



Fractions, Decimals, and Percents

Unit 5 focuses on naming numbers as fractions, decimals, and percents. Your child will use pattern blocks to review basic fraction and mixed-number concepts as well as notations. Your child will also formulate rules for finding equivalent fractions.

In *Fourth Grade Everyday Mathematics*, your child learned to convert easy fractions, such as $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{10}$, and $\frac{3}{4}$, to equivalent decimals and percents. For example, $\frac{1}{2}$ can be renamed as 0.5 or 50%. Your child will now learn (with the use of a calculator) how to rename any fraction as a decimal and as a percent.

Unit 5 also introduces two new games: *Estimation Squeeze*, to practice estimating products; and *Frac-Tac-Toe*, to practice converting fractions to decimals and percents. These games, like others introduced earlier, are used to reinforce arithmetic skills. Both games use simple materials (calculator, number cards, and pennies or other counters) so you can play them at home.

Your child will study data about the past and compare it with current information as the American Tour continues.

Please keep this Family Letter for reference as your child works through Unit 5.



Vocabulary

Important terms in Unit 5:

bar graph A graph that uses horizontal or vertical bars to represent data.

circle graph A graph in which a circle and its interior are divided through its center into parts to show the parts of a set of data. The whole circle represents the whole set of data.

denominator The number below the line in a fraction. In a fraction representing a whole, or ONE, divided into equal parts, the denominator is the total number of equal parts. In the fraction $\frac{a}{b}$, b is the denominator.

equivalent fractions Fractions that have different denominators but name the same amount. For example, $\frac{1}{2}$ and $\frac{4}{8}$ are equivalent fractions.

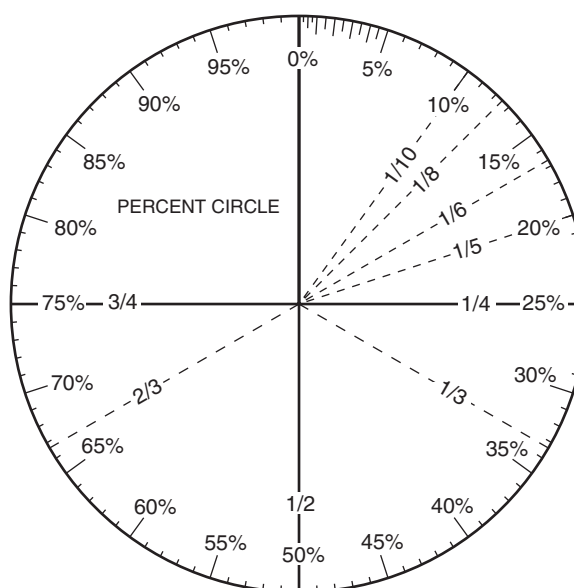
improper fraction A fraction whose numerator is greater than or equal to its denominator. For example, $\frac{4}{3}$, $\frac{5}{2}$, $\frac{4}{4}$, and $\frac{24}{12}$ are improper fractions. In *Everyday Mathematics*, improper fractions are sometimes called “top-heavy” fractions.

mixed number A number that is written using both a whole number and a fraction. For example, $2\frac{1}{4}$ is a mixed number equal to $2 + \frac{1}{4}$.

numerator The number above the line in a fraction. In a fraction representing a whole, or ONE, divided into equal parts, the numerator is the number of equal parts that are being considered. In the fraction $\frac{a}{b}$, a is the numerator.

percent (%) Per hundred, or out of a hundred. For example, *48% of the students in the school are boys* means that, on average, 48 out of every 100 students in the school are boys.

Percent Circle A tool on the Geometry Template that is used to measure or draw figures that involve percents, such as *circle graphs*.



repeating decimal A decimal in which one digit or a group of digits is repeated without end. For example, $0.333\dots$ and $0.\overline{147}$ are repeating decimals.

Do-Anytime Activities

To work with your child on the concepts taught in this unit and in previous units, try these interesting and rewarding activities.

1. Help your child find fractions, decimals, and percents in the everyday world—in newspaper advertisements, on measuring tools, in recipes, in the sports section of the newspaper, and so on.
2. Over a period of time, have your child record daily temperatures in the morning and in the evening. Keep track of the temperatures in a chart. Then have your child make a graph from the data. Ask questions about the data. For example, have your child find the differences in temperatures from morning to evening or from one day to the next.
3. Practice using percents in the context of tips. For example, have your child calculate $\frac{1}{10}$ or 10% of amounts of money. Invite your child to find the tip the next time the family goes out for dinner.
4. Ask your child to identify 2-dimensional and 3-dimensional shapes around the house.

Building Skills through Games

In Unit 5, your child will practice operations and computation skills by playing the following games. For detailed instructions, see the *Student Reference Book*.

Estimation Squeeze See *Student Reference Book*, page 304.

This is a game for two players who use a single calculator. The game provides practice in estimating products.

Frac-Tac-Toe See *Student Reference Book*, pages 309–311.

This is a game for two players. Game materials include 4 each of the number cards 0–10, pennies or counters of two colors, a calculator, and a gameboard. The gameboard is a 5-by-5 number grid that resembles a bingo card. Several versions of the gameboard are shown in the *Student Reference Book*. *Frac-Tac-Toe* helps students practice converting fractions to decimals and percents.

Fraction Of See *Student Reference Book*, pages 313 and 314.

This is a game for two players. Game materials include 1 deck each of *Fraction Of Fraction Cards* and *Set Cards*, the *Fraction Of Gameboard*, and a record sheet. This game provides practice with multiplication of fractions and whole numbers.

Fraction/Percent Concentration See *Student Reference Book*, page 315.

This game helps students memorize some of the easy fraction/percent equivalencies. Two or three players use 1 set of *Fraction/Percent Concentration* tiles and a calculator to play.

Fraction Top-It See *Student Reference Book*, page 316.

This game is for 2–4 players. Game materials include 1 deck of 32 *Fraction Cards*. This game provides practice with comparing fractions.

As You Help Your Child with Homework

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

Study Link 5•1

1. 9
2. 14
3. $\frac{16}{20}$, or $\frac{4}{5}$
4. $\frac{45}{50}$, or $\frac{9}{10}$
5. 70
6. 16
7. 9
8. a. \$9 b. \$20
- c. Jen paid $\frac{2}{5}$ of the bill: $8 \div 2 = 4$. So that means each fifth of the total was \$4. Then $\frac{3}{5}$ must be \$12. And $\$12 + \$8 = \$20$.
9. 14
10. 140
11. 14
12. 140

Study Link 5•2

1. $2\frac{1}{2}$, $\frac{5}{2}$
2. $2\frac{4}{6}$, or $2\frac{2}{3}$, $\frac{16}{6}$, or $\frac{8}{3}$
3. $1\frac{2}{3}$, $\frac{5}{3}$
4. $2\frac{1}{6}$, $\frac{13}{6}$
5. $2\frac{5}{6}$, $\frac{17}{6}$
7. 262
8. 32 R4
9. 123
10. 72 R3

Study Link 5•3

1. 4
2. 12
3. 1; 4
4. $\frac{4}{4} = 1$
5. $\frac{6}{8} = \frac{3}{4}$
6. $\frac{5}{4} = 1\frac{1}{4}$
7. $\frac{9}{8}$, or $1\frac{1}{8}$ cups
9. 297
10. 148 R3
11. 74 R3
12. 37 R3

Study Link 5•4

1. =
2. \neq
3. \neq
4. =
5. =
6. =
7. =
8. =
9. 6
10. 21
11. 4
12. 40
13. 12
14. 80
15. 27
16. 56
17. 150
18. 70
19. \$7.04
20. \$20.03
21. 17 R10
22. 80 R4

Study Link 5•5

2. 0.4; 1.9; 20.7; 24.0; 60.9; 160.6; 181.3; 297.9; 316.0

Study Link 5•6

1. $7\frac{79}{100}$, $7\frac{78}{100}$, or $7\frac{39}{50}$, $6\frac{21}{100}$, $4\frac{7}{10}$, $3\frac{6}{10}$, or $3\frac{3}{5}$
2. a. $\frac{15}{45}$, or $\frac{1}{3}$ b. $\frac{9}{45}$, or $\frac{1}{5}$ c. $\frac{3}{45}$, or $\frac{1}{15}$
3. $0.\bar{3}$; 0.2; $0.0\bar{6}$
4. 714 R6
5. 8 R4
6. 67 R5

Study Link 5•7

Sample answers given for Problem 1–5.

1. 0.25; 0.5; 0.75
2. 2.25; 2.5; 2.75
3. 0.65; 0.7; 0.775
4. 0.325; 0.35; 0.375
5. 0.051; 0.055; 0.059
6. 0.53
7. 0.2
8. 0.77
9. $0.\bar{8}$
10. 0.051
11. 0.043; 0.05; 0.1; 0.12; 0.2; 0.6; 0.78
12. \$7.06
13. 6 R17
14. 81
15. 694 R3

Study Link 5•8

1. $\frac{3}{4} = 0.75 = 75\%$; $\frac{14}{16} = 0.875 = 88\%$;
 $\frac{15}{25} = 0.6 = 60\%$; $\frac{17}{20} = 0.85 = 85\%$;
 $\frac{3}{8} = 0.375 = 38\%$
3. $\frac{3}{8}$, $\frac{15}{25}$, $\frac{3}{4}$, $\frac{17}{20}$, $\frac{14}{16}$
4. \$130
5. 10 questions
6. 97 R5
7. 48 R15
8. 32 R15
9. 24 R15

Study Link 5•9

2. Bar graph
3. Line graph; Temperature went up and down.

Study Link 5•10

1. a. 50% b. 15% c. 35%
3. 25% of the students in my class have skateboards. 25% have in-line skates. 50% have bicycles.
4. 633
5. 1.1636
6. 10 R1
7. 100 R4

Study Link 5•11

Check your child's circle graph.

2. 17
3. 23
4. 9
5. 7

Study Link 5•12

1. Mona ate 1 more cookie than Tomas. $\frac{3}{8}$ of 24 is 9; but $\frac{2}{5}$ of 25 is 10.
2. 12 students were sick. If $\frac{2}{3}$ is 24, that means $\frac{1}{3}$ is 12 students. So that means the rest of the class, or $\frac{1}{3}$ of the class, or 12 students, is sick.
4. 3
5. 24
6. 22
7. 24