STUDY LINK
8·9

Unit 9: Family Letter

Fractions, Decimals, and Percents

In Unit 9, we will be studying percents and their uses in everyday situations. Your child should begin finding examples of percents in newspapers and magazines, on food packages, on clothing labels, and so on, and bring them to class. They will be used to illustrate a variety of percent applications.

As we study percents, your child will learn equivalent values for percents, fractions, and decimals. For example, 50% is equivalent to the fraction $\frac{1}{2}$ and to the decimal 0.5. The class will develop the understanding that **percent** always refers to a **part out of 100.**

Converting "easy" fractions, such as $\frac{1}{2}$, $\frac{1}{5}$, $\frac{1}{10}$, and $\frac{3}{4}$, to decimal and percent equivalents should become automatic for your child. Such fractions are common in percent situations and are helpful with more difficult fractions, decimals, and percents. To help memorize the "easy" fraction/percent equivalencies, your child will play *Fraction/Percent Concentration.*

"Easy" Fractions	Decimals	Percents
$\frac{1}{2}$	0.50	50%
$\frac{1}{4}$	0.25	25%
$\frac{3}{4}$	0.75	75%
$\frac{2}{5}$	0.40	40%
$\frac{7}{10}$	0.70	70%
$\frac{2}{2}$	1.00	100%

Throughout the unit, your child will use a calculator to convert fractions to percents and will learn how to use the percent key 【 % 】 to calculate discounts, sale prices, and percents of discount.

As part of the World Tour, your child will explore population data, such as literacy rates and percents of people who live in rural and urban areas.

Finally, the class will begin to apply the multiplication and division algorithms to problems that contain decimals. The approach used in *Everyday Mathematics* is straightforward: Students solve the problems as if the numbers were whole numbers. Then they estimate the answers to help them locate the decimal point in the exact answer. In this unit, we begin with fairly simple problems. Your child will solve more difficult problems in *Fifth* and *Sixth Grade Everyday Mathematics.*

Please keep this Family Letter for reference as your child works through Unit 9.

Vocabulary

Important terms in Unit 9:

discount The amount by which the regular price of an item is reduced in a sale, usually given as a fraction or percent of the original price, or as a "percent off."

illiterate An illiterate person cannot read or write.

life expectancy The average number of years a person may be expected to live.

literate A literate person can read and write.

100% box The entire object, the entire collection of objects, or the entire quantity being considered.

100% box
24 books

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 100 students in the school are boys; $48\% = \frac{48}{100} = 0.48$

percent of literacy The percent of the total population that is literate; the number of people out of 100 who are able to read and write. For example, 92% of the population in Mexico is literate—this means that, on average, 92 out of 100 people can read and write.

percent or fraction discount The percent or fraction of the regular price that you save in a "percent off" sale. See example under *regular price.*

rank To put in order by size; to sort from smallest to largest or vice versa.

Countries Ranked from Smallest to Largest Percent of Population, Rural		
1	Australia	8%
2	Japan	21%
3	Russia	27%
4	Iran	33%
5	Turkey	34%
6	China	61%
7	Thailand	68%
8	India	72%
9	Vietnam	74%
10	Bangladesh	76%

regular price or list price The price of an item without a discount.

Regular Price	Sale!	Sale Price	You Saved
$19.95	25% OFF	$14.96	$4.99

rural In the country

sale price The amount you pay after subtracting the discount from the regular price. See example under *regular price.*

urban In the city

Do-Anytime Activities

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

1. Help your child compile a percent portfolio that includes examples of the many ways percents are used in everyday life.

2. Encourage your child to incorporate such terms as "whole," "halves," "thirds," and "fourths" into his or her everyday vocabulary.

3. Practice renaming fractions as percents, and vice versa, in everyday situations. For example, when preparing a meal, quiz your child on what percent $\frac{3}{4}$ of a cup would be.

4. Look through advertisements of sales and discounts. If the original price of an item and the percent of discount are given, have your child calculate the amount of discount and the sale price. If the original price and sale price are given, have your child calculate the amount and percent of discount.

Building Skills through Games

In this unit, your child will play the following games:

Fraction Match See *Student Reference Book,* page 243.
This game is for 2 to 4 players and requires one deck of *Fraction Match* cards. The game develops skill in naming equivalent fractions.

Fraction/Percent Concentration See *Student Reference Book,* page 246.
Two or three players need 1 set of Fraction/Percent Tiles and a calculator to play this game. Playing *Fraction/Percent Concentration* helps students recognize fractions and percents that are equivalent.

Over and Up Squares See *Student Reference Book,* page 257.
This is a game for 2 players and will require a playing grid. The game helps students practice using ordered pairs of numbers to locate points on a rectangular grid.

Polygon Pair-Up See *Student Reference Book,* page 258.
This game provides practice in identifying properties of polygons. It requires a *Polygon Pair-Up* Property Deck and Polygon Deck.

Rugs and Fences See *Student Reference Book,* pages 260 and 261.
This is a game for 2 players and requires a *Rugs and Fences* Polygon Deck, Area and Perimeter Deck, and Record Sheet. The game helps students practice computing the area and perimeter of polygons.

As You Help Your Child with Homework

As your child brings assignments home, you may 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 9·1

1. $\frac{90}{100}$; 90% 2. $\frac{53}{100}$; 53% 3. $\frac{4}{100}$; 4%

4. $\frac{60}{100}$; 0.60 5. $\frac{25}{100}$; 0.25 6. $\frac{7}{100}$; 0.07

7. 0.50; 50% 8. 0.75; 75% 9. 0.06; 6%

Study Link 9·2

1. 100; $\frac{1}{100}$; 0.01; 1% 2. 20; $\frac{1}{20}$; 0.05; 5%

3. 10; $\frac{1}{10}$; 0.10; 10% 4. 4; $\frac{1}{4}$; 0.25; 25%

5. 2; $\frac{1}{2}$; 0.50; 50% 6. 0.75; 75%

7. 0.20; 20%

Study Link 9·3

1.

$\frac{1}{2}$	0	.	5					
$\frac{1}{3}$	0	.	3	3	3	3	3	3
$\frac{1}{4}$	0	.	2	5				
$\frac{1}{5}$	0	.	2					
$\frac{1}{6}$	0	.	1	6	6	6	6	6
$\frac{1}{7}$	0	.	1	4	2	8	5	7
$\frac{1}{8}$	0	.	1	2	5			
$\frac{1}{9}$	0	.	1	1	1	1	1	1
$\frac{1}{10}$	0	.	1					
$\frac{1}{11}$	0	.	0	9	0	9	0	9
$\frac{1}{12}$	0	.	0	8	3	3	3	3
$\frac{1}{13}$	0	.	0	7	6	9	2	3
$\frac{1}{14}$	0	.	0	7	1	4	2	8
$\frac{1}{15}$	0	.	0	6	6	6	6	6
$\frac{1}{16}$	0	.	0	6	2	5		
$\frac{1}{17}$	0	.	0	5	8	8	2	3
$\frac{1}{18}$	0	.	0	5	5	5	5	5
$\frac{1}{19}$	0	.	0	5	2	6	3	1
$\frac{1}{20}$	0	.	0	5				
$\frac{1}{21}$	0	.	0	4	7	6	1	9
$\frac{1}{22}$	0	.	0	4	5	4	5	4
$\frac{1}{23}$	0	.	0	4	3	4	7	8
$\frac{1}{24}$	0	.	0	4	1	6	6	6
$\frac{1}{25}$	0	.	0	4				

Study Link 9·4

1. 34% 2. 67% 3. 84% 4. 52%

5. 85% 6. 20% 7. 25% 8. 30%

9. 62.5% 10. 70% 11. 15% 12. 37.5%

13. Sample answer: I divided the numerator by the denominator and then multiplied by 100.

14. 86% 15. 3% 16. 14% 17. 83.5%

Study Link 9·5

1. 7%; 7%; 7%; 8%; 10%; 11%; 10%; 10%; 9%; 8%; 7%

3. Sample answer: I divided the number of marriages for each month by the total number of marriages, then multiplied by 100 and rounded to the nearest whole number.

Study Link 9·6

1. The varsity team. They won $\frac{8}{10}$ or 80% of their games. The junior varsity team only won $\frac{6}{8}$ or 75% of their games.

2. 2: 11; $\frac{5}{11}$; 45%   3: 3; $\frac{3}{3}$; 100%

   4: 11; $\frac{9}{11}$; 82%   5: 7; $\frac{4}{7}$; 57%

   6: 16; $\frac{11}{16}$; 69%   7: 10; $\frac{6}{10}$; 60%

   8: 2; $\frac{1}{2}$; 50%

Study Link 9·7

1. 50%   2. Tuvalu   3. 5%

4. Dominica; Antigua and Barbuda; and Palau

5. 300%

Study Link 9·8

1. 25.8   2. 489.6   3. 45.12   4. 112.64

7. Sample answer: I estimated that the answer should be about 5 * 20 = 100.

8. 212.4   9. 38.64   10. 382.13

Study Link 9·9

1. 14.8   2. 0.2700 3. 24.96   4. 0.860

5. 23.4   6. 58.32

7. Sample answer: I estimated that the answer should be about $\frac{100}{4}$ = 25.

8. 4.2   9. 38.7   10. 0.65