13 Represent and Interpret Data

- **What types of writing tools do you use? What tool is your favorite?**

- **You measure the lengths of 20 pencils. How can you organize the data?**

Chapter Learning Target:
Understand data.

Chapter Success Criteria:
- ■ I can identify a tool to collect data.
- ■ I can create a tally chart to make a graph.
- ■ I can represent data in different ways.
- ■ I can interpret data in different ways.

13 Vocabulary

Organize It

Use the review words to complete the graphic organizer.

[_____]

Favorite Class	
Math	ⵌ⵿ 𝟙
Science	ⵌ⵿

[_____] ←

Define It

Use your vocabulary cards to identify the word.

1.

Pencil Lengths

```
            ×
       ×    ×    ×
  ×    ×    ×    ×    ×
  ←———+————+————+————+————+————→
  3    4    5    6    7    8
       Number of inches
```

[_____]

2.

Favorite Hobby

Hobby:
- Dancing
- Running
- Singing
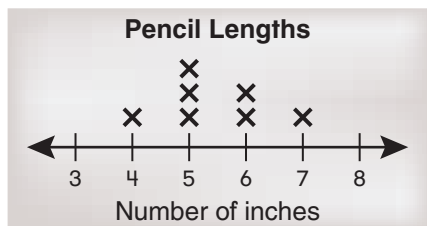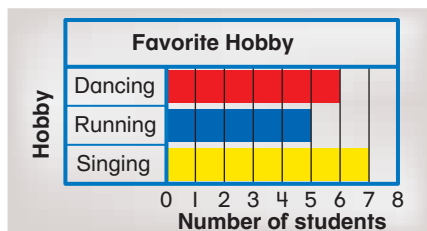
0 1 2 3 4 5 6 7 8
Number of students

[_____]

bar graph

data

key

line plot

picture graph

survey

Favorite Hobby

dancing	dancing	singing
running	dancing	running
running	running	singing
singing	singing	dancing
singing	dancing	dancing
singing	running	singing

Favorite Hobby

Hobby

Dancing	
Running	
Singing	

0 1 2 3 4 5 6 7 8
Number of students

Pencil Lengths

3 4 5 6 7 8
Number of inches

Favorite Color

Blue	🙂 🙂
Green	🙂 🙂 🙂 🙂
Yellow	🙂 🙂 🙂 🙂 🙂
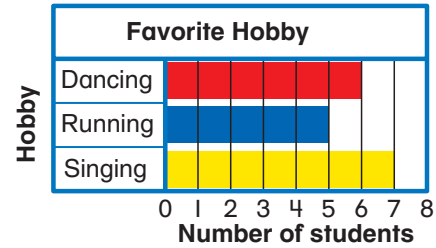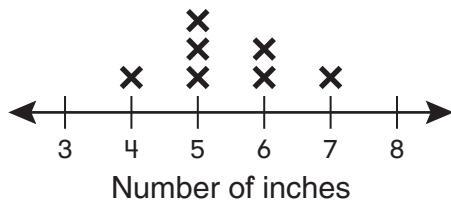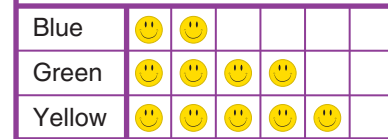
Each 🙂 = 1 student.

What is your favorite hobby?

dancing

running

singing

Favorite Color

Blue	🙂 🙂
Green	🙂 🙂 🙂 🙂
Yellow	🙂 🙂 🙂 🙂 🙂

Each 🙂 = 1 student.

Learning Target: Use a tally chart to organize and understand data.

Explore and Grow

Look at your color tiles. Complete the tally chart.

Tile Colors	
Blue	
Green	
Red	
Yellow	

Write and answer a question about your tally chart.

_____

_____

Newton conducts a **survey**. He asks 10 students about their favorite outside activity. He records the **data**. Use the data to complete the tally chart.

basketball	riding a bike
riding a bike	riding a bike
jump rope	jump rope
running	riding a bike
riding a bike	basketball

Favorite Outside Activity	
Basketball	||
Jump rope	||
Riding a bike	|||||
Running		

How many students chose basketball? __2__

Which activity is the most favorite? riding a bike

Show and Grow   I can do it!

1. Use the data to complete the tally chart.

math	science
social studies	language arts
science	social studies
math	math
language arts	math
math	science
science	language arts
math	math

Favorite Subject	
Math	
Science	
Social studies	
Language arts	

How many students chose math? _____

Which subject is the most favorite? _____

Name _____

✓ Apply and Grow: Practice

2. Use the data to complete the tally chart.

owl	reindeer
polar bear	fox
reindeer	owl
fox	polar bear
polar bear	reindeer
fox	owl
fox	polar bear
fox	reindeer
reindeer	fox

Favorite Arctic Animal	
Fox	
Reindeer	
Polar bear	
Owl	

Which animal is the least favorite? _____

How many students did *not* choose fox? How do you know?

_____

Did more students choose fox or owl?	Did fewer students choose reindeer or polar bear?
_____	_____
How many more? _____ more	How many fewer? _____ fewer

3. 🔴 **Reasoning** Which sentences are correct?

You survey 30 students.

11 students chose whale.

4 more students chose seal than penguin.

20 students did *not* choose seal.

Favorite Antarctic Animal	
Penguin	卌 卌 IIII
Whale	卌 I
Seal	卌 卌

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Newton wants to survey 25 students. How many more students does he need to survey?

Addition equation:

Favorite Field Trip	
Library	|||
Zoo	卌 ||
Museum	||||
Play	卌

_____ students

Show and Grow   I can think deeper!

4. Descartes wants to survey 20 students. How many more students does he need to survey?

Favorite Shoes	
Sandals	卌 |
Sneakers	||||
Slippers	卌 ||
Dress shoes	|

_____ students

How many more students need to choose sneakers so that the numbers of students who choose sneakers and sandals are equal?

_____ students

Name _____

Learning Target: Use a tally chart to organize and understand data.

Use the data to complete the tally chart.

board game
computer
computer
puzzle
charades
board game
charades
computer
charades
charades

Favorite Indoor Activity	
Computer	|||
Charades	||||
Board game	||
Puzzle		

How many students chose charades?

4

Which activity is the least favorite?

puzzle

1. Use the data to complete the tally chart.

sidewalk chalk   tag
tag   catch
tag   bubbles
catch   sidewalk chalk
tag   catch
catch   tag
tag   tag

Favorite Outdoor Activity	
Tag	
Catch	
Bubbles	
Sidewalk chalk	

Which activity is the most favorite? _____

Did more students choose catch or sidewalk chalk? _____

How many more? _____ more

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2. **MP Modeling Real Life** Newton wants to survey 15 friends. How many more friends does he need to survey?

_____ friends

Fur Color	
Brown	卌
Orange	||
White		
Black	|||

3. **Writing** In Exercise 2, what question did Newton ask?

_____

_____

4. **MP Modeling Real Life** You want to survey 30 students. How many more students do you need to survey?

_____ students

How many more students need to choose coloring so that the numbers of students who choose coloring and puppets are equal?

_____ students

Favorite Playtime Activity	
Blocks		
Puppets	卌 ||||
Cars	卌 ||
Coloring	|||

Review & Refresh

5. $153 - 10 =$ _____

6. $978 - 10 =$ _____

7. $642 - 100 =$ _____

8. $1{,}000 - 100 =$ _____

Learning Target: Understand the data shown by a picture graph.

Explore and Grow

How are the tally chart and the picture graph the same? How are they different?

Favorite Pet	
Bird	II
Cat	IIII
Dog	IIII III

Favorite Pet							
Bird	🙂	🙂					
Cat	🙂	🙂	🙂	🙂			
Dog	🙂	🙂	🙂	🙂	🙂	🙂	🙂

Each 🙂 = I student.

_____

_____

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picture graph

Favorite Season									
Spring	🙂	🙂	🙂	🙂	🙂				
Summer	🙂	🙂	🙂	🙂	🙂	🙂	🙂	🙂	🙂
Fall	🙂	🙂	🙂	🙂	🙂	🙂			
Winter	🙂	🙂	🙂						

Each 🙂 = 1 student. ← **key**

How many students chose fall? __6__

Which season is the least favorite? _winter_

Show and Grow *I can do it!*

1.

Favorite Insect									
Bumblebee	🙂	🙂							
Ladybug	🙂	🙂	🙂	🙂	🙂	🙂	🙂	🙂	
Grasshopper	🙂	🙂	🙂	🙂	🙂	🙂			
Butterfly	🙂	🙂	🙂	🙂	🙂	🙂	🙂		
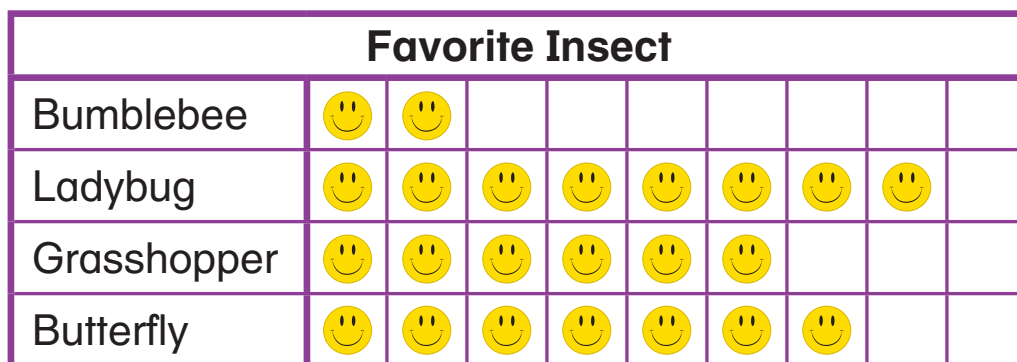
Each 🙂 = 1 student.

How many students chose butterfly? _____

Which insect is the most favorite? _____

Which insect is the least favorite? _____

✓ Apply and Grow: Practice

2.

Favorite School Trip									
Science center	🙂	🙂	🙂	🙂	🙂				
Park	🙂	🙂							
Sporting event	🙂	🙂	🙂	🙂	🙂	🙂	🙂	🙂	
Museum	🙂	🙂	🙂						

Each 🙂 = I student.

How many students chose sporting event? _____

Which school trip is the least favorite? _____

How many more students chose science center
than the park? _____

3. 🔴 **Maintain Accuracy** Use the numbers to
complete the sentences.

I	2	3	4

Newton has _____ siblings.

Your friend has _____ siblings.

Your friend has _____ more
siblings than your cousin.

Number of Siblings				
Your cousin	◯			
Your friend	◯	◯	◯	◯
Newton	◯	◯		
Descartes	◯	◯	◯	

Each ◯ = I sibling.

Favorite Ocean Animal									
Crab	🙂	🙂	🙂	🙂	🙂	🙂			
Octopus	🙂	🙂	🙂	🙂	🙂	🙂	🙂	🙂	
Jellyfish	🙂	🙂	🙂						
Sea turtle	🙂	🙂	🙂	🙂	🙂	🙂	🙂	🙂	🙂

Each 🙂 = I student.

Do more students like crabs and sea turtles or octopuses and jellyfish?

Addition equations:

Compare: _____ ◯ _____

More students like _____ and _____.

Show and Grow   I can think deeper!

4.

Vehicles You See									
Car	◯	◯	◯	◯	◯	◯	◯	◯	◯
Van	◯	◯	◯	◯	◯	◯	◯	◯	
Truck	◯	◯	◯	◯					
Motorcycle	◯	◯							

Each ◯ = I vehicle.

Do you see more cars and motorcycles or vans and trucks?

You see more _____ and _____.

Name _____

Learning Target: Understand the data shown by a picture graph.

Favorite Vegetable										
Broccoli	🙂	🙂	🙂	🙂	🙂	🙂	🙂	🙂	🙂	
Carrot	🙂	🙂	🙂	🙂	🙂					
Asparagus	🙂	🙂	🙂	🙂	🙂	🙂	🙂			
Pea	🙂	🙂	🙂	🙂						
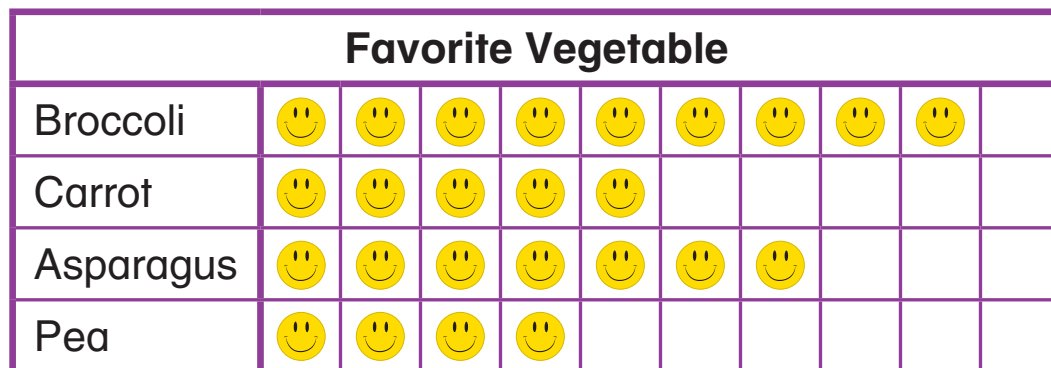
Each 🙂 = 1 student.

How many students chose asparagus? ___7___

Which vegetable is the most favorite? __broccoli__

1.

Favorite Fruit									
Apple	🙂	🙂	🙂	🙂					
Pear	🙂	🙂	🙂	🙂	🙂				
Grape	🙂	🙂	🙂	🙂	🙂	🙂	🙂		
Banana	🙂	🙂	🙂	🙂	🙂	🙂	🙂	🙂	
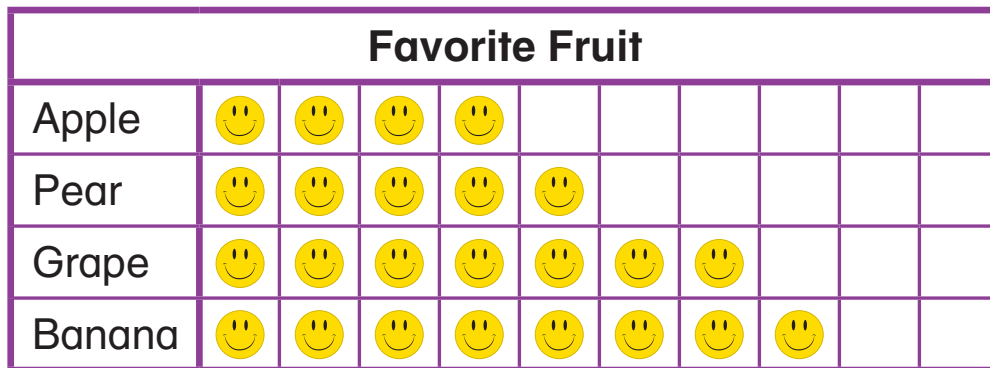
Each 🙂 = 1 student.

Which fruit do exactly 7 students like most? _____

How many students like the fruit with the fewest votes? _____

How many more students chose banana than pear? _____

2. Writing Use the picture graph.
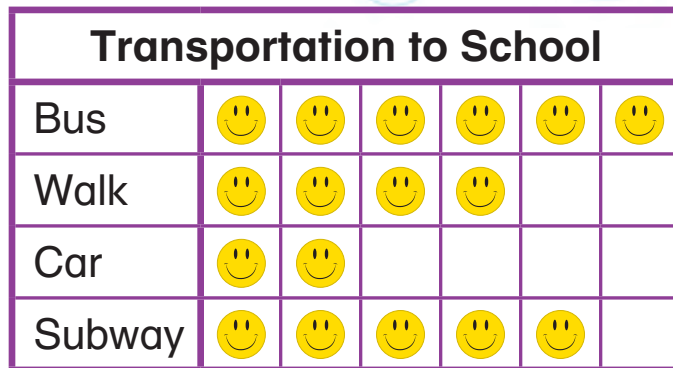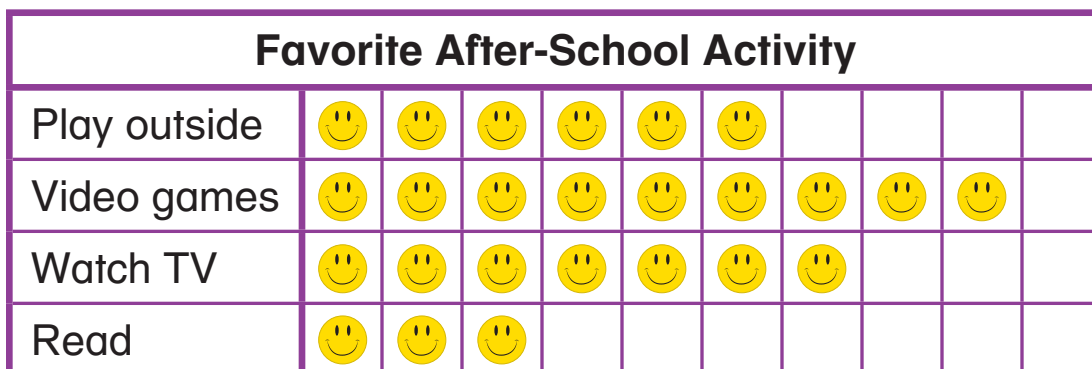
Write two true statements about the picture graph.

_____

_____

_____

_____

Transportation to School						
Bus	🙂	🙂	🙂	🙂	🙂	🙂
Walk	🙂	🙂	🙂	🙂		
Car	🙂	🙂				
Subway	🙂	🙂	🙂	🙂	🙂	

Each 🙂 = 1 student.

3. 〽️ **Modeling Real Life** Use the picture graph.

Favorite After-School Activity									
Play outside	🙂	🙂	🙂	🙂	🙂	🙂			
Video games	🙂	🙂	🙂	🙂	🙂	🙂	🙂	🙂	🙂
Watch TV	🙂	🙂	🙂	🙂	🙂	🙂	🙂		
Read	🙂	🙂	🙂						

Each 🙂 = 1 student.

Do more students like to play video games and read or play outside and watch TV?

More students like to _____ and _____.

〰️〰️〰️〰️〰️〰️
Review & Refresh

4. What is the best estimate of the length of a keyboard?

18 inches   18 feet   18 yards

Learning Target: Use data to make picture graphs.

Explore and Grow

Look at your color tiles. Complete the tally chart and the picture graph.

Tile Colors

🟦	Blue	
🟩	Green	
🟥	Red	
🟨	Yellow	

Tile Colors

🟦 Blue											
🟩 Green											
🟥 Red											
🟨 Yellow											

Each ◯ = 1 tile.

Favorite Color	
Red	ⅠⅠⅠⅠ
Blue	ⅠⅠⅠⅠ Ⅰ
Yellow	Ⅰ
Pink	ⅠⅠⅠ

Favorite Color						
Red	😊	😊	😊	😊	😊	
Blue	😊	😊	😊	😊	😊	😊
Yellow	😊					
Pink	😊	😊	😊			

Each 😊 = 1 student.

Which color is the most favorite? __blue__

How many more students chose red than pink? __2__

Show and Grow   *I can do it!*

1. Complete the picture graph.

Favorite Fruit	
Orange	ⅠⅠⅠⅠ
Strawberry	ⅠⅠ
Apple	ⅠⅠⅠⅠ Ⅰ
Banana	ⅠⅠⅠⅠ

Favorite Fruit					
Orange					
Strawberry					
Apple					
Banana					

Each 😊 = 1 student.

Which fruit is the most favorite? _____

Which fruit is the least favorite? _____

How many more students chose apple than banana? _____

Name _____

✓ Apply and Grow: Practice

2. Complete the picture graph.

Favorite Bird	
Parrot	||
Flamingo	⊞⊞
Owl	|||
Penguin	⊞⊞ ||

Favorite Bird						
Parrot						
Flamingo						
Owl						
Penguin						

Each 🙂 = 1 student.

How many students chose the most favorite bird? _____

How many students chose flamingo or penguin? _____

---

3. Complete the picture graph.

Number of Coins	
You	⊞⊞
Newton	||||
Descartes	⊞⊞ |

Number of Coins						
You						
Newton						
Descartes						

Each ◯ = 1 coin.

Newton gives 4 coins to Descartes. How many coins does Newton have now? How do you know?

_____

_____

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Think and Grow: Modeling Real Life

You ask 20 students to name their eye colors. 9 have brown eyes. 3 more students have brown eyes than blue eyes. The rest have green eyes. Complete the picture graph.

Eye Color									
Blue									
Brown									
Green									

Each 🙂 = 1 student.

Show and Grow   I can think deeper!

4. You ask 15 students which community helper is their favorite. 6 choose police officer. 2 fewer students choose doctor than police officer. The rest choose firefighter. Complete the picture graph.

Favorite Community Helper								
Police officer								
Firefighter								
Doctor								

Each 🙂 = 1 student.

Communicate Clearly How did you find how many students chose firefighter?

Learning Target: Use data to make picture graphs.

Number of Points	
You	||||
Your friend	卌
Newton	|||
Descartes	|

Number of Points					
You	⭕	⭕	⭕	⭕	
Your friend	⭕	⭕	⭕	⭕	⭕
Newton	⭕	⭕	⭕		
Descartes	⭕				

Each ⭕ = 1 point.

Who has the most points? __your friend__

1. Complete the picture graph.

Number of Medals	
You	||||
Your friend	||
Newton	卌
Descartes	卌 |

Number of Medals						
You						
Your friend						
Newton						
Descartes						

Each ◯ = 1 medal.

Who has the least medals? _____

How many more medals do you have than your friend? _____

How many medals do Newton and Descartes have in all? _____

2. Complete the picture graph.

Favorite Soup	
Alphabet	ⅢⅢ II
Vegetable	III
Tomato	ⅢⅢ I

Favorite Soup							
Alphabet							
Vegetable							
Tomato							

Each 🙂 = 1 student.

DIG DEEPER! How many fewer students chose vegetable soup than the other soups combined? _____

---

3. **Modeling Real Life** You ask 20 students about their favorite way to exercise. 4 like to walk. 6 like to swim. The rest like to bike. Complete the picture graph.

Favorite Way to Exercise									
Bike									
Walk									
Swim									

Each 🙂 = 1 student.

Communicate Clearly How did you find how many students like to bike?

_____

Review & Refresh

4.
```
   4 1 5
 − 2 7 3
 ───────
```

5.
```
   5 8 3
 − 1 2 7
 ───────
```

6.
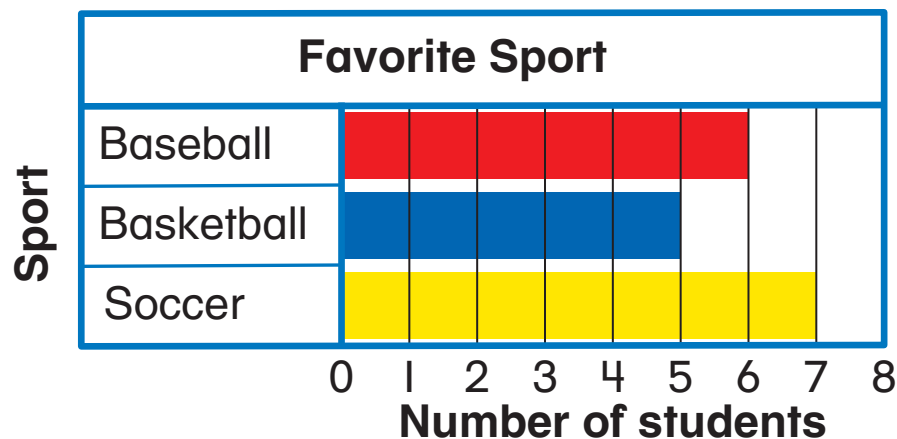```
   8 9 2
 − 1 0 5
 ───────
```

**Learning Target:** Understand the data shown by a bar graph.

## Explore and Grow

How are the tally chart and the bar graph the same?
How are they different?

### Favorite Sport

| Favorite Sport | |
|---|---|
| Baseball | 卌 I |
| Basketball | 卌 |
| Soccer | 卌 II |

### Favorite Sport

**Sport** (vertical axis)

| | |
|---|---|
| Baseball | (red bar to 6) |
| Basketball | (blue bar to 5) |
| Soccer | (yellow bar to 7) |

0  1  2  3  4  5  6  7  8
**Number of students**

_____

_____

**bar graph**

### Favorite Television Show Type

| Type | | |
|---|---|---|
| News | ■ | |
| Sports | ████ | |
| Animals | ██████ | |
| Cartoons | █████████ | |

0  1  2  3  4  5  6  7  8  9  10
**Number of students**
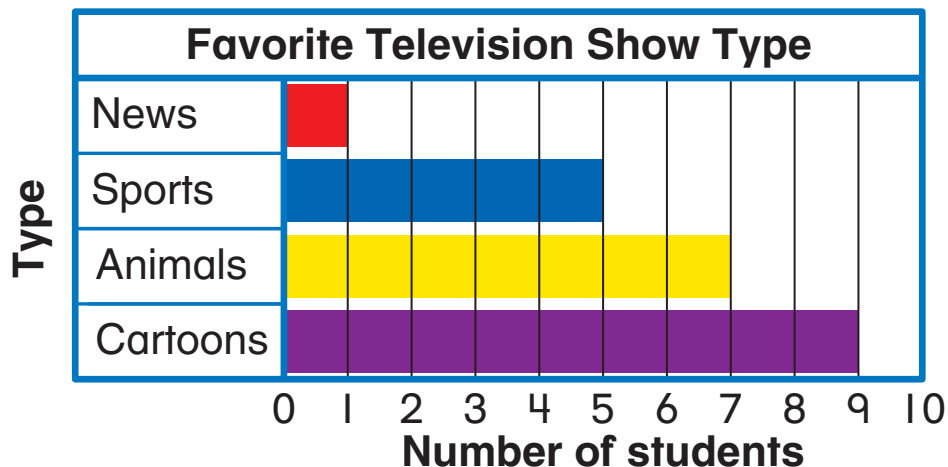
How many students chose animals? _____7_____

Which show type is the most favorite? __cartoons__

## Show and Grow    I can do it!

1.

### Favorite Rainy-Day Activity

| Activity | | |
|---|---|---|
| Painting | ████ | |
| Computer | ████████ | |
| Reading | ███ | |
| Games | ██████ | |

0  1  2  3  4  5  6  7  8  9
**Number of students**
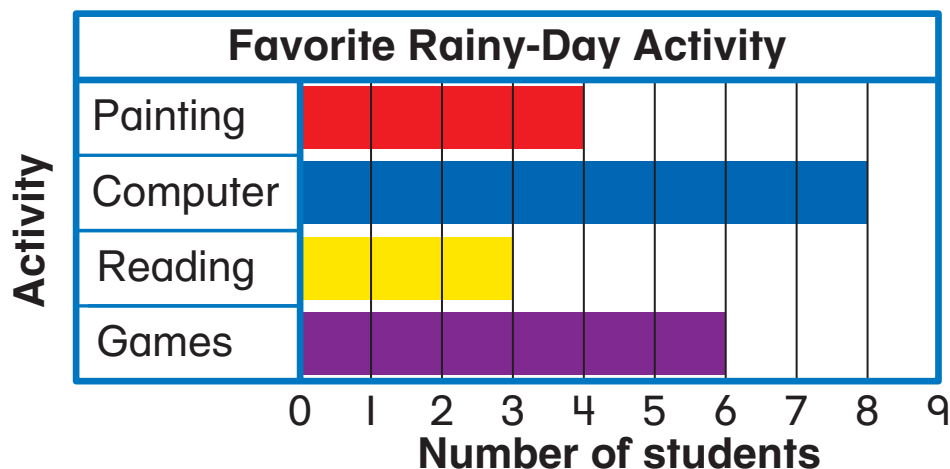
How many students chose computer? _____

Which activity is the least favorite? _____

## ✔ Apply and Grow: Practice

**2.**

**Favorite Meal of the Day**



Number of students: 9, 8, 7, 6, 5, 4, 3, 2, 1, 0

Breakfast | Lunch | Dinner | Snack
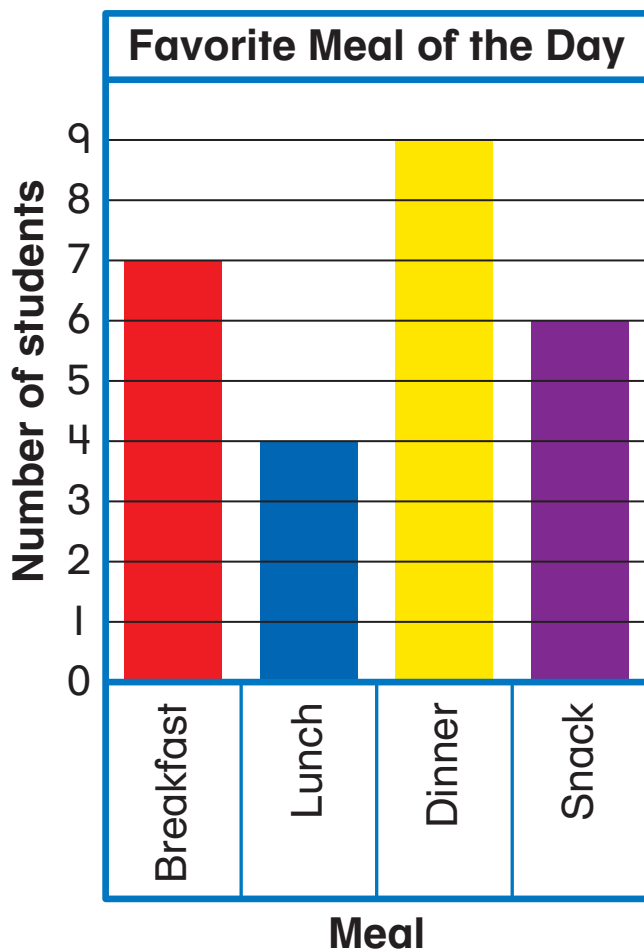
**Meal**

How many students chose breakfast?

_____

Which meal is the most favorite?

_____

How many students chose the meal that is least favorite?

_____
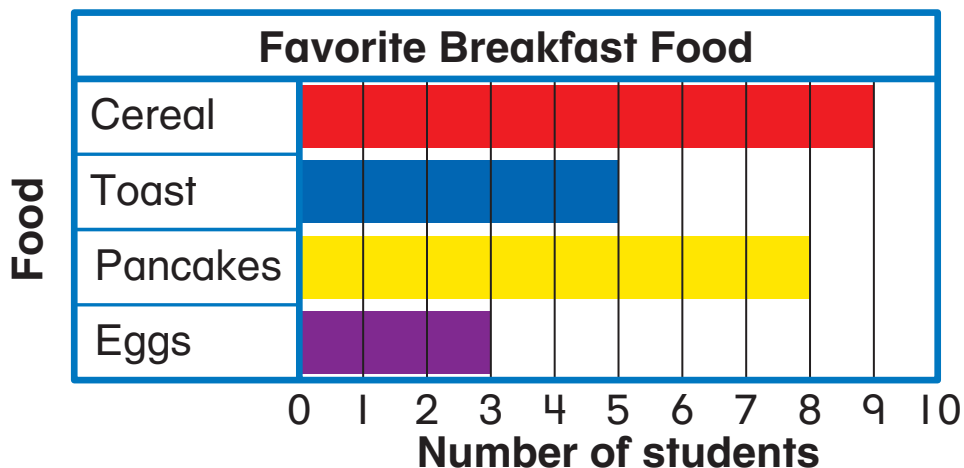
How many more students chose snack than lunch?

_____

---

**3.** **DIG DEEPER!** Order the meals in Exercise 2 from the least favorite to the most favorite.

_____ , _____ , _____ , _____

**Favorite Breakfast Food**

| Food | | |
|---|---|---|
| Cereal | | |
| Toast | | |
| Pancakes | | |
| Eggs | | |

Number of students (0 1 2 3 4 5 6 7 8 9 10)

- Cereal: 9
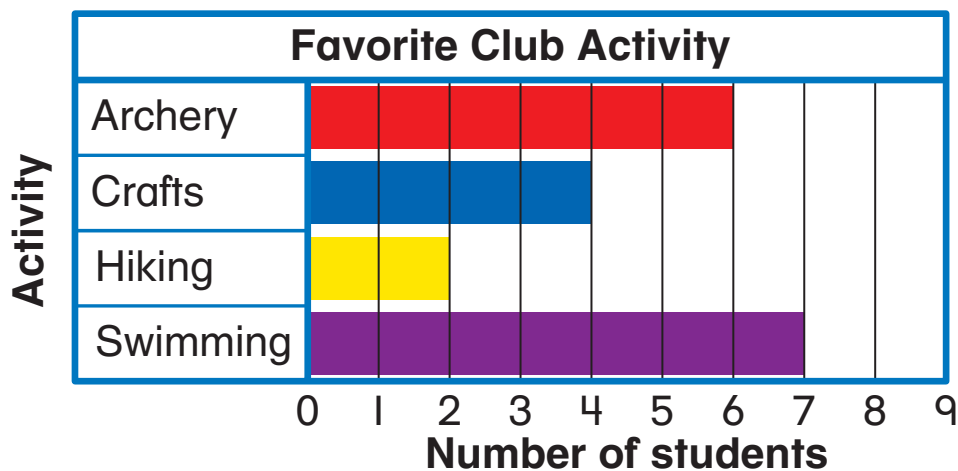- Toast: 5
- Pancakes: 8
- Eggs: 3

A student chooses a food that has 1 more vote than eggs and toast combined. Which food does the student choose?

The student chooses _____.

## Show and Grow    I can think deeper!

**4.**

**Favorite Club Activity**

| Activity | | |
|---|---|---|
| Archery | | |
| Crafts | | |
| Hiking | | |
| Swimming | | |

Number of students (0 1 2 3 4 5 6 7 8 9)
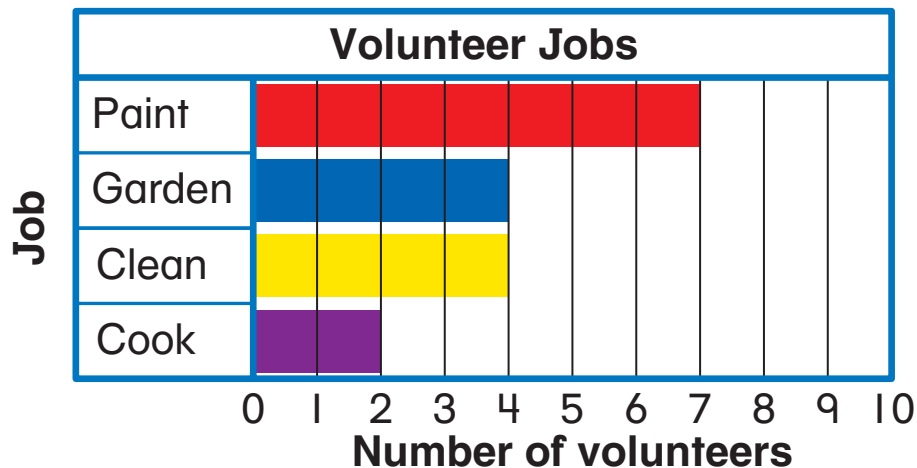
- Archery: 6
- Crafts: 4
- Hiking: 2
- Swimming: 7

A student chooses an activity that has the same number of votes as crafts and hiking combined. Which activity does the student choose?

The student chooses _____.

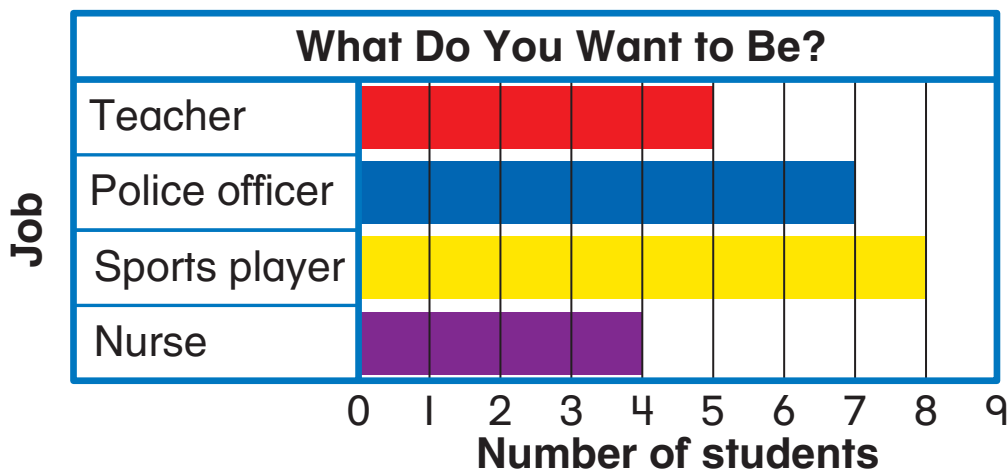**Learning Target:** Understand the data shown by a bar graph.

### Volunteer Jobs

| Job | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-----|---|---|---|---|---|---|---|---|---|---|---|----|
| Paint | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | | |
| Garden | | ■ | ■ | ■ | ■ | | | | | | | |
| Clean | | ■ | ■ | ■ | ■ | | | | | | | |
| Cook | | ■ | ■ | | | | | | | | | |

**Number of volunteers**

How many volunteers chose garden? __4__

Which job was picked by the fewest number

of volunteers? __cook__

**1.**

### What Do You Want to Be?

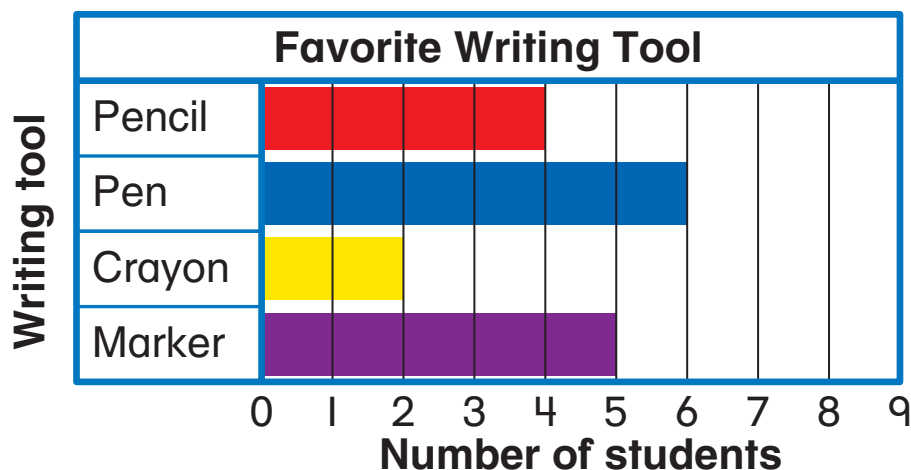| Job | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-----|---|---|---|---|---|---|---|---|---|---|---|
| Teacher | | ■ | ■ | ■ | ■ | ■ | | | | | |
| Police officer | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | |
| Sports player | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| Nurse | | ■ | ■ | ■ | ■ | | | | | | |

**Number of students**

How many students chose police officer? _____

How many more students chose teacher than nurse? _____

**2.** **MP** **Repeated Reasoning** How are picture graphs and bar graphs alike? How are they different?

_____

_____

**3.** **MP** **Modeling Real Life** Use the bar graph.

**Favorite Writing Tool**

| Writing tool | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Pencil | | | | | | | | | |
| Pen | | | | | | | | | |
| Crayon | | | | | | | | | |
| Marker | | | | | | | | | |

0  1  2  3  4  5  6  7  8  9
**Number of students**

**MP** **Justify a Result** How did you use the bar graph to determine which writing tool the student chooses?

A student chooses a writing tool that has 3 fewer votes than crayon and marker combined. Which writing tool does the student choose?

The student chooses _____.

---

**Review & Refresh**

Find the missing number.

**4.**
```
    5 7 6
+ [   ]
----
    7 2 9
```

**5.**
```
    4 3 1
+ [   ]
----
    8 2 0
```

**6.**
```
    1 2 8
+ [   ]
----
    6 4 9
```

**Learning Target:** Use data to make bar graphs.

## Explore and Grow

Look at your Instrument Cards. Complete the tally chart and the bar graph.

### Band Instruments

| Band Instruments | |
|---|---|
| Drum | |
| Trumpet | |
| Tuba | |

**Band Instruments**

| Instrument | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Drum | | | | | | | | | |
| Trumpet | | | | | | | | | |
| Tuba | | | | | | | | | |

0  1  2  3  4  5  6  7  8
**Number of students**

**MP Use Math Tools**
Why is it helpful to complete the tally chart before you complete the bar graph?

### Trees in a Park

| Trees in a Park | |
|---|---|
| Pine |卌 |
| Birch | || |
| Oak | |||| |
| Maple | 卌 ||| |

**Trees in a Park**

| Type | Number of trees |
|---|---|
| Pine | |
| Birch | |
| Oak | |
| Maple | |

0 1 2 3 4 5 6 7 8 9
**Number of trees**
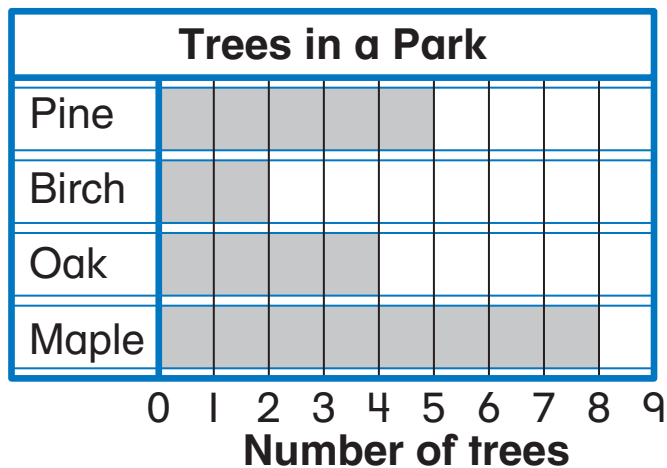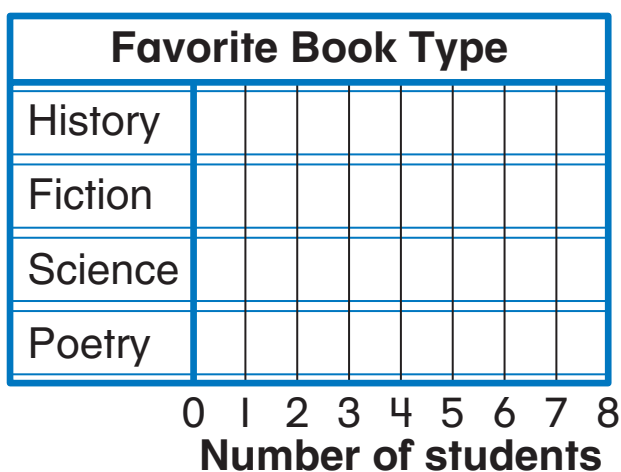
Which tree type is the most common? ___maple___

How many more pine trees are there than oak trees? ___1___

## Show and Grow   *I can do it!*

**1.** Complete the bar graph.

| Favorite Book Type | |
|---|---|
| History | ||| |
| Fiction | 卌 || |
| Science | 卌 |
| Poetry | 卌 | |

**Favorite Book Type**

| Type | Number of students |
|---|---|
| History | |
| Fiction | |
| Science | |
| Poetry | |

0 1 2 3 4 5 6 7 8
**Number of students**

Which book type is the least favorite? _____

How many more students chose fiction than history? _____

638   six hundred thirty-eight

## ✓ Apply and Grow: Practice

**2.** Complete the bar graph.

| Trail Mix Pieces | |
|---|---|
| Peanuts | JHT IIII |
| Raisins | JHT I |
| Almonds | JHT II |
| Dried fruit | IIII |

**Trail Mix Pieces**

Type

| Peanuts | | | | | | | | | |
| Raisins | | | | | | | | | |
| Almonds | | | | | | | | | |
| Dried fruit | | | | | | | | | |

0 1 2 3 4 5 6 7 8 9
**Number of pieces**
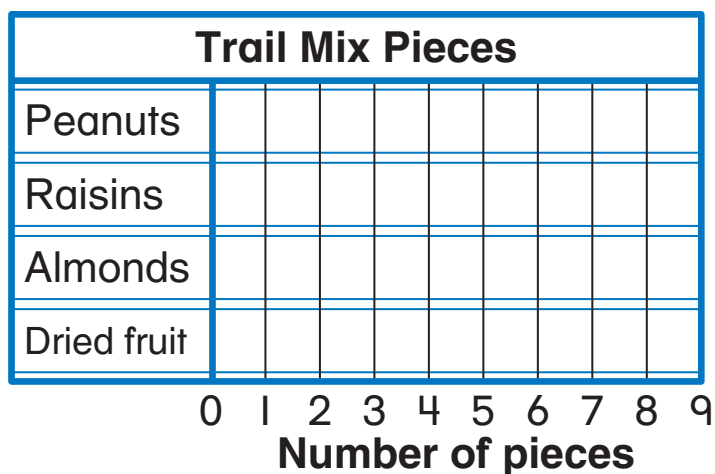
How many raisins are there? _____

How many more almonds are there than dried fruit? _____

**3.** Complete the bar graph.

| Drinks at a Picnic | |
|---|---|
| Water | JHT |
| Fruit punch | II |
| Lemonade | JHT IIII |
| Iced tea | JHT III |

**Drinks at a Picnic**

Drink

| Water | | | | | | | | | |
| Fruit punch | | | | | | | | | |
| Lemonade | | | | | | | | | |
| Iced tea | | | | | | | | | |

0 1 2 3 4 5 6 7 8 9
**Number of people**
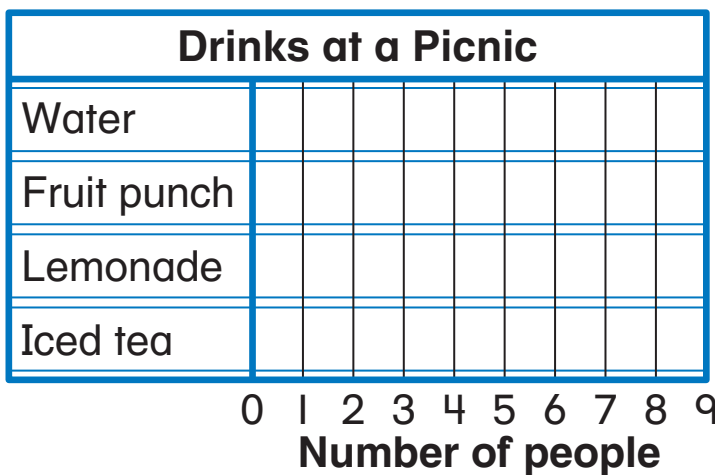
Which drink was chosen the most? _____

How many more people chose iced tea than water? _____
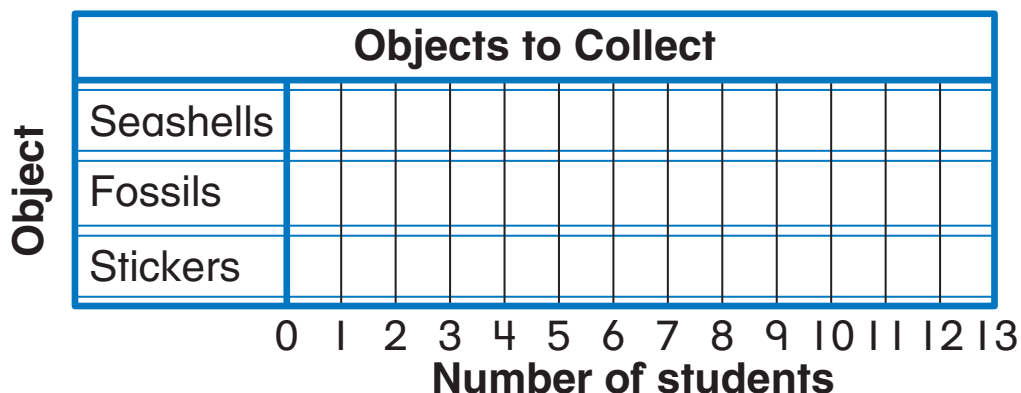
You classify 30 animals as fish, mammals, or reptiles. 11 are fish. 7 are reptiles. The rest are mammals. Complete the bar graph.

**Classifying Animals**

| Class | Number of animals |
|---|---|
| Fish | |
| Mammal | |
| Reptile | |

0 1 2 3 4 5 6 7 8 9 10 11 12 13
**Number of animals**
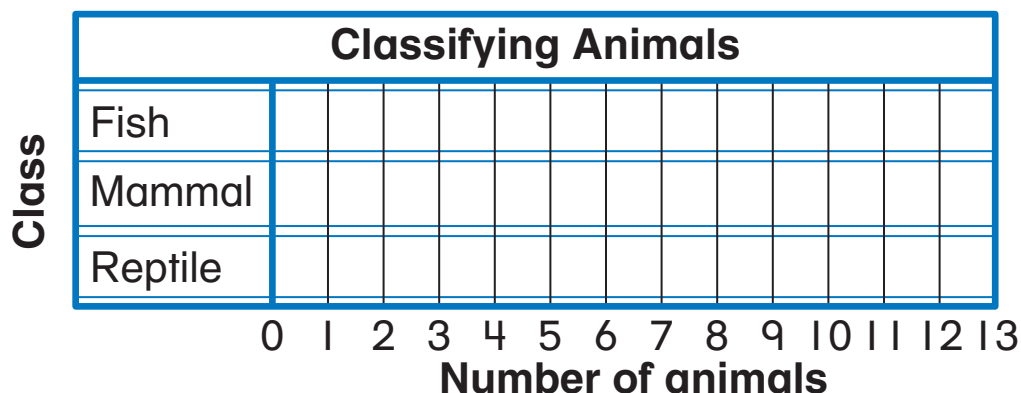
## Show and Grow    *I can think deeper!*

4. You ask 29 students if they want to collect seashells, fossils, or stickers. 8 said fossils. 12 said stickers. The rest said seashells. Complete the bar graph.
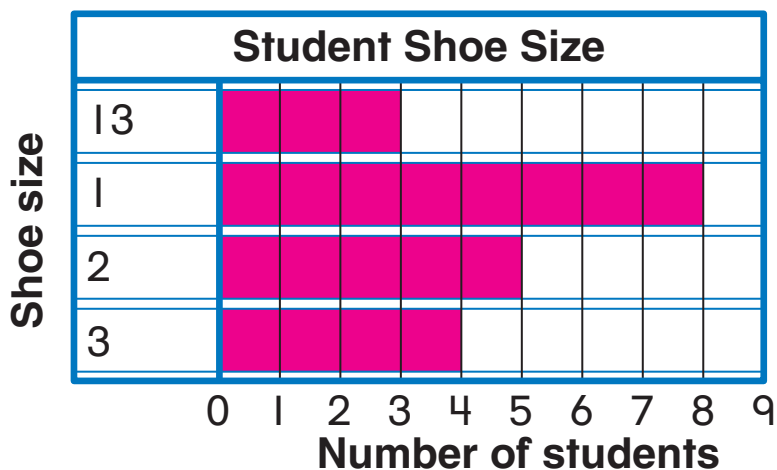
**Objects to Collect**

| Object | Number of students |
|---|---|
| Seashells | |
| Fossils | |
| Stickers | |

0 1 2 3 4 5 6 7 8 9 10 11 12 13
**Number of students**

**DIG DEEPER!** You ask 3 more students which object they want to collect. 1 said fossils. 2 said seashells. How many fewer students chose fossils than seashells now?
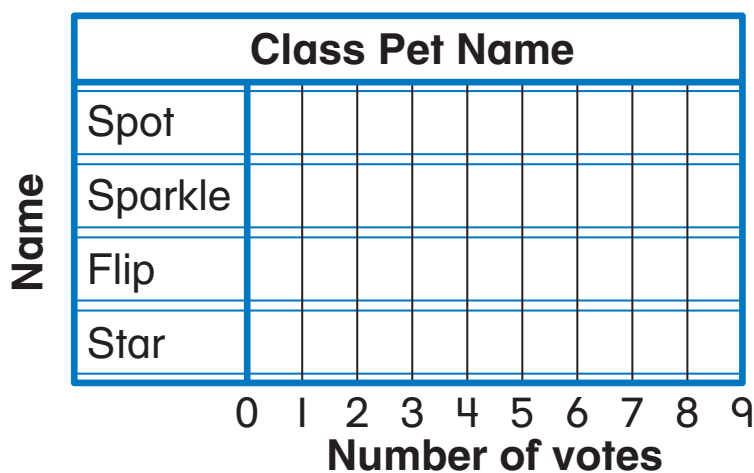
_____ students

| Student Shoe Size | |
|---|---|
| I3 | ||| |
| I | ||||| ||| |
| 2 | ||||| |
| 3 | |||| |

**Student Shoe Size**

**Shoe size**

| | |
|---|---|
| I3 | |
| I | |
| 2 | |
| 3 | |

0 I 2 3 4 5 6 7 8 9
**Number of students**

Which shoe size is the least common? ___I3___

How many more students wear size 2 than size 3? ___I___

**I.** Complete the bar graph.

| Class Pet Name | |
|---|---|
| Spot | ||||| |||| |
| Sparkle | || |
| Flip | ||||| || |
| Star | ||||| | |

**Class Pet Name**

**Name**

| | |
|---|---|
| Spot | |
| Sparkle | |
| Flip | |
| Star | |

0 I 2 3 4 5 6 7 8 9
**Number of votes**

How many more votes did Spot receive than Sparkle? _____

**2.** Complete the bar graph.

| Animals in a Pet Store | |
|---|---|
| Fish | JHH II |
| Hamster | JHH |
| Snake | IIII |
| Rabbit | IIII |

**Animals in a Pet Store**

Animal: Fish, Hamster, Snake, Rabbit

0 1 2 3 4 5 6 7 8
**Number of animals**
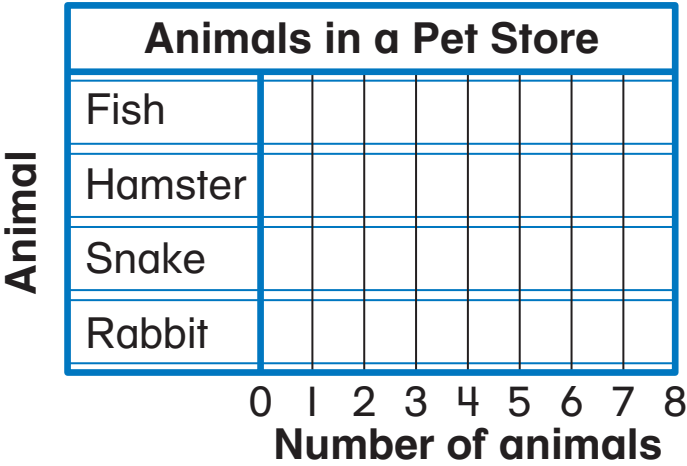
How many total animals are in the pet store? _____

**3.** **MP** **Modeling Real Life** You, your friend, and your cousin hand out a total of 25 flyers. You hand out 12. Your friend hands out 9. Your cousin hands out the rest. Complete the bar graph.

**Flyers Handed Out**

Person: You, Friend, Cousin

0 1 2 3 4 5 6 7 8 9 10 11 12 13
**Number of flyers**
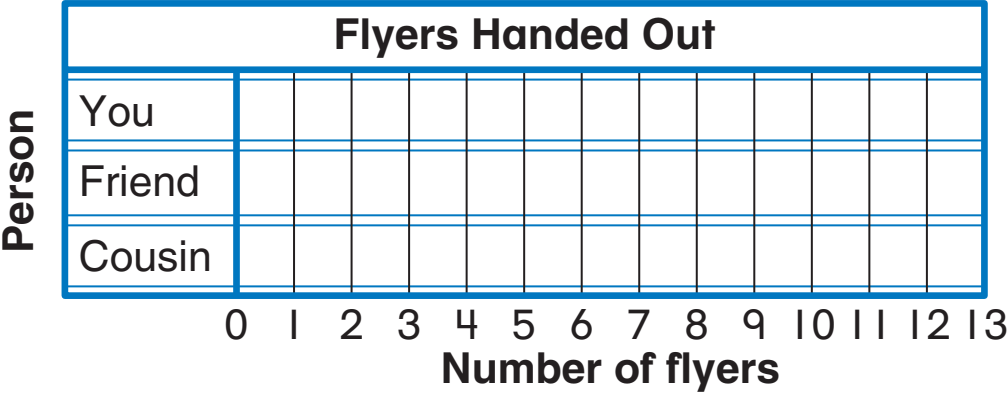
**DIG DEEPER!** You hand out 1 more flyer. Your friend hands out 4 more. How many fewer flyers does your cousin hand out than your friend now?

_____ flyers

**Review & Refresh**

**4.** $861 - 410 = $ _____

**5.** $624 - 320 = $ _____

**Learning Target:** Use data to make line plots.

## Explore and Grow

How are the thumb lengths shown on the number line?

### Thumb Lengths

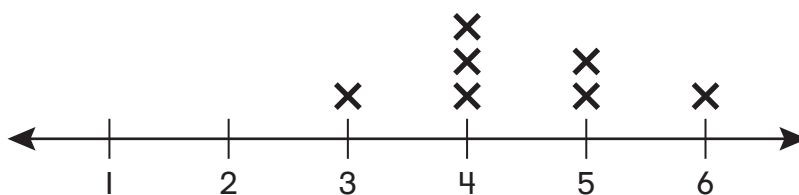| | |
|---|---|
| Thumb 1 — 4 cm | Thumb 5 — 6 cm |
| Thumb 2 — 5 cm | Thumb 6 — 5 cm |
| Thumb 3 — 3 cm | Thumb 7 — 4 cm |
| Thumb 4 — 4 cm | |



_____

_____

| Car Lengths (feet) | |
|---|---|
| Car 1 | 12 |
| Car 2 | 13 |
| Car 3 | 14 |
| Car 4 | 12 |
| Car 5 | 12 |
| Car 6 | 15 |
| Car 7 | 14 |

**line plot**

**Car Lengths**



Number of feet
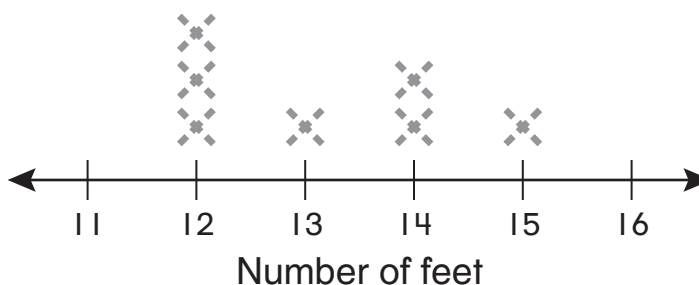
How many cars are 14 feet long?  2

What is the most common car length?  12  feet

## Show and Grow   *I can do it!*

1. Complete the line plot.

| Long Jump Lengths (inches) | |
|---|---|
| Child 1 | 41 |
| Child 2 | 44 |
| Child 3 | 43 |
| Child 4 | 41 |
| Child 5 | 45 |

**Long Jump Lengths**



Number of inches
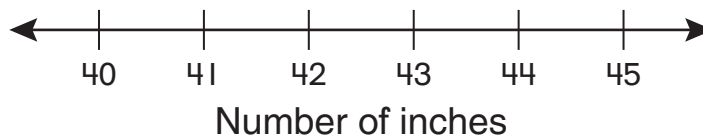
How many long jumps are 43 inches long?  _____

What is the most common long jump length?  _____ inches

## ✔ Apply and Grow: Practice

**2.** Complete the line plot.

| Puppy Lengths (inches) | |
| --- | --- |
| Puppy 1 | 11 |
| Puppy 2 | 9 |
| Puppy 3 | 10 |
| Puppy 4 | 12 |
| Puppy 5 | 9 |
| Puppy 6 | 10 |
| Puppy 7 | 10 |
| Puppy 8 | 8 |

**Puppy Lengths**

Number of inches

8    9    10    11    12
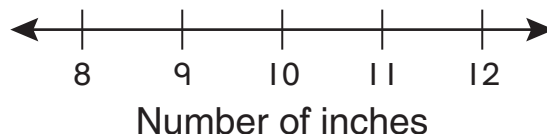
What is the most common puppy length?          _____ inches

How many fewer puppies are 11 inches long
than 10 inches long?

_____

How many puppies are 8 or 9 inches long?

_____

How many puppies are shorter than 11 inches?
How do you know?

_____

_____

9 people measure the length of a guitar. The line plot shows the measured lengths. How long do you think the guitar is? Explain.

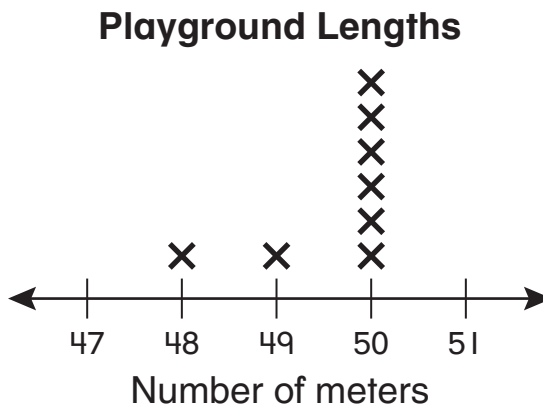_____ inches

**Guitar Lengths**



Number of inches

_____

_____
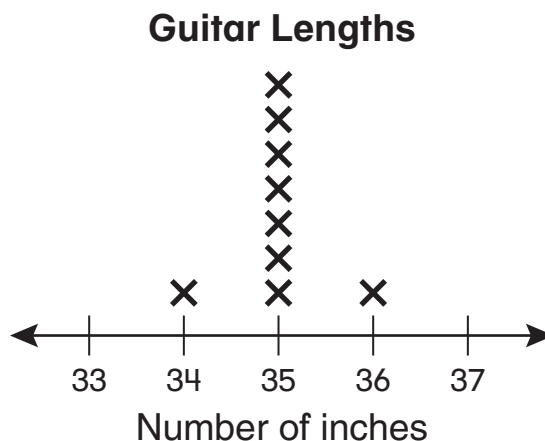
## Show and Grow   I can think deeper!

**3.** 8 people measure the length of a playground. The line plot shows the measured lengths. How long do you think the playground is? Explain.

_____ meters

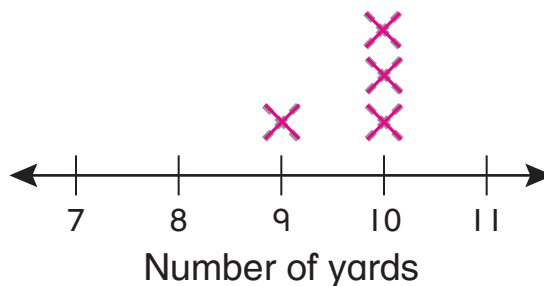**Playground Lengths**



Number of meters

_____

**DIG DEEPER!** Why are the measurements different?

_____

**Learning Target:** Use data to make line plots.

Complete the line plot.

**Lengths of Classrooms**

| Classroom Lengths (yards) | |
|---|---|
| Room 1 | 10 |
| Room 2 | 9 |
| Room 3 | 10 |
| Room 4 | 10 |



Number of yards

How many classrooms are 10 yards long? _____3_____

**1.** Complete the line plot.

| Leaf Lengths (centimeters) | |
|---|---|
| Leaf 1 | 14 |
| Leaf 2 | 15 |
| Leaf 3 | 15 |
| Leaf 4 | 14 |
| Leaf 5 | 12 |
| Leaf 6 | 15 |

**Leaf Lengths**



Number of centimeters
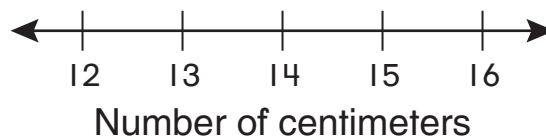
How many leaves are 13 centimeters long? _____

What is the most common leaf length? _____ centimeters

How many more leaves are 14 centimeters
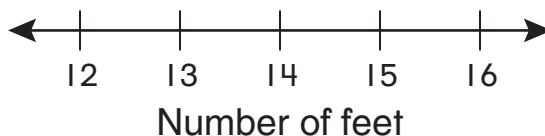long than 12 centimeters long? _____

How many leaves are 14 or 15 centimeters? _____

**2.** Complete the line plot.

| Shark Lengths (feet) | |
|---|---|
| Shark 1 | 14 |
| Shark 2 | 15 |
| Shark 3 | 16 |
| Shark 4 | 14 |
| Shark 5 | 12 |
| Shark 6 | 16 |

**Shark Lengths**

```
    ◄──┼────┼────┼────┼────┼──►
      12   13   14   15   16
           Number of feet
```
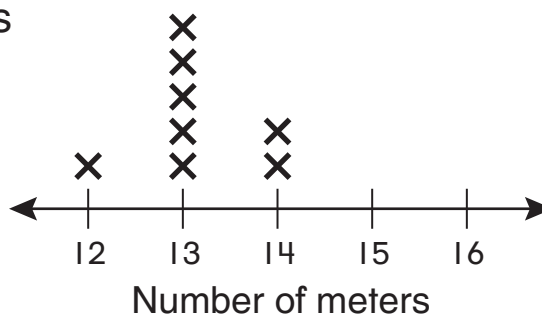
How many sharks are longer than 14 feet? How do you know?

_____

**3.** **(MP) Modeling Real Life** 8 people measure the length of a bus. The line plot shows the measured lengths. How long do you think the school bus is? Explain.

**Bus Lengths**

```
               ✕
               ✕
               ✕
               ✕      ✕
       ✕       ✕      ✕
    ◄──┼────┼────┼────┼────┼──►
      12   13   14   15   16
         Number of meters
```

_____ meters

_____

Review & Refresh

4.
```
   3 6
     4
   2 2
 + 6 5
 ──────
```

5.
```
   9 5
   6 8
 + 4 5
 ──────
```

6.
```
   7 6
   5 0
   1 8
 + 8 2
 ──────
```

Learning Target: Measure objects and make line plots.

Explore and Grow

Use a ruler to measure the caterpillars on Lengths of Caterpillars. Use the lengths to complete the chart and the line plot.
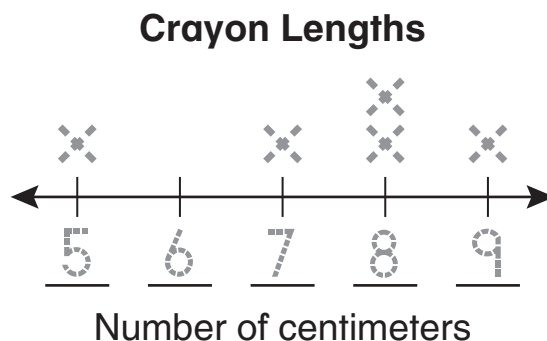
Caterpillar Lengths (centimeters)	
Caterpillar 1	
Caterpillar 2	
Caterpillar 3	
Caterpillar 4	
Caterpillar 5	
Caterpillar 6	
Caterpillar 7	
Caterpillar 8	

Caterpillar Lengths

← | | | | | | →
  5   6   7   8   9   10

Number of centimeters
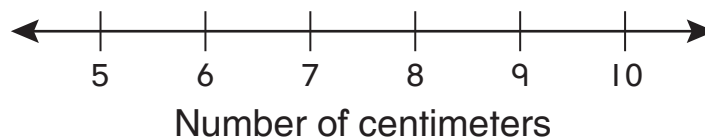
Crayon Lengths (centimeters)	
Crayon 1	8
Crayon 2	7
Crayon 3	5
Crayon 4	8
Crayon 5	9

Crayon Lengths
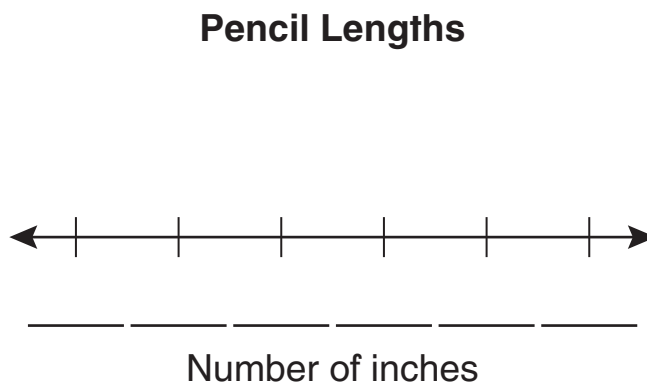

Number of centimeters

What is the length of the longest crayon? __9__ centimeters

How much longer is the longest crayon than the shortest crayon? __4__ centimeters

Show and Grow   *I can do it!*

1. Measure the lengths of 4 pencils. Complete the line plot.

Pencil Lengths (inches)	
Pencil 1	
Pencil 2	
Pencil 3	
Pencil 4	

Pencil Lengths

Number of inches

What is the length of the longest pencil? _____ inches

How much longer is the longest pencil than the shortest pencil? _____ inches

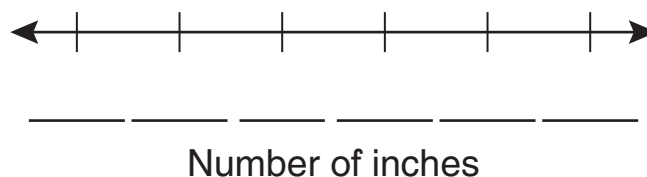## ✓ Apply and Grow: Practice

2. Measure the lengths of 8 shoes. Complete the line plot.

Shoe Lengths (inches)	
Shoe 1	
Shoe 2	
Shoe 3	
Shoe 4	
Shoe 5	
Shoe 6	
Shoe 7	
Shoe 8	

Shoe Lengths

Number of inches

What is the length of the longest shoe?   _____ inches

What is the length of the shortest shoe?   _____ inches

How much shorter is the shortest shoe than
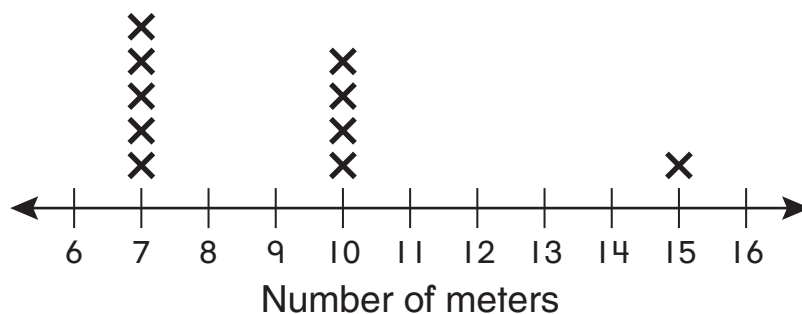the longest shoe?   _____ inches

MP Structure You measure 5 more shoes and they are each 6 inches long. How does the line plot change?

_____

_____

Think and Grow: Modeling Real Life

A fire station is building a new garage for emergency vehicles. Complete the sentence. Explain.
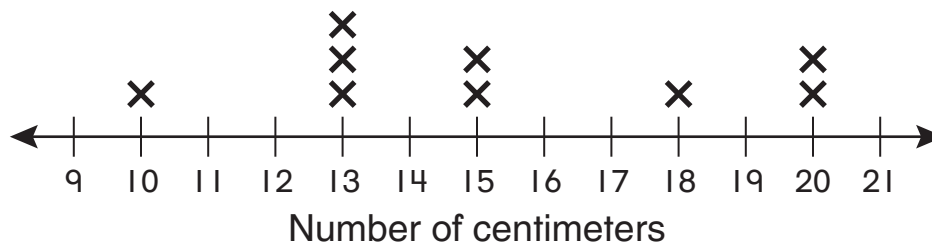
Emergency Vehicle Lengths

```
 ×
 ×
 ×              ×
 ×              ×
 ×              ×                        ×
←──┼──┼──┼──┼──┼──┼──┼──┼──┼──┼──┼──→
   6  7  8  9  10 11 12 13 14 15 16
```
Number of meters

The garage should be more than _____ meters long.

_____

Show and Grow   I can think deeper!

3. You want to put some school supplies in a pencil box. Complete the sentence. Explain.
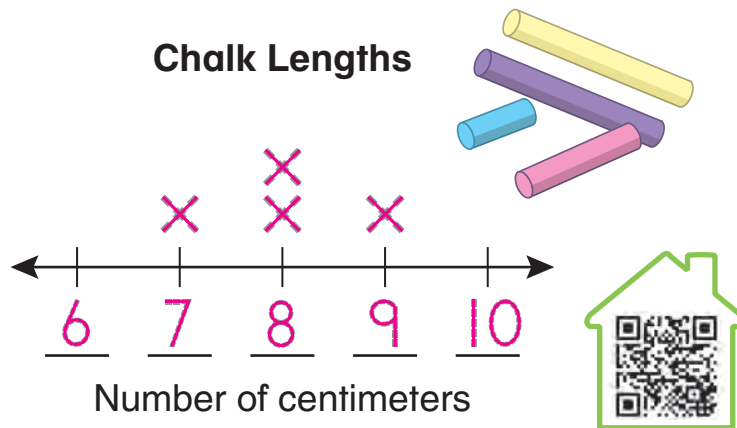
School Supply Lengths

```
                ×
                ×       ×                       ×
        ×       ×       ×            ×          ×
←──┼──┼──┼──┼──┼──┼──┼──┼──┼──┼──┼──┼──→
   9  10 11 12 13 14 15 16 17 18 19 20 21
```
Number of centimeters

The pencil box should be more than _____ centimeters long.

_____

Learning Target: Measure objects and make line plots.

Measure the lengths of 4 pieces of chalk. Complete the line plot.

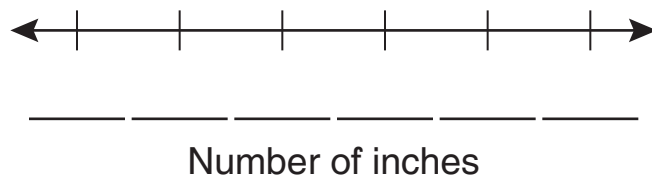| Chalk Lengths (centimeters)	
Chalk 1	9
Chalk 2	8
Chalk 3	7
Chalk 4	8

Chalk Lengths

```
              ×
    ×    ×    ×
    |    |    |    |    |
    6    7    8    9   10
```
Number of centimeters

1. Measure the lengths of 5 socks. Complete the line plot.

Sock Lengths (inches)	
Sock 1	
Sock 2	
Sock 3	
Sock 4	
Sock 5	

Sock Lengths

```
    |    |    |    |    |    |
 ___ ___ ___ ___ ___ ___
```
Number of inches

What is the length of the longest sock?   _____ inches
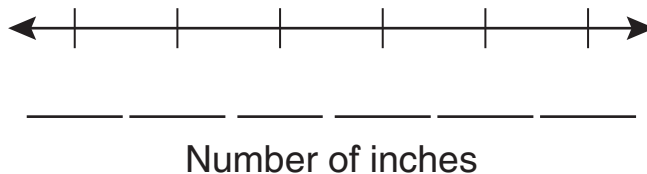
What is the length of the shortest sock?   _____ inches

How much longer is the longest sock than
the shortest sock?   _____ inches

2. Measure the lengths of 4 hands. Complete the line plot.

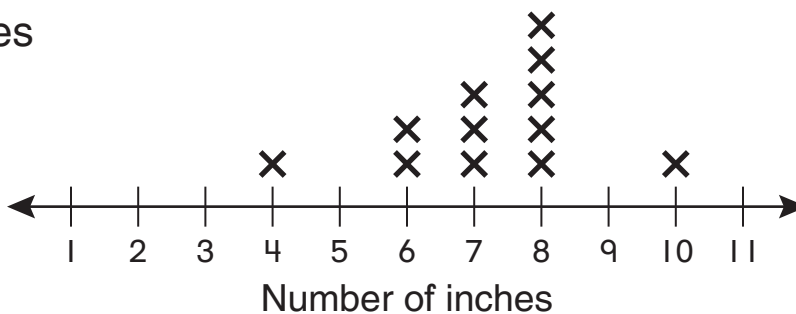| Hand Lengths (inches)	
Hand 1	
Hand 2	
Hand 3	
Hand 4	

Hand Lengths

Number of inches

How many hands are longer than 5 inches? How do you know?

_____

_____

---

3. 🔵 **Modeling Real Life** Newton wants to put his dog bones in a box. Complete the sentence. Explain.
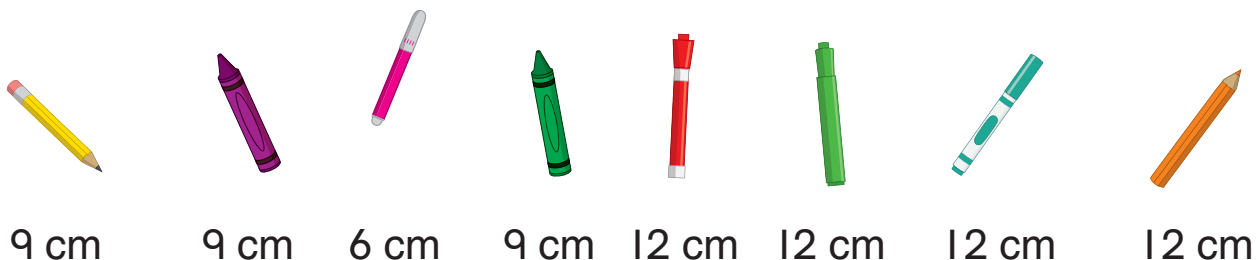
Dog Bone Lengths

Number of inches

The box should be more than _____ inches long.

_____

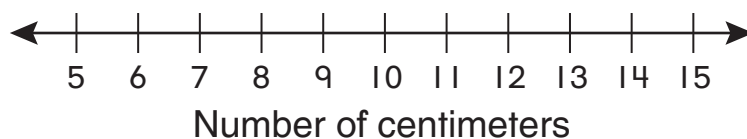**4.** 10 more than 347 is _____.

5. 100 less than 926 is _____.

You measure the lengths of 8 writing tools. The tools and their lengths are shown.

9 cm   9 cm   6 cm   9 cm   12 cm   12 cm   12 cm   12 cm

1. Organize the writing tool lengths on the line plot.

```
 ←──┼──┼──┼──┼──┼──┼──┼──┼──┼──┼──┼──→
    5  6  7  8  9  10  11  12  13  14  15
         Number of centimeters
```

2. Use the line plot to complete the equation. Why is the sum 8?

_____ + _____ + _____ = 8

3. Measure your pencil. Add the length of your pencil to the line plot in Exercise 1.
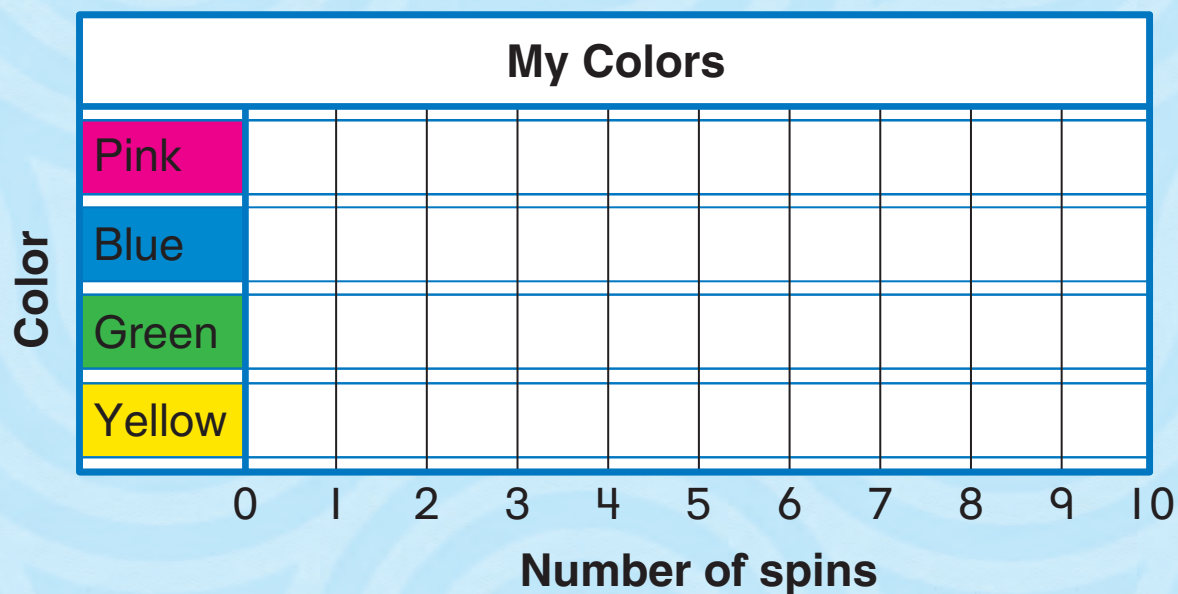
4. Compare the lengths of your pencil and one of the writing tools above.

_____

Spin and Graph

To Play: Spin 10 times. Complete the tally chart. Then complete the bar graph. Answer the Spin and Graph Questions about your graph.
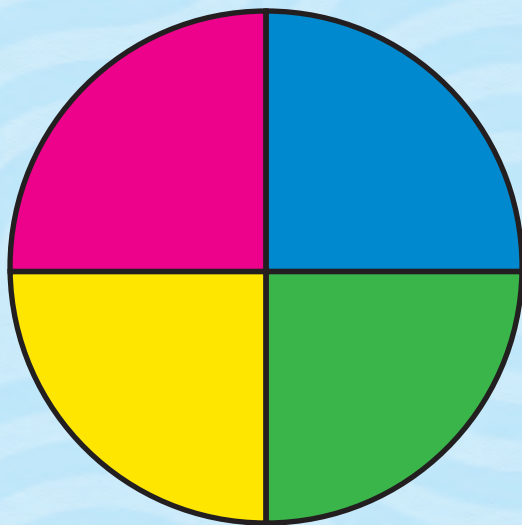
My Colors

Pink	
Blue	
Green	
Yellow	

My Colors

Color		0	1	2	3	4	5	6	7	8	9	10
Pink												
Blue												
Green												
Yellow												

Number of spins

13.1 Sort and Organize Data

1. Use the data to complete the tally chart.

face painting	face painting
games	magic show
dancing	games
magic show	face painting
magic show	magic show
face painting	magic show

Favorite Festival Event	
Magic show	
Games	
Face painting	
Dancing	

How many students chose magic show? _____

Which event is the least favorite? _____

---

2. **Modeling Real Life** You want to survey 30 students. How many more students do you need to ask?

_____ students

Hair Color	
Blonde	卌 IIII
Brown	卌 卌
Black	卌
Red	II

How many more students need to have red hair so that the numbers of students with red hair and blonde hair are equal?

_____ students

3.

Favorite Type of Book									
Comics	🙂	🙂	🙂	🙂	🙂	🙂	🙂		
Fiction	🙂	🙂	🙂	🙂					
Nonfiction	🙂	🙂	🙂	🙂	🙂				
Magazine	🙂	🙂	🙂	🙂	🙂	🙂	🙂	🙂	

Each 🙂 = 1 student.

Which type of book do exactly 7 students like best? _____

How many more students chose magazine than fiction? _____

13.3 **Make Picture Graphs**

4. Complete the picture graph.

Favorite Cat	
Tiger	|||
Lion	||||
Cheetah	||||| ||
Panther	|||||

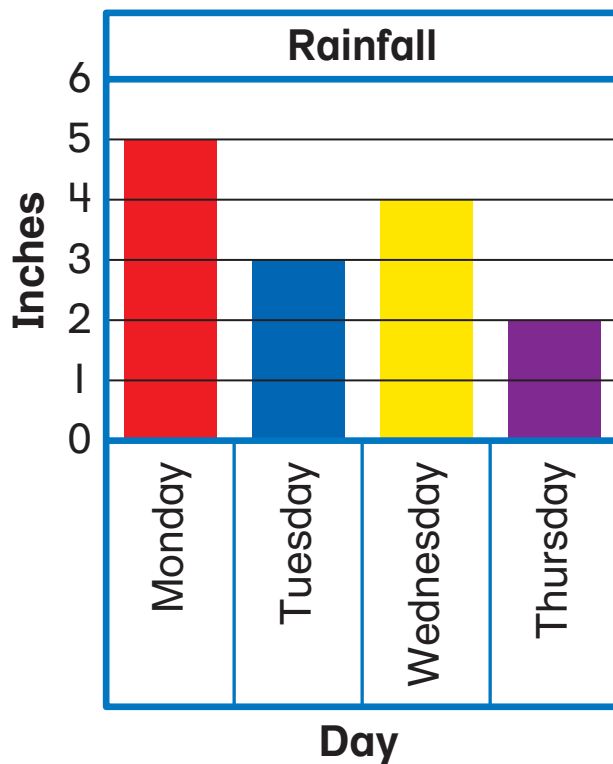| Favorite Cat								
Tiger								
Lion								
Cheetah								
Panther								

Each 🙂 = 1 student.

How many fewer students chose tiger than cheetah? _____

How many students chose the least favorite cat? _____

How many students chose panther or lion? _____

Read and Interpret Bar Graphs

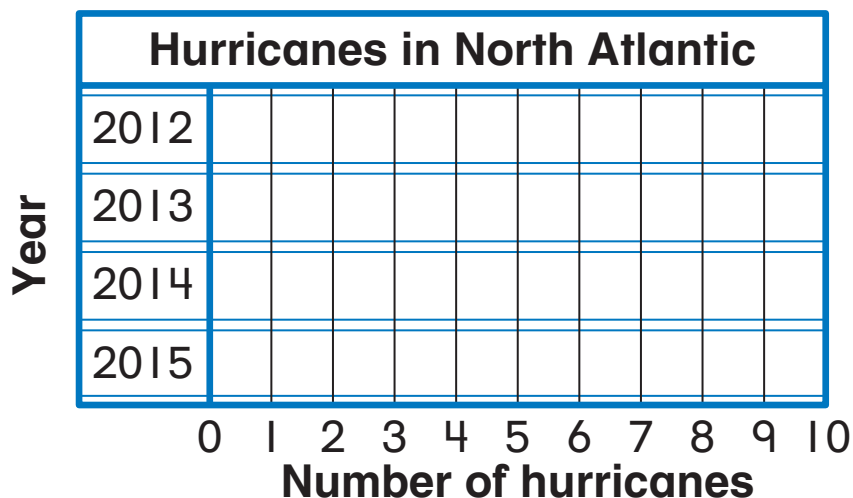**5.**

Rainfall

How much rain fell on Tuesday?

_____

Which day did it rain the least?

_____

How much more rain fell on Monday than Wednesday?

_____

13.5 **Make Bar Graphs**

6. Complete the bar graph.

Hurricanes in North Atlantic	
2012	卌 卌
2013	‖
2014	卌 丨
2015	‖‖

Hurricanes in North Atlantic

How many hurricanes were there in 2012 and 2013? _____

7. Complete the line plot.

Feather Lengths (centimeters)	
Feather 1	14
Feather 2	13
Feather 3	15
Feather 4	12

Feather Lengths

Number of centimeters
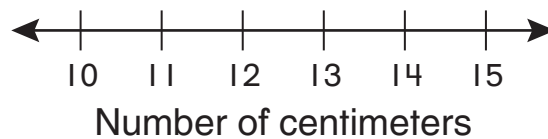
How many feathers are longer than 13 centimeters?
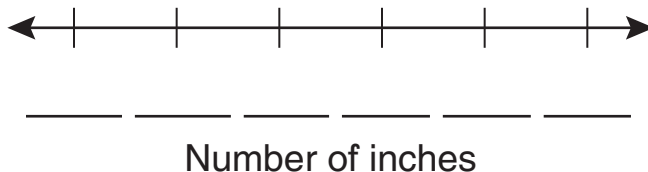How do you know?

_____

_____

13.7 **Measure Objects and Make Line Plots**

8. Use an inch ruler to measure the lengths of 5 toys to the nearest inch. Then complete the line plot.

Toy Lengths (inches)	
Toy 1	
Toy 2	
Toy 3	
Toy 4	
Toy 5	

Toy Lengths

Number of inches

What is the length of the longest toy? _____ inches