LEVEL G

Number Worlds™

Accelerate Math Success

English Learner Support Guide

Mc Graw Hill Education

Name _____ Date _____

UNIT 3

Practice 2 Intermediate

Look at the equations. Complete the sentence with a word from the box.

1.	$15.6 \div 3 = 5.2$	The number 15.6 is the _____.
2.	$1.2 \times 6 = 7.2$	The number 1.2 is a/an _____.
3.	$6.7 - 3.4 = 3.3$	The number 3.3 is the _____.
4.	$64 \div 0.8 = 80$	The number 80 is the _____.
5.	$13.78 + 1.22 = 15$	The number 15 is the _____.

difference
dividend
factor
quotient
sum

Answer the question. Use a complete sentence.

6. Is the number 43 a whole number or a decimal number?

_____

7. Is the number 42.9 a whole number or a decimal number?

_____

8. What is a decimal point?

_____

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UNIT 3

Name _____ Date _____

Practice 3 Advanced

Look at the equations. Complete each sentence.

1. $15.6 \div 3 = 5.2$ The number 15.6 is the _____.

2. $1.2 \times 6 = 7.2$ The number 1.2 is a/an _____.

3. $6.7 - 3.4 = 3.3$ The number 3.3 is the _____.

4. $64 \div 0.8 = 80$ The number 80 is the _____.

5. $13.78 + 1.22 = 15$ The number 15 is the _____.

Write a sentence to describe each term.

6. whole number _____

_____

7. decimal number _____

_____

8. decimal point _____

_____

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Name _____ Date _____

UNIT 3

Final Assessment

Circle the answer.

1. The number 22 is a (whole number/decimal number).

2. The number 2.2 is a (whole number/decimal number).

3. $8.5 - 4 = 4.5$ The number 4.5 is the (difference/sum).

4. $5 \times 9.01 = 45.05$ The number 45.05 is the (product/quotient).

Look at the equations. Write a number for each term.

$1.4 \div 2 = 0.7$ $6.3 \times 3 = 18.9$ $4 + 4.4 = 8.4$ $97.9 - 92.3 = 5.6$

5. An addend is _____.

6. A dividend is _____.

7. A divisor is _____.

8. A decimal number is _____.

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Unit 4

Operations With Fractions

Unit at a Glance

In this unit, students will learn the vocabulary associated with ***Number Worlds,*** Level G, Operations With Fractions. In this unit, students will add and subtract fractions and decimals, multiply and divide fractions and decimals, find equivalent fractions, and reduce fractions to simplest form. Before beginning the unit, assess students' general knowledge of math vocabulary using the Individual Oral Assessment on page 75.

How Students Learn Vocabulary

Using visuals and manipulatives creates familiarity for English learners and has an immediate impact on learning. For this unit, have play money and fraction tiles on hand so students can visualize the reality of the operations. Concept checking is also an important part of teaching English learners. When introducing vocabulary, ask questions to determine whether students understand the meanings of words and ideas.

Academic Vocabulary Taught in Unit 4

Week 1

denominator Bottom number of a fraction; the denominator indicates the number of equal parts in the whole

equivalent Having the same value

fraction A quantity expressing the division of one number by a second number; written as two numerals separated by a line

numerator Top number of a fraction; the numerator indicates the number of equal parts referred to

Week 2

common denominator A denominator that is a multiple of the denominators of two or more fractions

fraction A quantity expressing the division of one number by a second number; written as two numerals separated by a line

improper fraction A fraction that names a number greater than or equal to 1; a fraction whose numerator is equal to or greater than its denominator

mixed number A number greater than 1,written as a whole number and fraction less than 1. For example, $5\frac{1}{2}$ is equal to $5 + \frac{1}{2}$.

Week 3

improper fraction A fraction that names a number greater than or equal to 1; a fraction whose numerator is equal to or greater than its denominator

mixed number A number greater than 1,written as a whole number and fraction less than 1. For example, $5\frac{1}{2}$ is equal to $5 + \frac{1}{2}$.

regroup To form into groups again

simplify To put a fraction in reduced form

Week 4

Commutative Property The property that states that the sum or product of two or more quantities will be the same regardless of the order in which they appear

convert To change into something of equal value

improper fraction A fraction that names a number greater than or equal to 1; a fraction whose numerator is equal to or greater than its denominator

mixed number A number greater than 1,written as a whole number and fraction less than 1. For example, $5\frac{1}{2}$ is equal to $5 + \frac{1}{2}$.

Week 5

convert To change into something of equal value

factors Numbers being multiplied

product The result of multiplication

Week 6

dividend The number that is to be divided

divisor The number the dividend is to be divided by

multiplicative inverse Two numbers whose product is 1.

quotient The answer to a division problem

reciprocal Two numbers whose product is 1

Unit 4 Individual Oral Assessment

Directions: Read each question to the student, and record his or her oral responses.
Some questions have teacher directions. Teacher directions are indicated in italics.
Allow students to use pencil and paper to work their responses.

1. Is this a **fraction** or a **whole number?** *Write 13 on the board.* **whole number**
2. Is this a **fraction?** *Write* $\frac{4}{5}$ *on the board.* **yes**
3. What is the **numerator** of the fraction? **4**
4. What is the **denominator** of the fraction? **5**
5. Do these fractions have a **common denominator?** *Write* $\frac{3}{12}$ *and* $\frac{5}{6}$. **no**
6. Is this an improper **fraction** or a **mixed number?** *Write* $4\frac{5}{8}$. **mixed number**
7. What is the **product?** *Write* $\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$. $\frac{1}{9}$
8. What are the **factors?** $\frac{1}{3}$ **and** $\frac{1}{3}$
9. What is the **quotient?** *Write* $6 \div \frac{4}{5} = \frac{30}{4}$.
10. Is the quotient in **simplest form?** **no**
11. **Simplify** the fraction. *Write* $\frac{30}{4}$. $\frac{15}{2}$
12. **Convert** the mixed number into an improper fraction. *Write* $4\frac{5}{8}$. $\frac{37}{8}$
13. What is the **reciprocal** of $\frac{6}{5}$? $\frac{5}{6}$

- **Beginning English Learners:** 0–3 of Questions 1–10 correct
- **Intermediate English Learners:** 4–7 of Questions 1–10 correct
- **Advanced English Learners:** 8–10 of Questions 1–10 correct
- If the student is able to answer Questions 11–13, then he or she can understand the mathematics taught in this unit but may still have difficulty with the academic vocabulary.

Use the Student Assessment Record, page 143, to record the assessment results.

Week 1

Objective

Students can understand the meanings of the terms *fraction*, *numerator*, *denominator*, and *equivalent*.

Vocabulary

- **denominator** Bottom number of a fraction; the denominator indicates the number of equal parts in the whole
- **equivalent** Having the same value
- **fraction** A quantity expressing the division of one number by a second number; written as two numerals separated by a line
- **numerator** Top number of a fraction; the numerator indicates the number of equal parts referred to

Materials

Program Materials
- Vocabulary Card: *fraction*
- Fraction Vocabulary, p. 136

Additional Materials
fraction tiles

1 WARM UP

Write the fraction $\frac{1}{3}$ on the board. Point to the fraction and each of its parts as you introduce the vocabulary.

Introduce each vocabulary word to students. Say the word aloud and have students repeat the word. Write each word on the board as you introduce it.

Now that students have had some experience listening to the words, show students ***Vocabulary Card,*** and say the word.

2 ENGAGE

Hold up a piece of paper.

► **How many pieces of paper am I holding up?** one

► **Is it a whole piece or part of a piece?** a whole piece

Tear or cut the paper into two equal halves.

► **What did I do to the paper?** cut it in half

Write $\frac{1}{2}$ on the board. Review the vocabulary word *fraction*. Say the word, and have students repeat the word.

Point to the denominator. Introduce the denominator as the number in a fraction that shows the number of parts in the whole. Show students how the two halves of paper are combined to make a whole piece. Say *denominator,* and have students repeat the word.

► **What is the denominator in this fraction?** 2

► **What does it tell us?** the number of parts in the whole

Point to the numerator. Introduce the numerator as the number in a fraction that shows the number of equal parts. Show students one of the halves of paper, and reiterate that this is one part. Say *numerator,* and have students repeat the word.

► **What is the numerator in this fraction?** 1

► **What does it tell us?** the number of equal parts

Hold up both halves of the paper.

► **Are these parts the same?** yes

Explain that parts that are the same are equivalent. Have students repeat the word.

Distribute the Fraction Vocabulary worksheet to each student. Have students complete the worksheet. Review the worksheet as a group.

Teacher Note

Concept checking is an important part of teaching English learners. When introducing vocabulary, ask questions to determine whether students understand the meanings of words and ideas. Ask concept-check questions to individual students and occasionally to the whole group.

Progress Monitoring

If… students need practice recognizing fractions,

Then… have them use fraction tiles to build and deconstruct fractions.

3 REFLECT

Extended Response

- **How do we use fractions every day?**
- **What does the denominator tell you? Why is it important?**
- **Suppose you want to share an orange with two friends. How could you use your knowledge of fractions to divide the orange fairly?**

Encourage student discussion of these questions and answers.

Progress Monitoring	
If… students need practice remembering the vocabulary,	**Then…** have them identify languages, such as Spanish, in which the vocabulary words *fraction*, *numerator*, and *denominator* are cognates. Confirm that these words have the same meanings in either language.

4 ASSESS

Informal Assessment

Have students complete the following activity to make sure they understand the vocabulary. As students use each word:

1. Check understanding.
2. Correct errors.
3. Recheck for understanding.

- Have students describe *numerator* in their own words. Allow students to draw or create models to help them demonstrate the concept.
- Repeat for the terms *denominator, fraction*, and *equivalent*.

For each word, use the following rubric to assign a score.

The student can repeat the word when prompted. (1 point)

The student knows the word but does not know its meaning. (2 points)

The student has a vague idea of the word's meaning. (3 points)

The student knows the word and can use the word in context. (4 points)

Week 2

Objective

Students can understand the meanings of the terms *common denominator, improper fraction, mixed number* and *equivalent fraction*.

Vocabulary

- **common denominator** A denominator that is a multiple of the denominators of two or more fractions
- **improper fraction** A fraction that names a number greater than or equal to 1; a fraction whose numerator is equal to or greater than its denominator
- **mixed number** A number greater than 1,written as a whole number and fraction less than 1. For example, $5\frac{1}{2}$ is equal to $5 + \frac{1}{2}$.

Materials

Program Materials

- Vocabulary Card: *fraction, numerator, denominator, equivalent fractions*
- Common Denominators, p. 137

1 WARM UP

Introduce each vocabulary word to students. Say the word aloud and have students repeat it.

Write $\frac{7}{8}$ on the board. Show students the *fraction, numerator, denominator,* and *equivalent fractions* ***Vocabulary Cards.*** Have students say the term on the card as you show it. Have volunteers identify *fraction, numerator,* and *denominator* by pointing to the corresponding element on the board.

Give each pair of students a set of fraction tiles. Say the name of a fraction. Have partners use the tiles to model different fractions. For example:

- ► **Find $\frac{1}{6}$.**
- ► **Show $\frac{4}{6}$.**
- ► **Find $\frac{1}{3}$.**
- ► **Show $\frac{2}{3}$.**
- ► **Compare $\frac{4}{6}$ and $\frac{2}{3}$. Are they the same?** yes

Remind students that fractions that have the same value are equivalent. Say *equivalent fractions* and have students repeat. Write *equivalent fractions* on the board.

2 ENGAGE

Tear a sheet of paper in half. Hold up both halves of the paper.

- ► **Are these parts the same?** yes
- ► **Are they equivalent?** yes

Write $\frac{1}{2} + \frac{1}{2}$.

- ► **Do these fractions have the same denominator?** yes

Tell students when fractions have the same denominator, they have a *common denominator*. Say *common denominator,* and have students repeat the term. Write *common denominator* on the board.

Write $\frac{1}{2} + \frac{1}{2} = ?$ on the board.

- ► **What is the answer?** $\frac{2}{2}$ or 1
- ► **What is the common denominator?** 2

Write $\frac{3}{5} - \frac{1}{5} = ?$ on the board.

- ► **Do these fractions have a common denominator?** yes
- ► **What is the common denominator?** 5
- ► **What is the answer?** $\frac{2}{5}$

Write $\frac{3}{6} + \frac{1}{7} = ?$ on the board.

- ► **Do these fractions have a common denominator?** no

Distribute a copy of Common Denominators to each student. Organize students into pairs. Have students complete the worksheet with a partner. Review the worksheet as a class.

Have students model $\frac{5}{4}$ with their fraction tiles. Point to the numerator.

- ► **Is this greater than or less than the denominator?** greater than

Tell students that when the numerator is larger than the denominator, it is an *improper fraction*. Say *improper fraction* and have students repeat. Write *improper fraction* on the board.

Next, have students replace $\frac{4}{4}$ with a one whole fraction tile.

- ► **Now what do we have?** $1\frac{1}{4}$

Remind students that fractions that have the same value are equivalent. Say *equivalent fractions* and have students repeat. Write *equivalent fractions* on the board.

- ► **Are $\frac{5}{4}$ and $1\frac{1}{4}$ equivalent?** yes

Teacher Note

Knowing how cognates work can help English learners accelerate their acquisition of English and increase their comprehension of content concepts. Spanish cognates are spelled almost the same way they are spelled in English, and they are often pronounced similarly. Cognates share Greek and Latin roots, so they are common in Romance languages. Words that end in *–or* in English, such as *factor, denominator,* and *numerator,* are similar to these words in Spanish. Tell students to look for and collect words that end in *–or* in English to see whether they have the same meanings in Spanish.

Progress Monitoring

If… students mistakenly add denominators as well as numerators,	**Then…** remind them that the denominator represents how many equal parts are in the whole. Draw a model on the board to illustrate adding fractions with like denominators.

3 REFLECT

Extended Response

- **Why don't we add denominators?**
- **How are fractions used every day?**
- **Why is it important to know how to add and subtract fractions?**
- **What is confusing to you about fractions?**

Encourage student discussion of these questions and answers.

Progress Monitoring

If… students master identifying common denominators and adding fractions with like denominators,	**Then…** have students practice rewriting pairs of fractions with unlike denominators as fractions with like denominators.

4 ASSESS

Informal Assessment

Have students complete the following activity to make sure they understand the vocabulary. As students use each word:

1. Check understanding.
2. Correct errors.
3. Recheck for understanding.

- Write the fractions $\frac{1}{4}$ and $\frac{3}{4}$ on the board. Have students identify the numerator and denominator in each fraction.
- Have students describe common denominators and determine if the fractions have common denominators.

For each word, use the following rubric to assign a score.

The student can repeat the word when prompted. (1 point)

The student knows the word but does not know its meaning. (2 points)

The student has a vague idea of the word's meaning. (3 points)

The student knows the word and can use the word in context. (4 points)

Week 3

Objective

Students will review fraction vocabulary.

Vocabulary

- **improper fraction** A fraction that names a number greater than or equal to 1; a fraction whose numerator is equal to or greater than its denominator
- **mixed number** A number greater than 1,written as a whole number and fraction less than 1. For example, $5\frac{1}{2}$ is equal to $5 + \frac{1}{2}$.
- **regroup** To form into groups again
- **simplify** To put a fraction in reduced form

Materials

Program Materials
Vocabulary Cards: *fraction, numerator, denominator, improper fraction, mixed number*

Additional Materials
fraction tiles

1 WARM UP

Introduce each vocabulary word to students. Say the word aloud and have students repeat it. Show students the *fraction, numerator, denominator, improper fraction, mixed number* ***Vocabulary Cards.*** Have them read and say each word.

Have volunteers write an example of each term on the board or show a visual example using manipulatives.

Give each pair of students a set of fraction tiles. As you say a fraction, have students use the fraction tiles to model it.

- **What is the fraction?**
- **Is it an improper fraction?**

For any improper fractions, have students trade tiles for one whole tiles to create an equivalent mixed number. Tell students that when they trade for equivalent values, they are *regrouping*. Say *regroup,* and have students repeat. Write *regroup* on the board.

To check students concept of regrouping, have them use their fraction tiles to trade $\frac{1}{3}$ for $\frac{2}{6}$.

- **Did you just regroup?** yes

Repeat with other examples.

2 ENGAGE

To check students concept of regrouping, have them use their fraction tiles to trade $\frac{2}{6}$ for $\frac{1}{3}$.

- **Did you just regroup?** yes
- **Are these equivalent fractions?** yes

Tell students that when they find equivalent fractions, the fraction with the lowest denominator is in *simplest form*. Say *simplest form* and have students repeat. Write *simplest form* on the board. To check students' concept, give examples and non-examples of fractions in simplest form.

Write $\frac{10}{12}$ on the board.

- **Is this fraction in simplest form?** no
- **What is an equivalent fraction in simplest form?** $\frac{5}{6}$

Have a volunteer show how they simplified the fraction. Tell students that what the student just did was to *simplify* the fraction. Say *simplify* and have students repeat. Write *simplify* on the board.

Repeat with several examples.

Teacher Note

Encourage students to extend their language beyond just the vocabulary word. Provide sentence frames that students may refer to as they talk about fractions, regrouping, and simplifying.

- This is an improper fraction.
- I can regroup to make it a mixed number.
- This fraction [is/isn't] in simplest form.
- I can regroup.
- I need to simplify this fraction.

Progress Monitoring

If… students are confused about the difference between regrouping and simplifying,	**Then…** convey to them that simplifying is always regrouping, but regrouping is not always simplifying. Give an example of regrouping for addition so that fractions have a common denominator.

3 REFLECT

Extended Response

- **Do you remember learning to regroup in addition and subtraction? How is it the same for fractions?**
- **Why do we need to regroup?**
- **Do we always need to simplify a fraction? Why or why not?**

Encourage student discussion of these questions and answers.

Progress Monitoring	
If… students don't remember regrouping in subtraction,	**Then…** remind them with an example.

4 ASSESS

Informal Assessment

Have students complete the following activity to make sure they understand the vocabulary. As students use each word:

1. Check understanding.
2. Correct errors.
3. Recheck for understanding.

- Have students describe an improper fraction and write an example of one.
- Then have them regroup the improper fraction so that it is a mixed number.
- Write the fraction $\frac{18}{20}$ on the board. Have students simplify it.

For each word, use the following rubric to assign a score.

The student can repeat the word when prompted. (1 point)

The student knows the word but does not know its meaning. (2 points)

The student has a vague idea of the word's meaning. (3 points)

The student knows the word and can use the word in context. (4 points)

Week 4

Objective

Students will understand vocabulary related to multiplying fractions including the term *Commutative Property of Multiplication*.

Vocabulary

- **Commutative Property** The property that states that the sum or product of two or more quantities will be the same regardless of the order in which they appear
- **convert** To change into something of equal value
- **improper fraction** A fraction that names a number greater than or equal to 1; a fraction whose numerator is equal to or greater than its denominator
- **mixed number** A number greater than 1,written as a whole number and fraction less than 1. For example, $5\frac{1}{2}$ is equal to $5 + \frac{1}{2}$.

Materials

Program Materials	Additional Materials
Vocabulary Cards: *whole number, improper fraction, mixed number*	• fraction tiles • play money

1 WARM UP

Introduce each vocabulary word to students. Say the word aloud and have students repeat it. Show students the *whole number, improper fraction,* and *mixed number* ***Vocabulary Cards*** and have them say the words and give an example of each.

Give students a set of fraction tiles. Have them show an improper fraction that you dictate. Then have them change the improper fraction into a mixed number.

► **Did you regroup?** yes

► **Did you change to an equivalent number?** yes

Tell students that when they exchange something for another thing of equal value, they *convert*. Say *convert* and have students repeat. Write *convert* on the board.

Give students a real-world example of converting values. Give each student a $1 bill from the set of play money. You will act as "the bank." Student must come to you and ask if they may convert their $1 bill for a certain coin. For example, *May I convert this dollar to quarters, please?*

2 ENGAGE

Have students model the fraction $\frac{1}{4}$ using fraction tiles.

► **Multiply your fraction by two.**

Assist students as necessary. Remind them that multiplying by two is the same as performing repeated addition: $\frac{1}{4} + \frac{1}{4}$.

Write $\frac{1}{4} \times 2$ on the board.

► **What is the product?** $\frac{2}{4}$

► **Simplify** $\frac{2}{4}$**.** $\frac{1}{2}$

Write $2 \times \frac{1}{4}$ on the board.

► **What is the product?** $\frac{2}{4}$

► **Simplify** $\frac{2}{4}$**.** $\frac{1}{2}$

Point out to students that the order of the factors doesn't matter. The product will be the same no matter the order. This is called the *Commutative Property of Multiplication*. Say Commutative Property and have students repeat. Give several other examples.

Teacher Note

As students work through the math lesson, they will have to convert mixed numbers to improper fractions and simplify fractions. Make sure they understand the terms *convert, simplify,* and *regroup* before beginning the week.

Progress Monitoring

If… students still need practice with the vocabulary words *convert, simplify,* and *regroup,*	**Then…** give them some fraction tiles and work with them to convert a mixed number to an improper fraction and to simplify a fraction.

3 REFLECT

Extended Response

- **Describe how to multiply fractions.**
- **To multiply, do you need to have common denominators? Explain.**
- **How do you convert a mixed number to an improper fraction?**

Encourage student discussion of these questions and answers.

Progress Monitoring

If… some students tend to overpower the conversation,	**Then…** organize students into small groups and assign the stronger students to the role of "teacher." They should ask questions and allow time for students to formulate answers before prompting responses.

4 ASSESS

Informal Assessment

Have students complete the following activity to make sure they understand the vocabulary. As students use each word:

1. Check understanding.
2. Correct errors.
3. Recheck for understanding.

- Have students describe how to covert a mixed number to an improper fraction.
- Have students explain the Commutative Property. Allow them to use manipulatives, if necessary.

For each word, use the following rubric to assign a score.

The student can repeat the word when prompted. (1 point)

The student knows the word but does not know its meaning. (2 points)

The student has a vague idea of the word's meaning. (3 points)

The student knows the word and can use the word in context. (4 points)

Week 5

Objective

Students will review vocabulary related to multiplying fractions.

Vocabulary

- **convert** To change into something of equal value
- **factors** Numbers being multiplied
- **product** The result of multiplication

Materials

Program Materials

- Vocabulary Cards: *factor, fraction, product*
- Simplify Fractions, p. 138

1 WARM UP

Introduce each vocabulary word to students. Say the word aloud and have students repeat it.

Show students the *factor, fraction,* and *product* ***Vocabulary Cards.*** Have students say each word again.

Ask volunteers to write examples of multiplication sentences that include fractions on the board. Then have them label the factors and product.

2 ENGAGE

Write $\frac{1}{2} \times \frac{1}{6} = \frac{1}{12}$ on the board.

- **What are the factors?** $\frac{1}{2}$ **and** $\frac{1}{6}$
- **What is the product?** $\frac{1}{12}$
- **Is the product in simplest form?** yes

Write $\frac{3}{4} \times \frac{1}{3} = \frac{3}{12}$ on the board.

- **What are the factors?** $\frac{3}{4}$ **and** $\frac{1}{3}$
- **What is the product?** $\frac{3}{12}$
- **Is the product in simplest form?** no
- **How can you simplify the fraction?** $\frac{1}{4}$

Write $\frac{1}{4} \times \frac{2}{3} \times \frac{1}{2} = \frac{2}{24}$ on the board.

- **What are the factors?** $\frac{1}{4}$, $\frac{2}{3}$, $\frac{1}{2}$
- **What is the product?** $\frac{2}{24}$
- **Is the product in simplest form?** no
- **How can you simplify the fraction?** $\frac{1}{12}$

Continue with other examples to check students' concept of the vocabulary.

Have partners work on the Simplify Fractions worksheet. Allow students to use a calculator if they like. Review as a group.

Teacher Note

Remember that it will benefit English learners to get a head start on the ancillary vocabulary that they will see in the math lesson, particularly in the word problems. Preteach any vocabulary that may help students understand a word problem.

Progress Monitoring

If… you have an odd number of students during a partner activity,	**Then…** have one student act as "teacher" to observe partners and give feedback.

3 REFLECT

Extended Response

- **Susie has three-fourths of a pizza. She wants to divide it and give an equal share to three friends. How much pizza will each friend receive? How do you know?**
- **Explain the term *product*.**
- **Why is it important to understand how to multiply fractions?**

Encourage student discussion of these questions and answers.

Progress Monitoring	
If… some students struggle with the lesson vocabulary,	**Then…** work with them individually or as a small group.

4 ASSESS

Informal Assessment

Have students complete the following activity to make sure they understand the vocabulary. As students use each word:

1. Check understanding.
2. Correct errors.
3. Recheck for understanding.

- Write $\frac{4}{5} \times \frac{1}{2} = \frac{4}{10}$ on the board. Have students identify the factors and the product.
- Have students simplify the product.

For each word, use the following rubric to assign a score.

The student can repeat the word when prompted. (1 point)

The student knows the word but does not know its meaning. (2 points)

The student has a vague idea of the word's meaning. (3 points)

The student knows the word and can use the word in context. (4 points)

Week 6

Objective

Students can understand the meanings of the terms related to multiplying and dividing fractions, including the term *reciprocal.*

Vocabulary

- **dividend** The number that is to be divided
- **divisor** The number the dividend is to be divided by
- **multiplicative inverse** Two numbers whose product is 1. For example, the multiplicative inverse of $\frac{2}{5}$ is $\frac{5}{2}$, and the multiplicative inverse of 8 is $\frac{1}{8}$. Multiplicative inverses are also called reciprocals of each other.
- **quotient** The answer to a division problem
- **reciprocal** Two numbers whose product is 1

Materials

Program Materials

Vocabulary Cards: ***factor, product, dividend, divisor, quotient***

1 WARM UP

Introduce each vocabulary word to students. Say the word aloud and have students repeat it. Show students the *factor, product, dividend, divisor,* and *quotient* ***Vocabulary Cards.*** Have students read and say each word again.

Write the following multiplication sentence on the board: $\frac{2}{3} \times \frac{3}{2} = ?$

- **What are the factors?** $\frac{2}{3}$ **and** $\frac{3}{2}$
- **What is the product?** If students say $\frac{6}{6}$, remind them that the fraction can be converted into a whole number.
- **Is 1 an equivalent product?** **yes**

Tell students that when two fractions are multiplied and their product equals 1, they are called *reciprocals* or *multiplicative inverses.* Model the pronunciation of each term. Have students repeat. Write the terms on the board.

Check students' understanding by offering other examples.

2 ENGAGE

Write the following division sentence on the board: $5 \div \frac{2}{3} = \frac{15}{2}$.

- **What is the dividend?** **5**
- **What is the divisor?** $\frac{2}{3}$
- **What is the quotient?** $\frac{15}{2}$
- **Is this a division sentence?** **yes**
- **What is the inverse operation?** **multiplication**

Model how to solve a problem in which a dividend is being divided by a fraction. Use the terms *reciprocal* and *multiplicative inverse* in your description.

Teacher Note

Pronunciation of *reciprocals* and *multiplicative inverses* may be a challenge for English learners. Break down the terms into syllables and say each syllable slowly and clearly. Then put them together and say the word slowly. Speed up your model as students gain facility with the pronunciations.

Using Student Worksheets

After students complete the activity, help them to complete the appropriate Practice for their levels of English development.

Beginning, p. 88

Intermediate, p. 89

Advanced, p. 90

3 REFLECT

Extended Response

- **Why do we need to know how to divide by fractions?**
- **How are reciprocals useful?**
- **When do we need to divide a fraction?**

Encourage student discussion of these questions and answers.

4 ASSESS

Informal Assessment

Have students complete the following activity to make sure they understand the vocabulary. As students use each word:

1. Check understanding.
2. Correct errors.
3. Recheck for understanding.

- Dictate the following division sentence and have students write it: $6 \div \frac{3}{4} = 8$.
- Have students identify the dividend, divisor, and quotient.
- Have students explain how to use a reciprocal to determine the quotient.

For each word, use the following rubric to assign a score.

The student can repeat the word when prompted. (1 point)

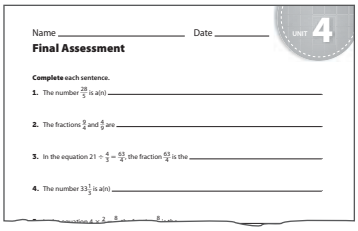
The student knows the word but does not know its meaning. (2 points)

The student has a vague idea of the word's meaning. (3 points)

The student knows the word and can use the word in context. (4 points)

Final Assessment

Distribute a copy of the Final Assessment, p. 91, to each student. Use the following rubric to determine each student's level of English development.


Name _____ Date _____

UNIT 4

Final Assessment

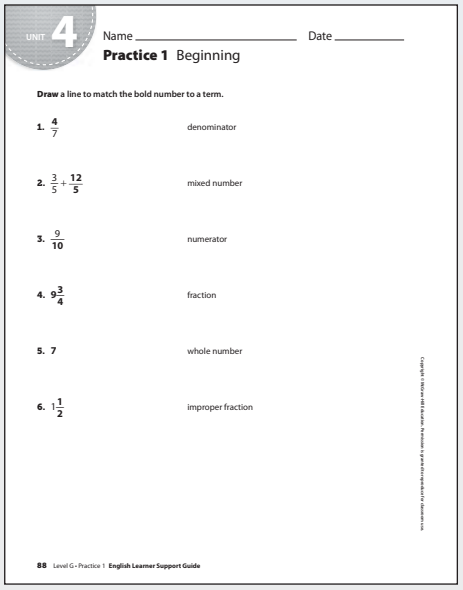
Complete each sentence.

1. The number $\frac{28}{5}$ is a(n) _____
2. The fractions $\frac{2}{4}$ and $\frac{5}{5}$ are _____
3. In the equation $21 \div \frac{4}{3} = \frac{63}{4}$, the fraction $\frac{63}{4}$ is the _____
4. The number $33\frac{1}{3}$ is a(n) _____

Final Assessment, p. 91

- **Beginning English Learners:** 0–3 of Questions 1–8 correct
- **Intermediate English Learners:** 4–6 of Questions 1–8 correct
- **Advanced English Learners:** 7–8 of Questions 1–8 correct

Use the Student Assessment Record, page 143, to record the assessment results.


UNIT 4

Name _____ Date _____

Practice 1 Beginning

Draw a line to match the bold number to a term.

1. $\frac{4}{7}$	denominator
2. $\frac{3}{5} + \frac{12}{5}$	mixed number
3. $\frac{9}{10}$	numerator
4. $9\frac{3}{4}$	fraction
5. **7**	whole number
6. $1\frac{1}{2}$	improper fraction

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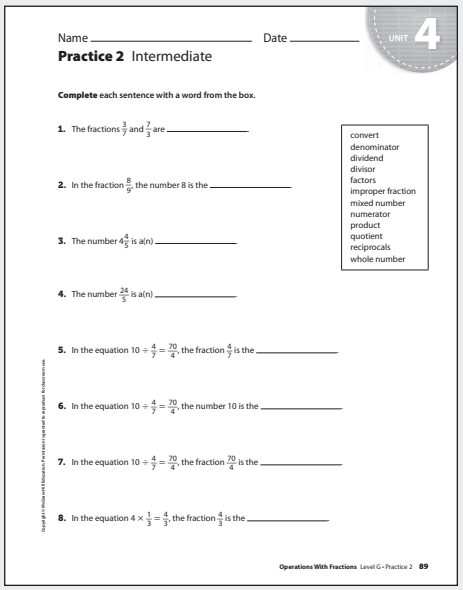
88 Level G • Practice 1 **English Learner Support Guide**

Practice 1, Beginning, p. 88


Name _____ Date _____

UNIT 4

Practice 2 Intermediate

Complete each sentence with a word from the box.

1. The fractions $\frac{3}{7}$ and $\frac{7}{3}$ are _____
2. In the fraction $\frac{8}{9}$, the number 8 is the _____
3. The number $4\frac{4}{5}$ is a(n) _____
4. The number $\frac{24}{5}$ is a(n) _____
5. In the equation $10 \div \frac{4}{7} = \frac{70}{4}$, the fraction $\frac{4}{7}$ is the _____
6. In the equation $10 \div \frac{4}{7} = \frac{70}{4}$, the number 10 is the _____
7. In the equation $10 \div \frac{4}{7} = \frac{70}{4}$, the fraction $\frac{70}{4}$ is the _____
8. In the equation $4 \times \frac{1}{3} = \frac{4}{3}$, the fraction $\frac{4}{3}$ is the _____

convert
denominator
dividend
divisor
factors
improper fraction
mixed number
numerator
product
quotient
reciprocals
whole number

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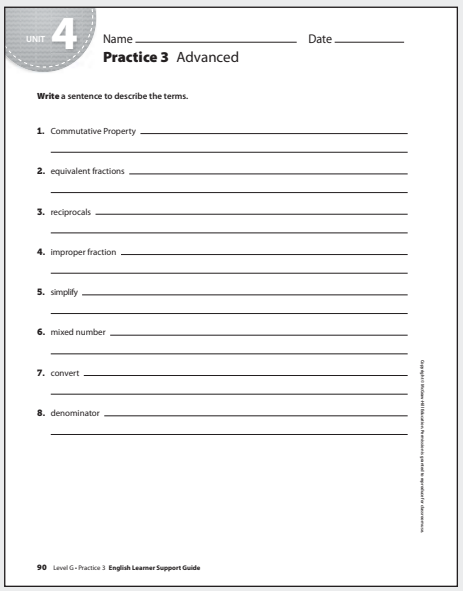
Operations With Fractions Level G • Practice 2 **89**

Practice 2, Intermediate, p. 89


UNIT 4

Name _____ Date _____

Practice 3 Advanced

Write a sentence to describe the terms.

1. Commutative Property _____
2. equivalent fractions _____
3. reciprocals _____
4. improper fraction _____
5. simplify _____
6. mixed number _____
7. convert _____
8. denominator _____

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90 Level G • Practice 3 **English Learner Support Guide**

Practice 3, Advanced, p. 90

UNIT 4

Name _____ Date _____

Practice 1 Beginning

Draw a line to match the bold number to a term.

1. $\frac{\mathbf{4}}{7}$	denominator
2. $\frac{3}{5} + \frac{\mathbf{12}}{\mathbf{5}}$	mixed number
3. $\frac{9}{\mathbf{10}}$	numerator
4. $\mathbf{9\frac{3}{4}}$	fraction
5. **7**	whole number
6. $1\frac{\mathbf{1}}{\mathbf{2}}$	improper fraction

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Name _____ Date _____

Practice 2 Intermediate

Complete each sentence with a word from the box.

convert
denominator
dividend
divisor
factors
improper fraction
mixed number
numerator
product
quotient
reciprocals
whole number

1. The fractions $\frac{3}{7}$ and $\frac{7}{3}$ are _____.

2. In the fraction $\frac{8}{9}$, the number 8 is the _____.

3. The number $4\frac{4}{5}$ is a(n) _____.

4. The number $\frac{24}{5}$ is a(n) _____.

5. In the equation $10 \div \frac{4}{7} = \frac{70}{4}$, the fraction $\frac{4}{7}$ is the _____.

6. In the equation $10 \div \frac{4}{7} = \frac{70}{4}$, the number 10 is the _____.

7. In the equation $10 \div \frac{4}{7} = \frac{70}{4}$, the fraction $\frac{70}{4}$ is the _____.

8. In the equation $4 \times \frac{1}{3} = \frac{4}{3}$, the fraction $\frac{4}{3}$ is the _____.

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UNIT 4

Name _____ Date _____

Practice 3 Advanced

Write a sentence to describe the terms.

1. Commutative Property _____

_____

2. equivalent fractions _____

_____

3. reciprocals _____

_____

4. improper fraction _____

_____

5. simplify _____

_____

6. mixed number _____

_____

7. convert _____

_____

8. denominator _____

_____

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Name _____ Date _____

UNIT 4

Final Assessment

Complete each sentence.

1. The number $\frac{28}{5}$ is a(n) _____.

2. The fractions $\frac{9}{4}$ and $\frac{4}{9}$ are _____.

3. In the equation $21 \div \frac{4}{3} = \frac{63}{4}$, the fraction $\frac{63}{4}$ is the _____.

4. The number $33\frac{1}{3}$ is a(n) _____.

5. In the equation $4 \times \frac{2}{7} = \frac{8}{7}$, the fraction $\frac{8}{7}$ is the _____.

Follow the directions.

6. Write a fraction that is equivalent to $\frac{1}{2}$. _____

7. Simplify the fraction $\frac{4}{12}$. _____

8. Convert $\frac{34}{3}$ to a mixed number. _____

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LEVEL G

English Learner Support Guide

Lessons, strategies, and resources to support English Learners in the Number Worlds program

MHID 0-02-136128-2
978-0-02-136128-1

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