Fractions

In this unit, children explore liquid volume and develop a deeper understanding of fractions.

Through a variety of hands-on activities, children will estimate, measure, and solve problems with liquid volume. They learn that 1 liter = 1,000 milliliters. They will solve number stories to review and extend previous work with measures of length and mass. To prepare for activities involving liquid volume, please have your child bring in a clean, empty container that can hold liquid, such as a jar, bowl, water bottle, plastic food container, milk jug, or plastic cup. These items can be returned after the conclusion of the unit.

Children will use a variety of models and tools to build on fraction work from previous units. They will continue to use fraction circle pieces to represent and compare equal parts of a whole. They also learn about fractions as distances on number lines and begin to understand fractions as numbers between whole numbers. They use these visual models to recognize and generate equivalent fractions and make comparisons.

In Unit 7, your child will:

* Measure and estimate liquid volumes using liters and milliliters.

* Solve number stories involving mass, volume, and length.

* Partition fraction strips and use them to name and compare fractions.

$\frac{1}{2}$	$\frac{1}{2}$

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

* Develop an understanding of fractions as distances on a number line.

* Represent whole numbers as fractions.

* Recognize and generate equivalent fractions using fraction circle pieces, fraction strips, and number lines.

* Identify and locate fractions greater than, less than, and equal to 1 on a number line.

* Use <, >, and = to compare fractions.

* Solve number stories involving fractions.

* Share collections equally and represent the resulting groups with fractions.
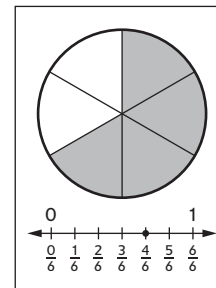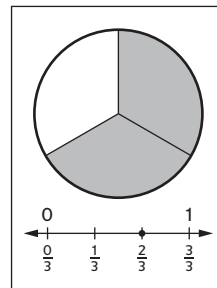
Please keep this Family Letter for reference as your child works through Unit 7.

Vocabulary

Important terms in Unit 7:

denominator The number below the line in standard fraction notation, such as the 2 in $\frac{1}{2}$; the number of equal parts into which the *whole* has been divided.

equivalent fractions Fractions that name the same value, such as $\frac{1}{2}$ and $\frac{4}{8}$.

fraction A number in the form $\frac{a}{b}$. The *numerator*, *a*, can be any whole number. The *denominator*, *b*, can be any whole number except 0. For example, $\frac{1}{4}$, $\frac{3}{8}$, and $\frac{5}{2}$ are fractions. A fraction may be used to name part of a *whole*, to compare two quantities, or to represent division.

liquid volume How much liquid a container holds.

numerator The number above the line in standard fraction notation, such as the 1 in $\frac{1}{2}$. In a part-whole *fraction* in which the *whole* is divided into a number of equal parts, the numerator is the number of equal parts being considered.

unit fraction A *fraction* whose *numerator* is 1. For example, $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, and $\frac{1}{8}$ are unit fractions.

volume A measure of how much 3-dimensional space something occupies. Volume is often measured in liquid units such as liters (L) or milliliters (mL).

whole An entire object, collection of objects, or quantity being considered in a problem situation. To accurately compare fractions of a whole, the whole must be the same size. For example, $\frac{1}{4}$ of a whole sandwich cannot be compared to $\frac{1}{4}$ of a whole pizza.

Do-Anytime Activities

Help your child find fractions in the everyday world, such as in advertisements, on measuring tools, in recipes, and so on.

1. Find containers that hold up to about 1 liter and $\frac{1}{2}$ liter of liquid. Provide 1-liter and $\frac{1}{2}$-liter bottles for your child to use as liquid-volume benchmarks. Your child can pour water into various containers to help estimate their volumes.

2. Compare two fractions and tell which is larger. For example:
   • Which would give you more of a pizza, $\frac{1}{8}$ or $\frac{1}{4}$?
   • Sam has $\frac{2}{3}$ of a granola bar left and Rose has $\frac{1}{3}$ of the same kind of granola bar left. Who has the larger amount left?
   • Ty drinks $\frac{1}{2}$ of a bottle of water. Dion drinks $\frac{1}{4}$ of a same-size bottle of water. Who has more water left in his bottle?

3. Pose different fraction stories to solve. Encourage your child to use real objects to act out the stories and justify his or her answers. For example:
   • $\frac{3}{4}$ of the napkins are white. What fraction of the napkins are not white?
   • $\frac{4}{8}$ of the fish have stripes. What fraction of the fish do not have stripes?

4. Read stories about fractions, such as *Give Me Half!* by Stuart Murphy (Great Source, 1996).

Building Skills through Games

In Unit 7 your child will play the following games. For detailed instructions, see the *Student Reference Book.*

Fraction Memory Players turn over two fraction cards to find equivalent fraction pairs. Pairs are collected, while other cards are turned back over for future turns.

Fraction Top-It Players turn over two fraction cards and compare the fractions. The player with the larger fraction keeps all the cards. The player with more cards at the end wins.

As You Help Your Child with Homework

As your child brings home assignments, you may want to go over the instructions together, clarifying them as necessary. The answers listed below will guide you through this unit's Home Links.

Home Link 7-1

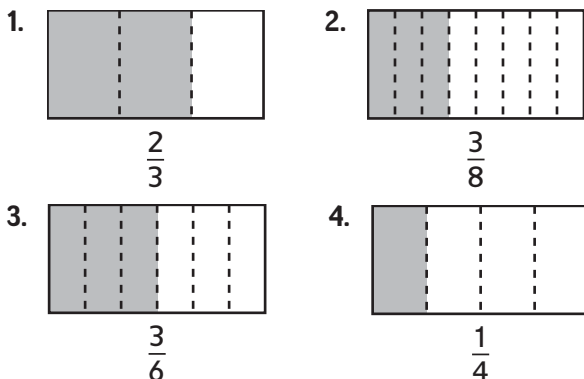**4.** Answers vary.

Home Link 7-2

1. Sample answer: I disagree. I can see that more of the circle is shaded on $\frac{5}{6}$ than on $\frac{6}{8}$, so they are not equivalent.

2. 54   **3.** 72   **4.** 56

Home Link 7-3

1. 450 mL   **2.** 25 minutes   **3.** $7\frac{1}{2}$ liters

Home Link 7-4

1.

$\frac{2}{3}$

2.

$\frac{3}{8}$

3.

$\frac{3}{6}$

4.

$\frac{1}{4}$

5. $<$ **6.** $>$

7. 415; Sample estimate: $950 - 550 = 400$

8. 710; Sample estimate: $400 + 300 = 700$

Home Link 7-5

1. $\frac{1}{2}, \frac{3}{8}$ **2.** $\frac{1}{3}, \frac{2}{3}, \frac{0}{4}, \frac{1}{4}, \frac{4}{4}$
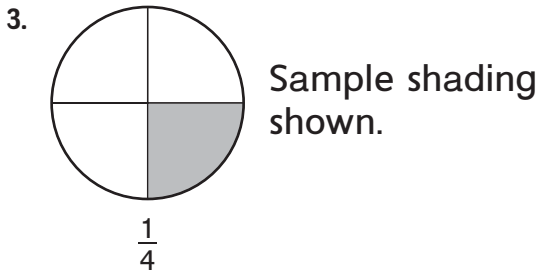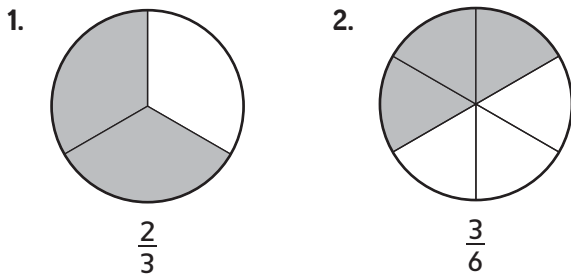
3. 825   **4.** 210

Home Link 7-6

1. $\frac{1}{3}, \frac{2}{3}, \frac{2}{3}$ **2.** $\frac{1}{3}, \frac{3}{3}, \frac{5}{3}, \frac{3}{3}$

3. $\frac{1}{6}, \frac{2}{6}, \frac{3}{6}, \frac{4}{6}, \frac{5}{6}, \frac{7}{6}, \frac{8}{6}, \frac{9}{6}, \frac{10}{6}, \frac{11}{6}, \frac{9}{6}$

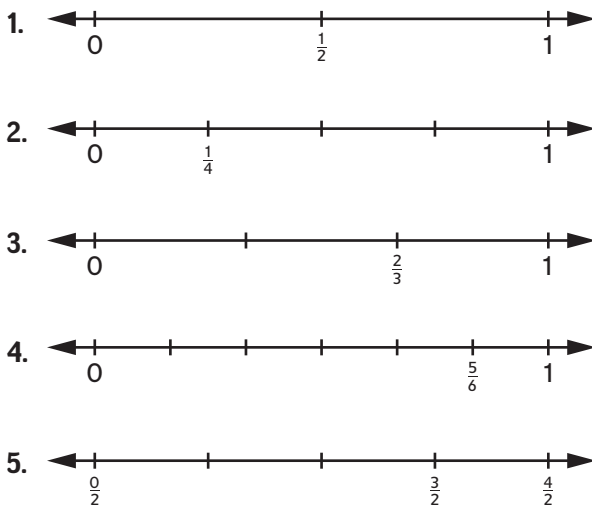**4.** $\frac{9}{6}$ **5.** 260   **6.** 1,000

Home Link 7-7

1.

$\frac{2}{3}$

2.

$\frac{3}{6}$

3.

Sample shading shown.

$\frac{1}{4}$

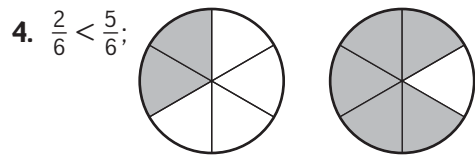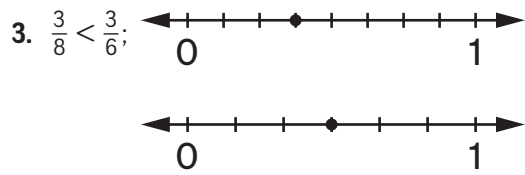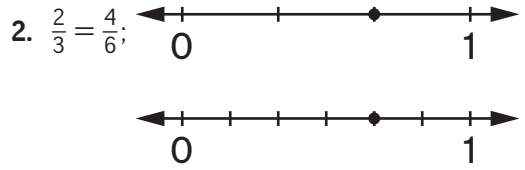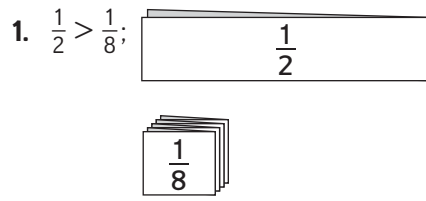**4.** $\frac{1}{4}$ **5.** $\frac{3}{6}$ **6.** $\frac{2}{3}$ **7.** $>$

Home Link 7-8

1. Less Than 1: $\frac{1}{2}, \frac{2}{3}, \frac{7}{8}, \frac{6}{8}$; Greater Than 1: $\frac{6}{4}, \frac{3}{2}, \frac{5}{3}, \frac{7}{6}$

2. Sample answer: In fractions that are less than 1, the numerator is less than the denominator. In fractions that are greater than 1, the numerator is greater than the denominator.
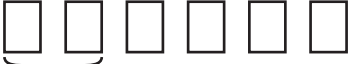
Home Link 7-9

1.

2.

3.

4.

5.

Home Link 7-10

1. $\frac{1}{2} > \frac{1}{8}$;

2. $\frac{2}{3} = \frac{4}{6}$;

3. $\frac{3}{8} < \frac{3}{6}$;

4. $\frac{2}{6} < \frac{5}{6}$;

Home Link 7-11

1. $\frac{7}{8}$ **2.** $\frac{1}{4} + \frac{1}{4} = \frac{2}{4}; \frac{1}{2}$

3. They both rode the same distance. $\frac{2}{2} = 1$ whole block, $\frac{4}{4} = 1$ whole block

Home Link 7-12

1. $\frac{2}{12}$ **2.** $\frac{4}{7}$ **3.** $\frac{12}{16}$

4. Carlie; Sample answer:

Lisa

$\frac{2}{6}$ yellow

Carlie

$\frac{4}{6}$ yellow

5. 265   **6.** 886