ENGAGE


## GOM Lesson Opener

## Making Connections

Review what students have learned about fractions.
What models can you use to show $\frac{1}{3}$ ? (number line, fraction strip) How many thirds are in 1? (3) What is a unit fraction? (It's a fraction that names 1 equal part of a whole. The numerator is a 1.) How can you write $\frac{3}{3}$ as the sum of unit fractions? $\left(\frac{1}{3}+\frac{1}{3}+\frac{1}{3}\right)$ What are equivalent fractions? (fractions that name the same amount)

## Using the Digital Lesson

Pick a group of six students and have the class write fractions that represent the number of students in the group of six who are wearing glasses (or another student attribute of your choice). Try this with different sized groups of students.

## Learning Task

- What information are you given in the problem? (A spider web has three equal parts. One part is divided into two smaller, equal parts.)
- What problem are you asked to solve? (to name a fraction that is equivalent to $\frac{1}{3}$ )
- In the problem, $\frac{1}{3}$ of the web was divided into 2 equal parts. Tell whether each of the two parts is greater than or less than $\frac{1}{3}$. (less than $\frac{1}{3}$ )


## Literacy and Mathematics

- Have students research spiders and spider webs. Have them write a short paragraph about what they learn and share their information with others in the class.
- Have students use dot paper or grid paper to draw a triangle in the shape of the spider web in the story. Have them divide the triangle into three equal parts and shade $\frac{1}{3}$. Ask them to name the fraction that shows the part of the triangle that is not shaded.


## Texas Essential Knowledge and Skills

## TIEXS Number and Operations-3.3.A

Represent fractions using concrete objects and pictorial models
3.3.G Explain that two fractions are equivalent if they are both represented by the same point on the number line or represent the same portion of a same size whole

Also 3.3.B, 3.3.E, 3.3.F
MATHEMATICAL PROCESSES
3.1.A Apply mathematics to problems
3.1.E Create and use representations
3.1.G Display, explain, and justify mathematical ideas and arguments

## Are You Ready?

Access Prior Knowledge
Use the Are You Ready? 3.5 in the Assessment Guide to assess students' understanding of the prerequisite skills for this lesson.

## Vocabulary



Multimedia eGlossary at thinkcentral.com


DIGITAL

## For the student

Interactive Student Edition provides students with an interactive learning environment!


## Math on the Spot

 Video Tutor

[^0]For the teacher
Digital Management Center organizes program resources by TEKS!
eTeacher
Edition


Online Assessment System

## Unlock the Problem N

How can you describe part of a whole in two ways? Read the problem. You can use a model to solve the problem.

Check to be sure students understand that they need to follow the directions to write two different fractions that name the amount of the sandwich each friend ate.

- How does the model show two ways to describe the part of the sandwich each friend ate? The model shows 4 circles, which shows that each friend ate $\frac{1}{4}$ of the whole sandwich. The model also shows 8 pieces grouped into twos, which shows that each friend ate $\frac{2}{8}$ of the whole sandwich.
- Explain how you know how many eighths each friend ate. There are 2 eighths in each group.
- Compare the fractions $\frac{1}{4}$ and $\frac{2}{8}$. What do you notice about the numerators and denominators? Possible answer: both values double.


## Example

- Which symbol would you write to compare the equivalent fractions? Explain. the equal to symbol; possible explanation: equivalent fractions name the same amount.


## 3.5 <br> Equivalent Fractions

TEKS Number and Operations- 3.3.A, 3.3.G Also 3.3.B, 3.3.E, 3.3.F MATHEMATICAL PROCESSES 3.1.A, 3.1.E, 3.1.G
?. Essential Question
How can you use models to name equivalent fractions?

## P Unlock the Problem

Cole brought a submarine sandwich to the picnic. He shared the sandwich equally with 3 friends. The sandwich was cut into eighths. What are two ways to describe the part of the sandwich each friend ate?

Cole grouped the smaller pieces into twos. Draw circles to show equal groups of two pieces to show what each friend ate.

There are 4 equal groups. Each group is $\frac{1}{4}$ of the whole sandwich. So, each friend ate $\frac{1}{4}$ of the whole sandwich.

How many eighths did each friend eat? $\frac{2}{8}$
$\frac{1}{4}$ and $\frac{2}{8}$ are equivalent fractions since they both
name the same amount of the sandwich
So, $\frac{1}{4}$ and $\qquad$ of the sandwich are two ways to describe the part of the sandwich each friend ate.

## Example Model the problem.

Heidi ate $\frac{3}{6}$ of her fruit bar. Molly ate $\frac{4}{8}$ of her fruit bar, which is the same size. Which girl ate more of her fruit bar?

Shade $\frac{3}{6}$ of Heidi's fruit bar and $\frac{4}{8}$ of Molly's fruit bar.

- Is $\frac{3}{6}$ greater than, less than, or equal to $\frac{4}{8}$ ? equal to

So, both girls ate the __same_ amount.

- How many people shared the sandwich?

4 people

## Differentiated Instruction

## ELL Language Support

Verbal / Linguistic Small Group

## ELPS 1.B.1, 4.C.3, 4.F. 6

## Strategy: Model Language

- Words with multiple consonants are especially challenging for English learners to say and read.
- Write these words on the board: halves, thirds, fourths, sixths, eighths
- Pronounce each word slowly, singling out letters that make up individual sounds.
- Then say the word quickly as you run your finger sixths under the word.
six $=/$ siks/
- Repeat and have students echo.

1. Each shape is 1 whole. Use the model to find the equivalent fraction.


Each shape is 1 whole. Shade the model or use the number line to find the equivalent fraction.

(d) 2.

$\frac{2}{4}=\frac{4}{8}$

$\frac{12}{6}=\frac{6}{3}$
4. Andy swam $\frac{8}{8}$ mile in a race. Use the number line to find a fraction that is equivalent to $\frac{8}{8}$.

$$
\frac{8}{8}=\frac{4}{4}
$$



Circle equal groups to find the equivalent fraction.
© 5.

$\frac{3}{6}=\frac{1}{2}$

$\frac{6}{6}=\frac{3}{3}$
7. Write the fraction that names the shaded part of each circle.


Which pairs of fractions are equivalent? $\frac{2}{6}$ and $\frac{1}{3} ; \frac{1}{4}$ and $\frac{2}{8}$

## Share and Show

The first problem connects to the learning model. Have students use the MathBoard to explain their thinking.

## Math Talk <br>  Mathematical Processes

Use Math Talk to focus on students' understanding of equivalent fractions.

Use the checked exercises for Quick Check. Students should show their answers for the Quick Check on the MathBoard.

## RtI Quick Check

IF a student misses the checked exercises

THEN
Differentiate Instruction with Rtl Tier 1 Lesson 12

## COMMON ERRORS

Error Students may write the number of equal parts in one whole as the numerator.
Example Students might write $\frac{2}{2}$ as an equivalent fraction for $\frac{2}{4}$.
Springboard to Learning Remind students that the numerator tells the number of parts that are being counted and the denominator tells how many equal parts are in one whole. Also encourage students to check their work. In this case, they should recognize that $\frac{2}{2}$ is equal to one and cannot be equivalent to $\frac{2}{4}$, which is less than one.

## Enrich <br> Individual / Partners

- Have students use their understanding of equivalent fractions to solve the following problem.

There was $\frac{1}{2}$ of a pie left after a family dinner. Suppose 4 friends want to share the leftover pie equally. What fraction of the whole pie will each friend get? $\frac{1}{8}$

- Ask students to explain how they solved the problem and illustrate their explanations. Check students' work.
- Have students write similar problems and exchange with a partner and solve.


## (4) the 5 Es ELABORATE

## Problem Solving

## H.O.T. Problems

Problem 8 requires students to design a strategy to divide $\frac{2}{3}$ of a whole into 4 equal pieces.

- Why isn't the answer $\frac{1}{4}$ ? Possible answer: each person gets $\frac{1}{4}$ of the pie that is left, but $\frac{1}{6}$ of the whole pie
Problem 10 requires students to find an equivalent fraction for $\frac{10}{2}$.
- What do you notice about the fractions? Possible answer: the amount of fourths is double the amount of halves.


## Go Deeper

Challenge students to write equivalent fractions for the following numbers.

| $\frac{6}{3}$ | $\frac{12}{4}$ | $\frac{24}{6}$ | $\frac{2}{2}$ |
| :---: | :---: | :---: | :---: |
| Possible answers are given. |  |  |  |
| $\frac{4}{2}$ | $\frac{9}{3}$ | $\frac{16}{4}$ | $\frac{6}{6}$ |

## Math on the Spot Video Tutor

Through the Math on the Spot Video Tutor, students will be guided through an interactive solving of this type of H.O.T. problem. Use this video to also help students solve the H.O.T. problem in the Interactive Student Edition. With these videos and the H.O.T. problems, students will build skills needed in the TEXAS assessment.

Math on the Spot videos are in the Interactive Student Edition and at thinkcentral.com.

## Problem Solving

8. H.O.T Write Math After dessert, $\frac{2}{3}$ of a cherry pie is left. Suppose 4 friends want to share it equally. What fraction names how much of the whole pie each friend will get? Use the model on the right. Use Math Language to explain your answer.
$\frac{1}{6}$; Possible explanation: I divide each third into 2 equal
pieces to get 4 pieces in all. Each piece is $\frac{1}{6}$ of the whole pie.
9. Apply There are 16 people having lunch. Each person wants $\frac{1}{4}$ of a pizza. How many whole pizzas are needed? Draw a picture to show your answer.
Check students' drawings. Students' drawings should show 4 pizzas, divided into fourths.

4 pizzas
10.
1.0.1. Lucy has 5 brownies. Each brownie is cut in half. What fraction names all of the brownie halves? $\frac{10}{2}$

What if Lucy cuts each part of the brownie into
2 equal pieces to share with friends? What
fraction names all of the brownie pieces now? $\frac{20}{4}$
$\frac{10}{2}$ and $\frac{20}{4}$ are equivalent fractions.

11. Multi-Step Christy bought 8 muffins. She chose Check students' drawings. 2 chocolate, 2 banana, and 4 blueberry. She and her family ate the chocolate and banana muffins for breakfast. What fraction of the muffins did they eat? Write an equivalent fraction. Draw a picture.
Possible answer: $\frac{4}{8}$ of the muffins; $\frac{1}{2}$ is an equivalent fraction.

## Differentiated Instruction



## Daily Assessment Task

Fill in the bubble for the correct answer choice.
12. A team of scientists cut a slice of a tree into six equal pieces to determine its age. There are three scientists, so each gets $\frac{1}{3}$ of the slice. Which fraction is equivalent to $\frac{1}{3}$ ?
(A) $\frac{1}{6}$
(C) $\frac{3}{6}$

- $\frac{2}{6}$
(D) $\frac{4}{6}$

13. Simone ate $\frac{3}{6}$ of her sandwich. Which fraction is equivalent to $\frac{3}{6}$ ?
(A) $\frac{1}{4}$

- $\frac{1}{2}$
(B) $\frac{1}{3}$
(D) $\frac{2}{3}$


14. Representations Multi-Step Sally ate $\frac{2}{8}$ of her tortilla.

Dylan ate $\frac{2}{3}$ of his tortilla. Michael ate $\frac{1}{2}$ of his tortilla. Bianca ate $\frac{1}{4}$ of her tortilla. Which friends had the same fraction of their tortillas left?
(A) Dylan and Michael
(B) Sally and Dylan
(C) Dylan and Bianca


Sally and Bianca

## TEXAS Test Prep

15. Mr. Peters made an apple pie. There is $\frac{6}{8}$ of the pie left over. Which fraction is equal to the part of the pie that is left over?


- $\frac{3}{4}$
(C) $\frac{1}{2}$
(B) $\frac{2}{4}$
(D) $\frac{1}{4}$


## Differentiated Centers Kit



## Literature

Pizza Parts!
Students read about how to find equal parts to write fractions.


## Activities

Fraction Action
Students complete blue Activity Card 11 by finding fractional parts of a group of pattern blocks.

## (5) EJALLUATE

## Daily Assessment Task

## RtI

Can students use models to name equivalent fractions?

- Soar to Success Math Warm-Up 9.32
- Enrich 15
- Homework and Practice Lesson 3.5


## TEXAS Test Prep Coach

Test Prep Coach helps teachers to identify common errors that students can make. In the Test Prep exercise, if students selected:

B They incorrectly calculated the numerator.
C They may not understand one half.
D They found the part of the pie that was eaten.

## ?. Essential Question Write

How can you use models to name equivalent fractions? Possible answer: I can shade models and draw pictures to show equal parts.

## (5) EVALLUATE

?
Homework and Practice
$\qquad$


### 3.5 Equivalent Fractions

Each shape is 1 whole. Shade the model to find the equivalent fraction.

$\frac{1}{2}=\frac{2}{4}=\frac{4}{8}$

$\frac{3}{3}=\frac{6}{6}$

## Problem Solving

5. Tom ate $\frac{2}{6}$ of his granola bar. Hank ate $\frac{1}{3}$ of his granola bar.
Shade $\frac{2}{6}$ of Tom's granola bar and $\frac{1}{3}$ of Hank's granola bar. Who ate more of the granola bar?


Tom and Hank both ate the same
amount.

## Homework and Practice

Use the Homework and Practice pages to provide students with more practice on the concepts and skills of this lesson.

## Lesson Check

## TEXAS Test Prep

## Fill in the bubble completely to show your answer.

6. Matt cut his mini pizza into six equal pieces and ate two of them. Dawn cut her mini pizza into three equal pieces and ate one piece.


Which statement about the amount each ate is true?
(A) Matt ate $\frac{2}{3}$ pizza and Dawn ate $\frac{1}{3}$ pizza. $\frac{2}{3}=\frac{1}{3}$
(B) Matt ate $\frac{2}{6}$ pizza and Dawn ate $\frac{1}{3}$ pizza. $\frac{2}{6}>\frac{1}{3}$
(C) Matt ate $\frac{2}{6}$ pizza and Dawn ate $\frac{1}{3}$ pizza. $\frac{2}{6}<\frac{1}{3}$

- Matt ate $\frac{2}{6}$ pizza and Dawn ate $\frac{1}{3}$ pizza. $\frac{2}{6}=\frac{1}{3}$

8. Multi-Step The shaded models show the fractional part of a turkey sandwich that each person ate.
Which people ate the same amount?
(A) Ella and Gia
(B) Dora and Ella

Dora and Fiona
(D) Fiona and Gia
7. Beth and Bonnie bought a submarine sandwich. Beth cut the sandwich into four equal parts. Each girl ate half of her sandwich.


Which are equivalent fractions that show how much of the sandwich each girl ate?
(A) $\frac{1}{4}=\frac{1}{2}$

- $\frac{2}{4}=\frac{1}{2}$
(C) $\frac{3}{4}=\frac{1}{2}$
(D) $\frac{4}{4}=\frac{2}{2}$


Module 3 Assessment
Vocabulary
Choose the best term from the box to complete the sentence.

1. Equivalent fractions _ are two or more fractions that name the same amount. (p. 87)

## Concepts and Skills

2. When two fractions refer to the same whole and have the same denominators, explain why you can compare only the numerators. TEKS 3.3.A, З.3.H
Possible explanation: if the denominators are the same, the
pieces are the same size. So, you can compare the numerators
to find which fraction has more pieces and is greater.

Use models to compare. Write $<,>$, or $=$. TEKS 3.3.A. 3.3.H
3. $\frac{1}{6}<\frac{1}{4}$
4. $\frac{1}{8} \bigodot \frac{1}{8}$
5. $\frac{2}{8}<\frac{2}{3}$
6. $\frac{4}{2} \geqslant \frac{1}{2}$
7. $\frac{7}{8} \ominus \frac{3}{8}$
8. $\frac{6}{6} \geqslant \frac{6}{8}$

Shade the model or use the number line to find the equivalent fraction. TEKS 3.3.A, 3. 3.3., 3.3.5, , 3.3.6
9.

$\frac{3}{4}=\frac{6}{8}$
10.

$\frac{2}{4}=\frac{1}{2}$

$\frac{1}{3}=\frac{2}{6}$

## VData-Driven Decision Making $\stackrel{\Delta}{\text { RtI }}$

Based on the results of the Module 3 Assessment, use the following resources to strengthen individual or whole class instruction.

| Item | Lesson | TEKS* | Common Error | Intervene With <br> RtI* Tier $\mathbf{1}$ Lessons | Soar to <br> Success Math |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $3-8$ | $3.1,3.2,3.3$ | 3.3.A, 3.3.H | May consider only the numerator, or consider only the <br> denominator | $13,14,15$ | $9.29,9.30$ |
| $9-11$ | $3.4,3.5$ | 3.3.A. 3.3.B, <br> 3.3.F, 3.3.G | May incorrectly identify the numerator of the <br> equivalent fraction | 11,12 | 9.32 |

*TEKS—Texas Essential Knowledge and Skills; RtI—Response to Intervention

| Depth of Knowledge |  |
| :---: | :---: |
| DOK Level | Items |
| 1 | $3-8,9-11,12$ <br> 15 |
| 2 | 13,14 |

12. Two walls in Tiffany's room are the same size. Tiffany paints $\frac{1}{4}$ of one wall. Jake paints $\frac{1}{8}$ of the other wall. Which of the following correctly compares the fractions? TEKS 3.3.A, 3.3.H
(A) $\frac{1}{4}<\frac{1}{8}$

- $\frac{1}{4}>\frac{1}{8}$
(B) $\frac{1}{8}=\frac{1}{4}$
(D) $\frac{1}{8}>\frac{1}{4}$

13. Matthew divided a banana into sixths and ate two parts. What is an equivalent fraction for $\frac{2}{6}$ ? TEKS 3.3.A. 3.3.F, 3.3.G

(A) $\frac{2}{3}$
(C) $\frac{1}{4}$
(B) $\frac{1}{2}$

- $\frac{1}{3}$

14. Gabby cut an apple into 2 equal pieces and ate 1 of the pieces. What is an equivalent fraction for the portion of apple Gabby ate? TEKS 3.3.A, 3.3.G

(A) $\frac{3}{4}$
(C) $\frac{2}{8}$

- $\frac{4}{8}$
(D) $\frac{3}{8}$

15. Liam rowed his boat $\frac{3}{4}$ mile across the lake. What is an equivalent fraction for $\frac{3}{4}$ ? TEKS 3.3.A, 3.3.B, 3.3.F, 3.3.G

(A) $\frac{2}{3}$
(C) $\frac{4}{8}$
(B) $\frac{3}{6}$

- $\frac{6}{8}$


## Data-Driven Decision Making <br> $\square$

| Item | Lesson | TEKS* | Common Error <br> Intervene With <br> RtI ${ }^{*}$ Tier $\mathbf{1}$ Lessons | Soar to <br> Success Math |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 12 | 3.2 | 3.3.A, 3.3.H | May think the fraction with the greater denominator is <br> the greater fraction | 14 | 9.29 |
| 13,14 | 3.5 | 3.3.A, 3.3.F, <br> 3.3.G | May incorrectly identify the numerator of the <br> equivalent fraction | 12 | 9.32 |
| 15 | 3.4 | 3.3.A, 3.3.B, <br> 3.3.F, 3.3.G | May incorrectly identify the numerator of the <br> equivalent fraction | 11 | 9.32 |

*TEKS—Texas Essential Knowledge and Skills; RtI—Response to Intervention


[^0]:    $i$ Tools Virtual Manipulatives

    Soar to Success Math Online Intervention

