### Lemonade Stand

Tara and Peter decided to earn some money by selling lemonade. They tried different recipes for fresh lemonade. Then they decided on their favorite.

**Homemade Lemonade**

*Ingredients*
Juice from 8 lemons
2 quarts of cold water
2 cups sugar

*Instructions*
1. Combine all ingredients in a large (2-quart) pitcher.
2. Stir well to dissolve the sugar completely.
3. Pour over ice cubes.

**Makes one 2-quart pitcher.**

1. Draw a picture about the number of lemons Tara and Peter will need to make four pitchers of lemonade.

2. Write a number sentence for your picture. Be ready to explain what each of the numbers in your sentence means.
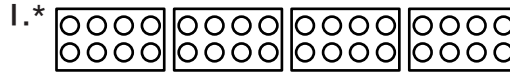
Use the Lemonade Stand Data Table and the Lemonade Stand Graph to find out how many lemons Tara and Peter will need for their lemonade stand. They are both in the *Making Lemonade* pages in the *Student Activity Book*.

*Student Guide* - Page 282

---

## Student Guide

### Lemonade Stand (SG p. 282)
### Questions 1–2

1.* 

2.* Possible response:
$8 + 8 + 8 + 8 = 32$ or
4 pitchers $\times$ 8 lemons = 32 lemons

---

### Homework

Tara and Peter are trying to decide how much to charge for each cup of lemonade. They made a chart to help them decide.

**Use this chart to solve Questions 1–6.**

> For 1 pitcher of lemonade, we need 8 lemons and 2 cups of sugar.

Peter

| Ingredient | Cost |
|---|---|
| Lemons | 35¢ each |
| Sugar | 20¢ per cup of sugar |
| Paper Cup | 2¢ each |
| Water | free |

16 cups in 2 quarts

1. How much does it cost to buy the lemons you need for one pitcher of lemonade?

2. How much does it cost to buy enough cups for one pitcher of lemonade? (Hint: There are 16 cups in one 2-quart pitcher.)

3. A. How much does it cost to make one pitcher of lemonade?
   B. Show or tell how you found your answer.

4. A. How much does it cost to make each cup of lemonade, including the cost of a paper cup?
   B. Show or tell how you found your answer.

5. Tara and Peter decide to sell each cup of lemonade for 10¢ more than it costs to make. How much profit will they make on one pitcher of lemonade? Their profit is the money left over after they have paid for the lemons, cups, and sugar.

6. A. How many cups of lemonade will Tara and Peter need to sell to make a $2.00 profit?
   B. Show or tell how you found your answer.

*Student Guide* - Page 283

---

### Homework (SG p. 283)
### Questions 1–6

1. $2.80

2. 32¢

3. A. $3.20
   B. I added.
   $2.80 + 20¢ + 20¢ = $3.20 per pitcher

4. A. 22¢ per cup
   B. Each pitcher costs $3.20. I know there are 16 cups in each pitcher. I know there are two 16s in 32, so there are twenty 16s in 320. Each cup is 20 cents plus 2 cents more for the paper cup.

5. They will make $1.60 profit on each pitcher.

6. A. They will need to sell 20 cups of lemonade to make a $2.00 profit.
   B. I skip counted by 10¢ until I got to $2.00 and found they would need to sell 20 cups.

**\*Answers and/or discussion are included in the lesson.**

## Student Activity Book
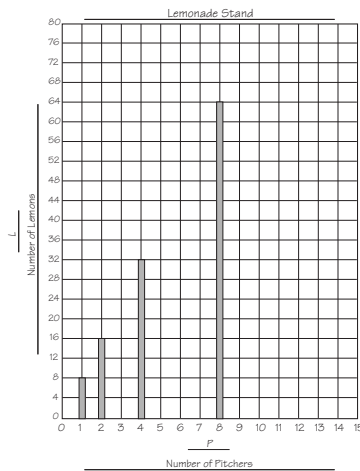
### Making Lemonade (SAB pp. 386–389)
### Questions 1–11

1.  A.*

    Lemonade Stand

    | P<br>Number of Pitchers | L<br>Number of Lemons |
    | --- | --- |
    | 1 | 8 |
    | 2 | 16 |
    | 4 | 32 |
    | 8 | 64 |

    B.* Possible patterns: The number of pitchers doubles each time. The number of lemons also doubles each time. To find the number of lemons you can multiply the number of pitchers times 8.

2.  A–C.*

    

    D.* Possible patterns: The bars on the graph go up like a stair step. There are some spaces that do not have any bars drawn in. As you move to the right on the graph, each bar is twice as tall as the one before it.

---

Name _____ Date _____

### Making Lemonade

Tara and Peter are not sure how many pitchers of lemonade to make. They chose to use a data table to help them decide how many lemons they will need to buy for different numbers of pitchers. Remember, they need juice from 8 lemons for each pitcher they make.

Lemonade Stand

| P<br>Number of Pitchers | L<br>Number of Lemons |
| --- | --- |
| 1 | |
| 2 | |
| 4 | |
| 8 | |
| | |
| | |

1.  A. Use the Homemade Lemonade recipe in the *Student Guide* to fill in the missing data.

    B. Look at your data table. What patterns do you see?

2.  Use the data to make a bar graph on the Lemonade Stand graph.

    A. Number the horizontal axis by ones to at least 12. Label this axis Number of Pitchers (*P*).

    B. Number the vertical axis by fours to 80. Label this axis Number of Lemons (*L*).

    C. Draw bars to show the data in your data table.

    D. Look at your graph. What patterns do you see?

**386** SAB · Grade 3 · Unit 10 · Lesson 1          **Lemonade Stand**

*Student Activity Book* - **Page 386**

---

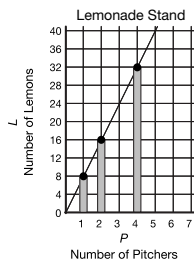**\*Answers and/or discussion are included in the lesson.**

Name _____ Date _____

**3. A.** How many lemons do Tara and Peter need to make six pitchers of lemonade?

**B.** Show or tell how you decided.

**Making a Point Graph**

A bar graph is a good way to make a picture of your data. Scientists and mathematicians also use point graphs to organize data and solve problems.

**4.** You can change your bar graph into a point graph. First make a dot at the top of each bar. Do the dots form a pattern? If so, describe it.

**5.** Use your ruler to draw a line through all the dots. Draw your line to the end of the graph in both directions.

This is part of Tara and Peter's graph. The beginning of your graph should look the same.

Lemonade Stand

$L$
Number of Lemons

$P$
Number of Pitchers

Lemonade Stand                SAB · Grade 3 · Unit 10 · Lesson 1  **387**

*Student Activity Book* - **Page 387**

**3. A.*** They will need 48 lemons.

**B.*** Possible strategy using the data table: I looked at my data table and saw that they would need 16 lemons for two pitchers and 32 lemons for four pitchers, so I added 16 and 32 to find how many lemons for 6 pitchers, 48.

Possible strategy using the graph: I noticed that the tops of the bars formed a straight line so I used my ruler to make a line and then I sketched in a bar to show 6 pitchers of lemonade. The bar stopped at 48 lemons.
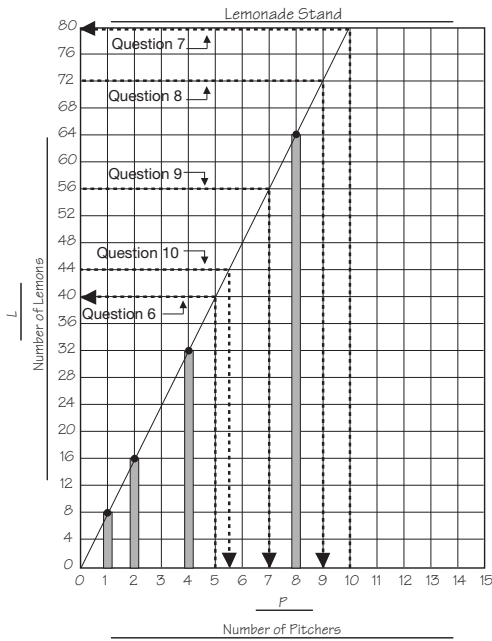
**4.*** Possible response: Yes, the dots look like they lie on a straight line. See Figure 3 in the lesson.

**5.*** See Figure 3 in the lesson.

**\*Answers and/or discussion are included in the lesson.**

For *Questions 6A, 7A, 8A, 9A* and *10A,* the graph in Figure 4 shows solutions using interpolation and extrapolation.



6. **A.*** They will need 40 lemons.

   **B.** Possible response:
   I added $8 + 8 + 8 + 8 + 8 = 40$ lemons.

7. **A.*** They will need 80 lemons.

   **B.** Possible response: I multiplied
   $10 \times 8 = 80$ lemons.



*Student Activity Book* - **Page 388**

---

**\*Answers and/or discussion are included in the lesson.**

Name _____ Date _____

**8.** **A.** How many pitchers of lemonade can they make with 72 lemons?

   **B.** Show or tell how you checked your answer using another strategy.

**9.** **A.** How many pitchers can they make with 56 lemons?

   **B.** Show or tell how you checked our answer using another strategy.

**10.** **A.** How many pitchers can they make with 44 lemons?

   **B.** Show or tell how you checked your answer using another strategy.

**11.** Tara and Peter went to the store to buy lemons. The lemons were on sale for 4 for $1.00.

   **A.** Write a number sentence to show how many lemons they can buy for $9.00.

   **B.** If they buy 2 dozen lemons how much will they spend? Show or tell how you know.

Sale 4 Lemons $1.00

Copyright © Kendall Hunt Publishing Company

**Lemonade Stand** SAB · Grade 3 · Unit 10 · Lesson 1 **389**

*Student Activity Book* - **Page 389**

**8.** **A.*** They can make 9 pitchers of lemonade.

   **B.** I used my answer from Question 7. I know that you can make 10 pitchers with 80 lemons. Since $80 - 8 = 72$ lemons, you can make 1 less pitcher of lemonade, or 9 pitchers.

**9.** **A.*** They can make 7 pitchers of lemonade.

   **B.** Possible response: I know I will use 40 lemons to make 5 pitchers of lemonade and 16 lemons to make 2 pitchers of lemonade, since $40 + 16 = 56$ lemons, you can make $5 + 2 = 7$ pitchers of lemonade.

**10.** **A.*** Possible response: They can make 5 pitchers of lemonade with four lemons leftover.

   **B.** Possible response: I drew a picture of 44 lemons and divided them into 5 groups of 8 lemons. I had four lemons left over.

**11.** **A.*** 4 lemons per dollars $\times$ $9.00 = 36$ lemons

   **B.** $6.00; Possible response: There are 24 lemons in 2 dozen. I know that you can buy 12 lemons for $3.00. So, I doubled that to buy 24 lemons.

 = $1.00     = $1.00

 = $1.00     = $1.00

 = $1.00     = $1.00

***Answers and/or discussion are included in the lesson.**

## Teacher Guide

### Making Limeade (TG pp. 1–3)
### Questions 1–8

**1.**

Making Limeade

| P<br>Number of Pitchers | L<br>Number of Limes |
|---|---|
| 1 | 6 |
| 2 | 12 |
| 4 | 24 |
| 8 | 48 |

**2–3.**
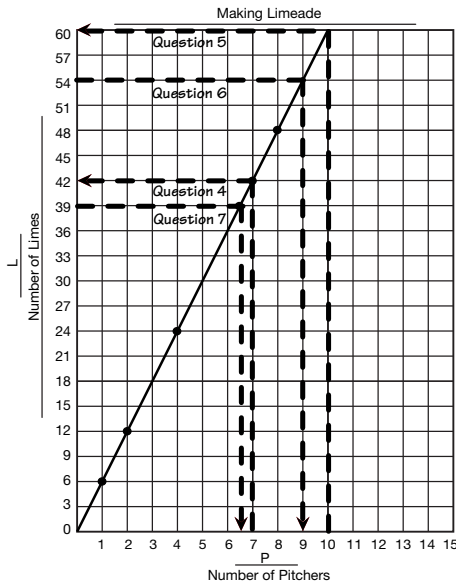
The graph above has solutions for Questions 4–7. One possible additional strategy is given below for Questions 4B, 5B, 6B, and 7B.

**4. A.** 42 limes

   **B.** I subtracted the number of limes needed for 1 pitcher from the total number of limes needed for 8 pitchers.

         48 – 6 = 42 limes

**5. A.** 60 limes

   **B.** $10 \times 6 = 60$ limes

**6. A.** 9 pitchers

   **B.** 8 pitchers for 48 limes plus 1 more pitcher with 6 limes equals 54 limes.

**7. A.** $6\frac{1}{2}$ pitchers

   **B.** 6 pitchers uses only 36 limes. $\frac{1}{2}$ of 1 pitcher would need 3 limes to make 39 limes altogether, or $6\frac{1}{2}$ pitchers.

**8.** Use friendly numbers: 19¢ is close to 20¢.
$6 \times 20$¢ $= 120$¢ or $1.20

---

Name _____ Date _____

### Making Limeade

Limeade is a drink made with limes that is like lemonade. Here is a recipe.

**Homemade Limeade**

*Ingredients*
Juice from 6 limes
2 quarts of cold water
$1\frac{1}{3}$ cups sugar

*Instructions*
1. Mix together all ingredients in a large (2-quart) pitcher.
2. Stir well.

**Makes one 2-quart pitcher.**

**1.** Complete the data table.

Making Limeade

| P<br>Number of Pitchers | L<br>Number of Limes |
|---|---|
| 1 | |
| 2 | |
| 4 | |
| 8 | |

**2.** Make a point graph of your data. Use the Centimeter Graph Paper following Question 8.

   **A.** Finish numbering the axes.
   **B.** Finish labeling the axes.
   **C.** Title your graph.
   **D.** Plot the data points.

**3.** Do the points form a line? If so, draw a line through the points with a ruler. Extend the line in both directions.

TG · Grade 3 · Unit 10 · Lesson 1      **Assessment Master**

*Teacher Guide - Page 1*

---

Name _____ Date _____

**Solve Questions 4–7 in two ways. For one way, use your graph. Show how you used the graph by drawing dotted lines. Solve the problem another way to check your answer.**

**4. A.** How many limes do you need for 7 pitchers of limeade?

   **B.** Show or tell how you checked your answer using another strategy.

**5. A.** How many limes do you need for 10 pitchers of limeade?

   **B.** Show or tell how you checked your answer using another strategy.

**6. A.** How many pitchers can you make with 54 limes?

   **B.** Show or tell how you checked your answer using another strategy.

**7. A.** How many pitchers can you make with 39 limes?

   **B.** Show or tell how you checked your answer using another strategy.

**8.** If limes cost 19¢ each, estimate the cost of limes for one pitcher. Show or tell how you found your answer.

**Assessment Master**      TG · Grade 3 · Unit 10 · Lesson 1  **2**

*Teacher Guide - Page 2*