

Questions and Data

Which questions can data answer? How would you collect the data?

Which question needs data to answer it? Circle a or b.

Example

a

How many days are in a week?

b

How many pets does each student in our class have?

1.

a

In which months were the students in our class born?

b

In which month is Mia's birthday?

2.

a

How tall is the flagpole in front of our school?

b

How tall are the 4th graders at our school?

3.

a

How far can each student in our class jump?

b

How far is it from our school to the library?

How would you collect the data? Put a check in one box.

Question	Survey ask people	Observe watch and count	Measure use a tool	Experiment try and record
Example Which club do 4th graders want most?	✓			
4. How long are the leaves on our oak tree?				
5. Do big wings help a paper plane fly farther?				
6. Which birds visit our feeder before school?				
7. What is the favorite season of our teachers?				
8. Does ice melt faster in the sun or the shade?				

Write your own question that data can answer.

My question: _____

How I would collect the data: _____

Frequency Tables

Tally the data into frequency tables. Then answer the questions.

Count the letters in each name. Tally them and label the table.

	Tally	Frequency
3	Example	4
4		
5		
6		
7		
8		
Total	Is it 24?	

Our class list: 24 first names

Mateo	Liam	Isabella
Ava	Chloe	Amelia
Noah	Gabriel	Aisha
Leo	Jayden	Emma
Diego	Benjamin	Zara
Sophia	Ethan	Kai
Natalie	Grace	Omar
Elijah	Priya	Mia

Example

How many names have 5 letters?
7 names

1. Which number of letters is the most common?

2. How many names have more than 5 letters?

3. How many letters are in all the 3-letter names together?

Make a frequency table with a title, labels and numbers.

Goals our team scored in 16 games: 2, 0, 1, 3, 1, 2, 2, 4, 1, 0, 2, 3, 1, 2, 0, 2

Title: _____

	Tally	Frequency

4. In how many games did the team score 2 goals or more?

5. How many goals did the team score in all 16 games?

Frequency Tables

Data can be fractions and decimals too. Tally, read and answer.

Tally the lengths. Write each frequency. Then answer.

Length (inches)	Tally	Frequency
$1\frac{3}{4}$	Example	2
2		
$2\frac{1}{4}$		
$2\frac{1}{2}$		
$2\frac{3}{4}$		
3		

Lengths of 16 earthworms (inches)

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

Example How many earthworms are 2 inches long?
3 earthworms

1. Which length is the most common?

2. How many earthworms are longer than $2\frac{1}{4}$ inches?

3. How much longer is the longest earthworm than the shortest?

Read the frequency table. Answer the questions.

Times to Run 40 Meters

Time (seconds)	Number of runners
7.6	1
7.8	3
7.9	2
8.0	5
8.2	3
8.5	1

Example How many runners were timed?

15 runners

4. How many runners took less than 8 seconds?

5. How much slower is the slowest time than the fastest?

Stem-and-Leaf Plots

Make stem-and-leaf plots with the leaves in order.

The stem is the tens digit. The leaf is the ones digit. Key: 4 | 7 means 47.

Make a stem-and-leaf plot. Write a title and a key.

Example Jumping jacks in 1 minute

34	41	28	45	39	52
36	47	41	30	55	43

Title: Jumping Jacks

Stem	Leaves
2	8
3	0 4 6 9
4	1 1 3 5 7
5	2 5

Key: 3 | 4 means 34 jumping jacks

1. Minutes read by 16 students

25	40	35	18	45	30	52	38
27	45	33	41	45	22	36	50

Title: _____

Stem	Leaves

Key: _____

Write the leaves in order, from least to greatest.

2. The leaves as they were written down:

Weights of Dogs (pounds)

Stem	Leaves
6	4 1 8 2
7	5 0 9 3 7
8	6 2
9	1

Key: 6 | 4 means 64 pounds

Now write the leaves in order:

Weights of Dogs (pounds)

Stem	Leaves
6	
7	
8	
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Mode, Median and Range

Find the mode, the median and the range of the data.

Mode

The value that shows up most often.

Median

The middle value when the data are in order.

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The greatest value – the least value.

Read the stem-and-leaf plot. Answer the questions.

Hawks Points per Game

Stem	Leaves
2	8
3	1 5 5 5
4	2 4 6 7
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Key: 4 | 2 means 42 points

Example

How many games are shown? 15

- What is the least number of points? _____
- What is the greatest number of points? _____
- What is the range? _____
- What is the mode? _____
- What is the median? _____
- How many games had 50 or more points? _____
- How many more games in the 30s than 60s? _____

Find the mode, the median and the range from each table.

Example

Books read over winter break

Books	Students
2	5
3	3
4	2
5	4
6	3
7	2

Mode:

2 books

Median:

4 books

Range:

5 books

19 students: the median is the 10th.

8. Snow on 17 snowy days

Snow (inches)	Days
$\frac{1}{4}$	6
$\frac{1}{2}$	3
$\frac{3}{4}$	4
1	3
$1\frac{1}{2}$	1

Mode:

Median:

Range:

Questions and Data

Which questions can data answer? How would you collect the data?

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Example

a

How many days are in a week?

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How many pets does each student in our class have?

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In which month is Mia's birthday?

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How tall are the 4th graders at our school?

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How far can each student in our class jump?

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Title: _____

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$2\frac{1}{4}$		
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Lengths of 16 earthworms (inches)

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Times to Run 40 Meters

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8.5	1

Example How many runners were timed?
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Title: Jumping Jacks

Stem	Leaves
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5	2 5

Key: 3 | 4 means 34 jumping jacks

1. Minutes read by 16 students

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Title: _____

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Weights of Dogs (pounds)

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Hawks Points per Game

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Key: 4 | 2 means 42 points

Example How many games are shown? 15

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- What is the greatest number of points? _____
- What is the range? _____
- What is the mode? _____
- What is the median? _____
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Example Books read over winter break

Books	Students
2	5
3	3
4	2
5	4
6	3
7	2

Mode:

2 books

Median:

4 books

Range:

5 books

19 students: the median is the 10th.

8. Snow on 17 snowy days

Snow (inches)	Days
$\frac{1}{4}$	6
$\frac{1}{2}$	3
$\frac{3}{4}$	4
1	3
$1\frac{1}{2}$	1

Mode:

Median:

Range:

Questions and Data

Which questions can data answer? How would you collect the data?

Which question needs data to answer it? Circle a or b.

Example

- a** How many days are in a week?
(b) How many pets does each student in our class have?

1. **(a)** In which months were the students in our class born?
b In which month is Mia's birthday?

2. **a** How tall is the flagpole in front of our school?
(b) How tall are the 4th graders at our school?

3. **(a)** How far can each student in our class jump?
b How far is it from our school to the library?

How would you collect the data? Put a check in one box.

Question	Survey ask people	Observe watch and count	Measure use a tool	Experiment try and record
Example Which club do 4th graders want most?	✓			
4. How long are the leaves on our oak tree?			✓	
5. Do big wings help a paper plane fly farther?				✓
6. Which birds visit our feeder before school?		✓		
7. What is the favorite season of our teachers?	✓			
8. Does ice melt faster in the sun or the shade?				✓

Write your own question that data can answer.

My question: Sample: How many hours do 4th graders sleep on a school night?

How I would collect the data: Sample: a survey of the students in my class.

Frequency Tables

Tally the data into frequency tables. Then answer the questions.

Count the letters in each name. Tally them and label the table.

Letters in name	Tally	Frequency
3	Example	4
4		5
5		7
6		4
7		2
8		2
Total	Is it 24?	24

Our class list: 24 first names

Mateo	Liam	Isabella
Ava	Chloe	Amelia
Noah	Gabriel	Aisha
Leo	Jayden	Emma
Diego	Benjamin	Zara
Sophia	Ethan	Kai
Natalie	Grace	Omar
Elijah	Priya	Mia

Example How many names have 5 letters?
7 names

1. Which number of letters is the most common?
5 letters

2. How many names have more than 5 letters?
8 names

3. How many letters are in all the 3-letter names together?
12 letters

Make a frequency table with a title, labels and numbers.

Goals our team scored in 16 games: 2, 0, 1, 3, 1, 2, 2, 4, 1, 0, 2, 3, 1, 2, 0, 2

Title: **Goals Scored in Each Game**

Goals	Tally	Frequency
0		3
1		4
2		6
3		2
4		1

4. In how many games did the team score 2 goals or more?
9 games

5. How many goals did the team score in all 16 games?
26 goals

Frequency Tables

Data can be fractions and decimals too. Tally, read and answer.

Tally the lengths. Write each frequency. Then answer.

Length (inches)	Tally	Frequency
$1\frac{3}{4}$	Example	2
2		3
$2\frac{1}{4}$		5
$2\frac{1}{2}$		3
$2\frac{3}{4}$		1
3		2

Lengths of 16 earthworms (inches)

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

Example How many earthworms are 2 inches long?
3 earthworms

1. Which length is the most common?

$2\frac{1}{4}$ inches

2. How many earthworms are longer than $2\frac{1}{4}$ inches?
6 earthworms

3. How much longer is the longest earthworm than the shortest?

$1\frac{1}{4}$ inches

Read the frequency table. Answer the questions.

Times to Run 40 Meters

Time (seconds)	Number of runners
7.6	1
7.8	3
7.9	2
8.0	5
8.2	3
8.5	1

Example How many runners were timed?

15 runners

4. How many runners took less than 8 seconds?

6 runners

5. How much slower is the slowest time than the fastest?

0.9 seconds

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34	41	28	45	39	52
36	47	41	30	55	43

Title: Jumping Jacks

Stem	Leaves
2	8
3	0 4 6 9
4	1 1 3 5 7
5	2 5

Key: 3 | 4 means 34 jumping jacks

1. Minutes read by 16 students

25	40	35	18	45	30	52	38
27	45	33	41	45	22	36	50

Title: Minutes of Reading

Stem	Leaves
1	8
2	2 5 7
3	0 3 5 6 8
4	0 1 5 5 5
5	0 2

Key: 2 | 5 means 25 minutes

Write the leaves in order, from least to greatest.

2. The leaves as they were written down:

Weights of Dogs (pounds)

Stem	Leaves
6	4 1 8 2
7	5 0 9 3 7
8	6 2
9	1

Key: 6 | 4 means 64 pounds

Now write the leaves in order:

Weights of Dogs (pounds)

Stem	Leaves
6	1 2 4 8
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Hawks Points per Game

Stem	Leaves
2	8
3	1 5 5 5
4	2 4 6 7
5	0 2 3 8
6	1 6

Key: 4 | 2 means 42 points

Example How many games are shown? 15

1. What is the least number of points? 28

2. What is the greatest number of points? 66

3. What is the range? 38

4. What is the mode? 35

5. What is the median? 46

6. How many games had 50 or more points? 6

7. How many more games in the 30s than 60s? 2

Find the mode, the median and the range from each table.

Example Books read over winter break

Books	Students
2	5
3	3
4	2
5	4
6	3
7	2

Mode:

2 books

Median:

4 books

Range:

5 books

19 students: the median is the 10th.

8. Snow on 17 snowy days

Snow (inches)	Days
$\frac{1}{4}$	6
$\frac{1}{2}$	3
$\frac{3}{4}$	4
1	3
$1\frac{1}{2}$	1

Mode:

$\frac{1}{4}$ inches

Median:

$\frac{1}{2}$ inches

Range:

$1\frac{1}{4}$ inches