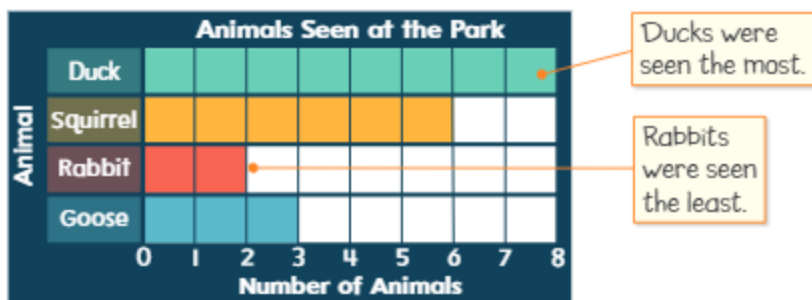
How can deep breaths help you work better?

Learn

Adama records the animals he sees at the park.

How many more ducks does he see than rabbits?

You can make a bar graph to show the data.



You can subtract to find the difference.

$$8 - 2 = 6$$

Adama sees 6 more ducks than rabbits.

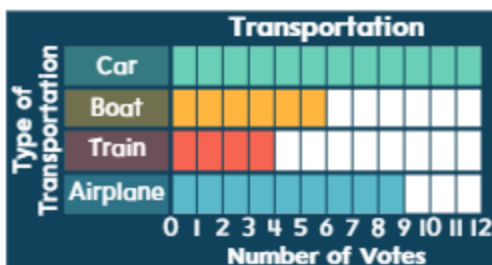
You can use a bar graph to solve problems about data.

Math is... Thinking

What other comparisons can you make using this data?

Work Together

How many fewer votes for airplanes are there than cars?



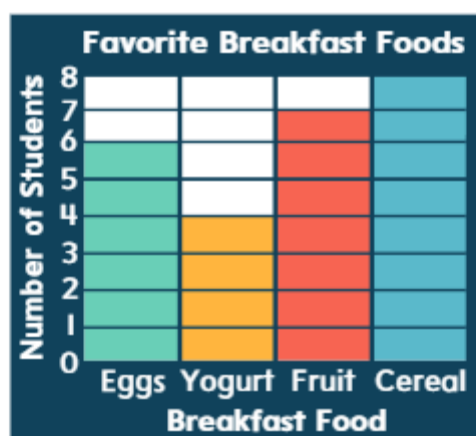
On My Own



Name _____

Use the bar graph to answer the questions.

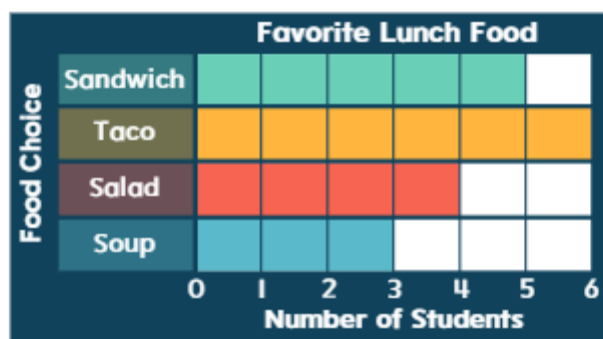
Sienna made a bar graph of her classmates' favorite breakfast foods.



- STEM Connection** What is the most popular food?
- How many more students chose cereal than fruit?
- How many fewer students chose yogurt than fruit?
- How many students did not choose the most popular food? Explain your thinking.



Use the bar graph to answer the questions.



5. How many students chose the 2 most popular lunch foods? Explain your thinking.
6. How many fewer students chose soup than salad?
7. **Extend Your Thinking** Write two questions about the data in the Favorite Lunch Food bar graph. Then answer your questions.

Reflect

Why might you use a bar graph to solve problems?

Math is... **Mindset**

How have deep breaths helped you work better?

Collect Measurement Data



Be Curious

What do you notice?
What do you wonder?

6 inches
4 inches
5 inches
6 inches
5 inches
7 inches
4 inches
5 inches

Math is... Mindset

What do you do to be
an active listener?

Learn

Some students measure the lengths of their pencils in inches.

How can you organize the measurements?

6 inches	5 inches
4 inches	7 inches
5 inches	4 inches
6 inches	5 inches

You can make a **tally chart**. A tally chart has columns.

Length of Pencils	
Length (inches)	Tally
4	
5	
6	
7	

A tally chart has tally marks. There is one tally mark for each measurement.

Length of Pencils	
Length (inches)	Tally
4	
5	
6	
7	

tally mark

Math is... Precision

Why should you write down your numbers before creating a chart?

You can collect measurement data by measuring the lengths of objects.

Work Together

Measure 8 classroom objects to the nearest centimeter. Collect the data in a list. Then make a tally chart to show the data.

On My Own



Name _____

How can you make a tally chart to show the data?

1. Martin measured the lengths of some pencils.

5 inches
4 inches
5 inches
5 inches
5 inches
7 inches
7 inches
5 inches

Length of Pencil	
Length (inches)	Tally

2. Alek measured the lengths of some shoes.

22 centimeters
24 centimeters
25 centimeters
23 centimeters
21 centimeters
24 centimeters
23 centimeters
24 centimeters

Length of Shoe	
Length (centimeters)	Tally

3. Measure the lengths of 8 books to the nearest inch. Collect the data in a list. Then make a tally chart to show the data.



Use the data to answer the questions.

- 4. Error Analysis** Keya makes a tally chart to show her measurement data. She says her tally chart will have 10 rows. How do you respond to Keya?

15 centimeters
16 centimeters
16 centimeters
18 centimeters
19 centimeters
16 centimeters
17 centimeters
16 centimeters
16 centimeters
17 centimeters

- 5.** How many tally marks go in the row for 19 centimeters?
- 6. Extend Your Thinking** How might Keya's tally chart change if she measures 3 more objects that have lengths of 12 centimeters, 14 centimeters, and 20 centimeters?

Reflect

Why is it helpful to organize data in a tally chart?

Math is... **Mindset**

What did you do to be an active listener?

Understand Line Plots



Be Curious

Tell me everything you can.



Math is... Mindset

How well do you think you will understand today's lesson?

Learn

Some students measure the lengths of some pieces of chalk. The tally chart shows their measurements.

How can you show the measurements?

Chalk Lengths	
Length (inches)	Tally
2	
3	
4	
5	
6	

You can make a **line plot**.
A line plot is a number line.



Each measurement is one X in the line plot.

3 pieces are 6 inches long.



A line plot is a graph that uses Xs above a number line to display the data.

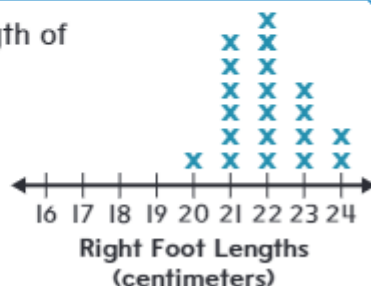
Math is... Sharing

What other observations can you make about the data?

Work Together

Lana's class measured the length of each student's right foot.

- How many measurements were recorded?
- What is the most common length measured?

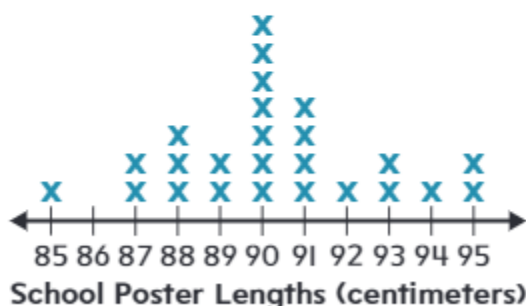


On My Own



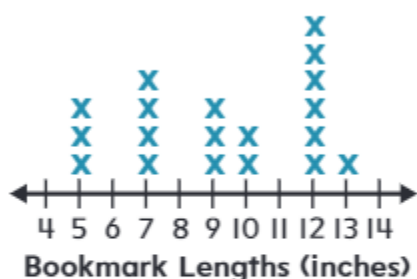
Name _____

Miss Hart's class measured the lengths of school posters. Use the data in the line plot to answer the questions.



1. What is the most common length measured?
2. What is the least common length measured?
3. What is the length of the longest poster?
4. What is the length of the shortest poster?
5. How many measurements were recorded?

C.J. measured the lengths of his bookmarks. Use the data in the line plot to answer the questions.



6. **STEM Connection** What is the length of C.J.'s longest bookmark?

7. What is the most common length measured?



8. **Extend Your Thinking** How can you find the difference in length between the longest and the shortest bookmark?

Reflect

Why might you use a line plot to represent data?

Math is... **Mindset**

How well do you think you understood today's lesson?

Reading Line Plots

Name _____

Mr. Shah's class planted a garden. One day, the class measured the height of each plant in the garden. The line plot shows the height of each plant to the nearest inch.



Heights of Plants (inches)

Circle *True* if the statement is true. Circle *False* if it is false.

- I. The class measured 6 plants.

Circle *True* or *False*.

True

False

Explain your choice.



Heights of Plants (inches)

Circle *True* if the statement is true. Circle *False* if it is false.

2. 5 plants have a height of 9 inches or more.

Circle *True* or *False*.

True False

Explain your choice.

3. The height of the tallest plant is 7 inches.

Circle *True* or *False*.

True False

Explain your choice.

Reflect On Your Learning



Show Data in a Line Plot



Be Curious

How are they the same?
How are they different?

Length (centimeters)	Number of Books
20	1
21	2
22	
23	2
24	3



Math is... Mindset

How can different ideas help you learn better?

Learn

Zeke measures the lengths of some of his books.

What length was the most common?

You can show the measurements in a line plot.

Length (centimeters)	Number of Books
20	1
21	2
22	0
23	2
24	3

There are 2 Xs above 21 and 23.

There are 3 Xs above 24.



Math is... Thinking

Why might it be helpful to organize data in a line plot instead of a list?

24 centimeters is the most common length.

Each X in a line plot represents one value in a set of data.

Work Together

How can you represent the measurements using a line plot? Draw a line plot.

Length of Hair	
Length (inches)	Students
3	5
4	7
5	3
7	6
9	1



On My Own

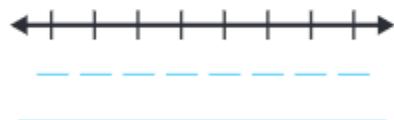


Name _____

How can you represent the measurements using a line plot? Use the data to make a line plot.

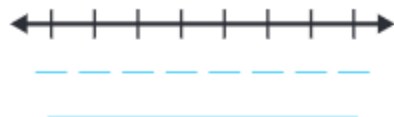
1. Samantha measured the heights of toys.

17 centimeters
15 centimeters
10 centimeters
15 centimeters
12 centimeters
17 centimeters
10 centimeters
15 centimeters



2. John measured the lengths of fish.

7 inches	5 inches
12 inches	9 inches
10 inches	10 inches
6 inches	12 inches



3. Oliver measured the lengths of ties.

59 inches	59 inches
58 inches	55 inches
53 inches	59 inches
57 inches	58 inches



How can you use your own measurements to make a line plot? Measure the lengths of 10 used crayons.

4. Record the measurements.
5. Make a line plot of the data.



6. **Extend Your Thinking** Write two questions that can be answered by looking at the line plot.

Reflect

How does a line plot help you show measurements?

Math is... **Mindset**

How did different ideas help you learn better?

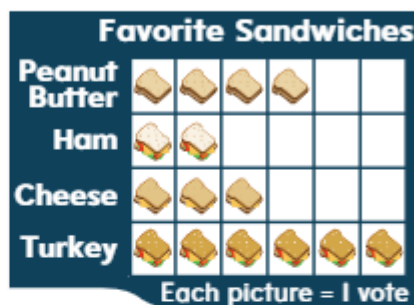
Unit Review

Name _____




Vocabulary Review

Draw a line to match.

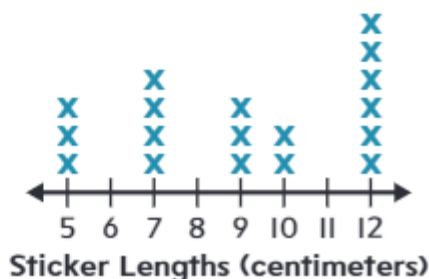
- tally chart (Lesson II-1)



- line plot (Lesson II-5)

Favorite Ride		
	Ride	Tally
	Ferris Wheel	
	Roller Coaster	
	Merry-Go-Round	
	Log Ride	

- picture graph (Lesson II-1)



Review

4. Jack measures the lengths of some strawberries.

5 centimeters	3 centimeters
4 centimeters	5 centimeters
5 centimeters	6 centimeters
6 centimeters	4 centimeters
3 centimeters	3 centimeters
4 centimeters	5 centimeters

Which tally chart shows the data? Choose the correct answer. (Lesson 11-4)

A.

Length of Strawberry	
Length (centimeters)	Tally
3	
4	
5	
6	

B.

Length of Strawberry	
Length (centimeters)	Tally
3	
4	
5	
6	

C.

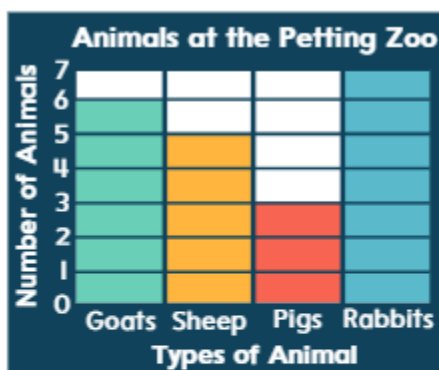
Length of Strawberry	
Length (centimeters)	Tally
3	
4	
5	
6	

D.

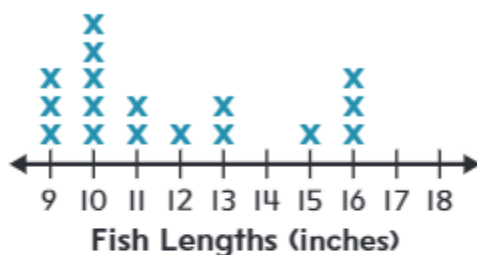
Length of Strawberry	
Length (centimeters)	Tally
3	
4	
5	
6	

5. Which statement is true about the animals at the petting zoo? Choose all the correct answers. (Lesson II-3)

- A. There are 9 goats and pigs in all.
- B. There are more sheep than goats.
- C. There are more pigs and sheep combined than goats.
- D. There are 5 fewer rabbits than goats.



6. Damien measures the lengths of some fish and records the data in a line plot. Fill in the blanks. (Lesson II-5)



The longest fish are _____ inches long.

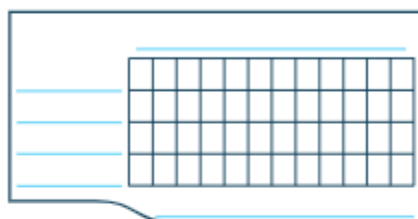
The most common length is _____ inches.

Performance Task

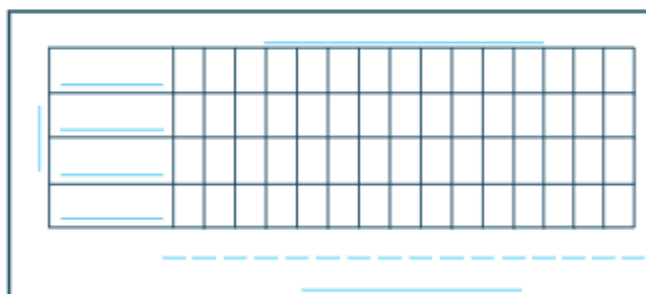
Hugo makes a tally chart to show the number of each kind of bird he sees at the bird feeder.

Part A: How can you represent the data using a picture graph?

Birds at Bird Feeder	
Bird	Tally
Blue Jay	
Cardinal	
Robin	
Sparrow	



Part B: How can you represent the data using a bar graph?



Reflect

How do picture graphs, bar graphs, and line plots help you interpret data?

Fluency Practice

Name _____

Fluency Strategy

You can use different strategies to add 2-digit numbers.
One strategy is to decompose one addend.

$$29 + 22 = ?$$



$$1 + 20 + 1$$

Make a ten: $29 + 1 = 30$

Add tens: $30 + 20 = 50$

Count on: $50 + 1 = 51$

So, $29 + 22 = 51$.

1. What strategies can you use to add $37 + 24$?
Show your work.

Fluency Flash

2. What is the sum? Fill in the blanks.

$$58 + 35 = ?$$



$$\underline{\quad} + 30 + \underline{\quad}$$

Make a ten: $58 + \underline{\quad} = \underline{\quad}$

Add tens: $\underline{\quad} + 30 = \underline{\quad}$

Count on: $\underline{\quad} + \underline{\quad} = \underline{\quad}$

So, $58 + 35 = \underline{\quad}$.

Fluency Check

What is the sum or difference?

3. $54 - 30 =$ _____

4. $63 - 7 =$ _____

5. $39 + 45 =$ _____

6. $54 + 8 =$ _____

7. $77 + 5 =$ _____

8. $43 - 8 =$ _____

9. $27 + 48 =$ _____

10. $35 + 27 =$ _____

11. $65 + 20 =$ _____

12. $98 - 60 =$ _____

13. $41 + 35 =$ _____

14. $46 + 25 =$ _____

Fluency Talk

What strategies can you use to add $52 + 16$? Explain.

How can you make a ten to add $67 + 8$? Explain.

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