

## *Learn to organize data in frequency tables and histograms.*

Students in Mr. Ray's class recorded their fingerprint patterns. Which type of pattern do most students in Mr. Ray's class have?

whorl	loop	whorl	loop
arch	arch	loop	whorl
loop	arch	whorl	arch
arch	whorl	arch	loop

**Make a *tally table* to organize the data.**

## Example 1

**Students in Mr. Ray's class recorded their fingerprint patterns. Which type of pattern do more students in Mr. Ray's class have?**

whorl	loop	whorl	loop
arch	arch	loop	whorl
loop	arch	whorl	arch
arch	whorl	arch	loop

**Step 1:** Make a column for each fingerprint pattern.

**Step 2:** For each fingerprint, make a tally mark in the appropriate column.

### Number of Fingerprint Patterns

Whorl	Arch	Loop
	I	

## Reading Math

A group of four tally marks with a line through it means *five*.

$$\text{||||} = 5$$

$$\text{||||} \text{ ||||} = 10$$

### Number of Fingerprint Patterns

Whorl	Arch	Loop
		

The tally table shows that most students in Mr. Ray's class have an arch fingerprint.

# Vocabulary

A **frequency table** tells the number of times an event, category, or group occurs.

The **cumulative frequency** column shows a running total of all frequencies.

## Example 1: Making a Cumulative Frequency Table

**Use the tally table in Example 1 to make a cumulative frequency table.**

**Step 1:** Make a row for each pattern.

**Step 2:** The frequency is how many times each pattern occurred.

**Step 3:** Find the cumulative frequency for each row by adding all frequency values above or in that row.

Number of Fingerprint Patterns		
Fingerprint Pattern	Frequency	Cumulative Frequency
Whorl	5	5
Arch	6	11
Loop	5	16

## Making a Frequency Table with Intervals

Use the data in the table to make a frequency table with intervals.

Number of Pages Read per Student Last Weekend				
12	15	40	19	7
5	22	34	37	18

**Step 1:** Choose equal intervals.

**Step 2:** Find the number of data values in each interval. Write these numbers in the "Frequency" row.

## Example 3 Continued

Number of Pages Read per Student Last Weekend				
12	15	40	19	7
5	22	34	37	18

Number of Pages Read per Student Last Weekend				
Number	1-10	11-20	21-30	31-40
Frequency	2	4	1	3

This table shows that 2 students read between 1 and 10 pages, 4 students read between 11 and 20 pages, and so on.

## Try This: Example 4

**Use the data in the table to make a frequency table with intervals.**

Number of Pages Read per Student Last Weekend				
17	29	9	19	7
5	27	34	21	38

**Step 1:** Choose equal intervals.

**Step 2:** Find the number of data values in each interval. Write these numbers in the "Frequency" row.



## Example 4 Continued

Number of Pages Read per Student Last Weekend				
17	29	9	19	7
5	27	34	21	38

Number of Pages Read per Student Last Weekend				
Number	1–10	11–20	21–30	31–40
Frequency	3	2	3	2

This table shows that 3 students read between 1 and 10 pages, 2 students read between 11 and 20 pages, and so on.

# Vocabulary

A **histogram** is a bar graph that shows the number of data items that occur within each interval.

## Making a Histogram

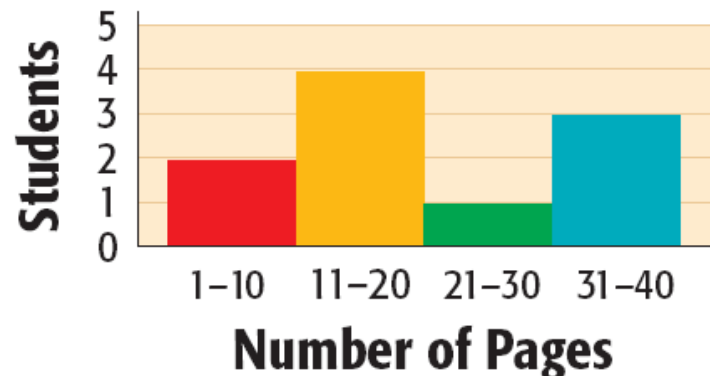
Use the frequency table in Example 3 to make a histogram.

**Step 1:** Choose an appropriate scale and interval.

**Step 2:** Draw a bar for the number of students in each interval. The bars should touch but not overlap.

**Step 3:** Title the graph and label the axes.

**Number of Pages Read per Student Last Weekend**



## Try This:

**Use the frequency table in Try This: Example 4 to make a histogram.**

**Step 1:** Choose an appropriate scale and interval.

**Step 2:** Draw a bar for the number of students in each interval. The bars should touch but not overlap.

**Step 3:** Title the graph and label the axes.

