GRAPHS/TABLES
(line plots, bar graphs pictographs, line graphs)
Standard: 3.D.1.2

Represent data using tables and graphs (e.g., line plots, bar graphs, pictographs, and line graphs).

Concept Skill: Graphs

A **bar graph** is a graph that uses bars to show data.

![Bar graph example](image)

A bar graph can have vertical and horizontal bars. The numbers on a bar graph can increase by one and some may increase by more than one. It is important to look closely at the numbers to find what each line represents.

A **pictograph** is a graph that uses pictures to show data.

![Pictograph example](image)

One of the most important things to look for in a pictograph is a key. A key will tell you what each picture in the graph represents. The key in the pictograph above is looking at favorite colors. The key indicates that each crayon stands for 2 students.
A **line plot** is a diagram that organizes data using a number line.

**Line Plot - displays data along a number line.**

A **line** graph shows points plotted on a graph. The points are then connected to form a line.
Example 1:

The following pictograph shows different sports played by 3rd grade students.

<table>
<thead>
<tr>
<th>Sports Played by 3rd Graders</th>
</tr>
</thead>
<tbody>
<tr>
<td>baseball</td>
</tr>
<tr>
<td>football</td>
</tr>
<tr>
<td>soccer</td>
</tr>
<tr>
<td>hockey</td>
</tr>
<tr>
<td>basketball</td>
</tr>
<tr>
<td>Key</td>
</tr>
</tbody>
</table>

How many students played soccer?

Step 1: The first thing you should do is to pay attention to the key. (The key is telling us that each ball stands for 10 students).

Step 2: Look at the row for soccer? (The row for soccer shows 6 soccer balls).

Step 3: Use the key to find how many 3rd grade students played soccer. (The key tells us that each ball is equal to 10 students. There are a total of 6 soccer balls on the pictograph).

6 \times 10 = 60
Example 2:

This is a bar graph that shows how long animals can hold their breath.

Which animal can hold its breath the least amount of time?

Step 1: What is the question asking?
(The question is asking me to figure out which animal can hold its breath for the least amount of time).

Step 2: The next step is to look at the different bars.
(You are looking for the least amount of time, so you know that the smallest bar will be the least amount of time).

Step 3: Write your answer.
(The seals hold their breath the least amount of time).
“Student Practice Materials”
1. Which color was liked the least by the students?
   A. Red
   B. Green
   C. Pink

2. How many students liked the color blue?
   A. 15
   B. 10
   C. 20

3. Explain how many more students liked the color blue than black?

   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
   ___________________________________________________
The tally chart below shows the data collected among children about their choices of drinks. See the chart to answer the question.

What is the most popular drink?

<table>
<thead>
<tr>
<th>Drinks</th>
<th>Votes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple Juice</td>
<td></td>
</tr>
<tr>
<td>Pepsi</td>
<td></td>
</tr>
<tr>
<td>Coke</td>
<td></td>
</tr>
<tr>
<td>Milk</td>
<td></td>
</tr>
</tbody>
</table>

A. Apple Juice  B. Pepsi  C. Coke  D. Milk

Create a graph below to show the data on the tally chart. Do not forget to label and give your graph a title.
### Mom’s Favorite Flowers

<table>
<thead>
<tr>
<th></th>
<th>![Flowers]</th>
</tr>
</thead>
<tbody>
<tr>
<td>violet</td>
<td>![Flowers]</td>
</tr>
<tr>
<td>tulip</td>
<td>![Flowers]</td>
</tr>
<tr>
<td>rose</td>
<td>![Flowers]</td>
</tr>
<tr>
<td>daisy</td>
<td>![Flowers]</td>
</tr>
<tr>
<td>lily</td>
<td>![Flowers]</td>
</tr>
</tbody>
</table>

**Key**: ![Flowers] = 2 mothers

Make a table using the information given on the pictograph.

Show how many fewer mothers liked lilies than roses.__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________

""
1. How many stamps did Mary have in her collection in 2004?
___________________________________________

2. How many stamps did Mary have in her collection in 2008?
___________________________________________

3. In what year did Mary have 10 stamps in her collection?
___________________________________________

4. How many more stamps did Mary have in 2007 than in 2005?
___________________________________________

5. As time goes on, what is happening to the number of stamps in Mary's collection?
___________________________________________

6. How many stamps do you think she will have when Mary counts her collection in 2009?
___________________________________________
1. What is the greatest number of book read?
   A. 5  
   B. 2  
   C. 9  

2. How many students read six books?
   A. 4  
   B. 5  
   C. 6  

3. How many students read at least seven books?
   A. 3  
   B. 7  
   C. 2  

4. How many students read five books?
   A. 4  
   B. 0  
   C. 2
4. Which color was liked the least by the students?
   A. Red
   B. Green
   *C. Pink

5. How many students liked the color blue?
   *A. 15
   B. 10
   C. 20

   D. Explain how many more students liked the color blue than black?

   15 students liked the color blue and 5 students liked the color black. 15 - 5 = 10. So 10 students like the color blue more than black.
The tally chart below shows the data collected among children about their choices of drinks. See the chart to answer the question.

What is the most popular drink?

<table>
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<td></td>
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</table>

A. Apple Juice  B. Pepsi  
* C. Coke  D. Milk

Create a graph below to show the data on the tally chart. Do not forget to label and give your graph a title.
“KEY”

<table>
<thead>
<tr>
<th>Mom’s Favorite Flowers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>violet</strong></td>
</tr>
<tr>
<td><strong>tulip</strong></td>
</tr>
<tr>
<td><strong>rose</strong></td>
</tr>
<tr>
<td><strong>daisy</strong></td>
</tr>
<tr>
<td><strong>lily</strong></td>
</tr>
</tbody>
</table>

Key: 🌸 = 2 mothers

Make a table using the information given on the pictograph.

<table>
<thead>
<tr>
<th>Flower</th>
<th>Tally</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>violet</td>
<td>🌸🌸🌸🌸</td>
<td>8</td>
</tr>
<tr>
<td>tulip</td>
<td>🌸🌸</td>
<td>6</td>
</tr>
<tr>
<td>rose</td>
<td>🌸🌸🌸🌸</td>
<td>14</td>
</tr>
<tr>
<td>daisy</td>
<td>🌸🌸🌸</td>
<td>4</td>
</tr>
<tr>
<td>lily</td>
<td>🌸</td>
<td>4</td>
</tr>
</tbody>
</table>

Show how many fewer mothers liked tulips than roses.

14 mothers liked roses and 6 mothers liked tulips. 14 - 6 = 8. 8 fewer mothers liked roses than tulips.
1. How many stamps did Mary have in her collection in 2004? _______5 stamps_________ ________________

2. How many stamps did Mary have in her collection in 2008? __40 stamps_____________________________________

3. In what year did Mary have 10 stamps in her collection? __2005_____________________________________

4. How many more stamps did Mary have in 2007 than in 2005? _15 more stamps________________________________

5. As time goes on, what is happening to the number of stamps in Mary's collection? it is increasing or____ getting bigger________________________________________

6. What do you think will happen when Mary counts her collection in 2009? _Accept any answer higher than 40__________________________________________
5. What is the greatest number of book read?
   A. 5
   B. 2
   *C. 9

6. How many students read six books?
   *A. 4
   B. 5
   C. 6

7. How many students read at least seven books?
   A. 3
   *B. 7
   C. 9

8. How many students read five books?
   A. 4
   *B. 0
   C. 6