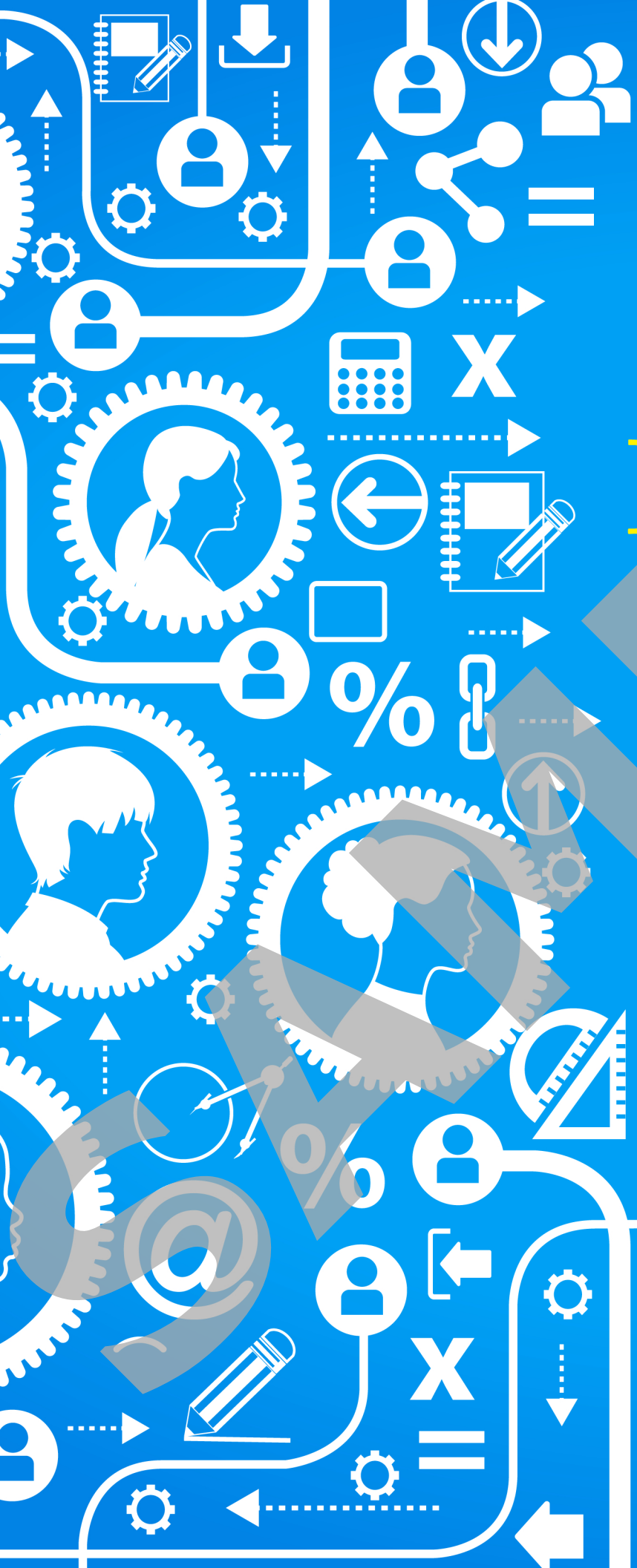

Engaging Mathematics, Volume II: Grade 5

region4®

Engaging Mathematics, Volume II: Grade 5

Teacher Edition

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Region 4 Education Service Center supports student achievement by providing educational products and services that focus on excellence in service for children.

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Table of Contents

What is *Engaging Mathematics, Volume II: Grade 5*?

1 An instructional resource featuring over 90 Texas Essential Knowledge and Skills (TEKS)-based, classroom-ready mathematics activities that each take approximately 10 to 15 minutes to complete.

2 A TEKS-based resource that addresses all Grade 5 mathematics TEKS and provides—

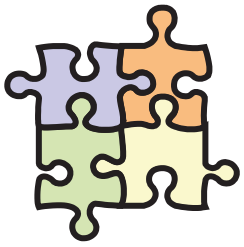
- Rigorous problem-solving tasks
- Manipulative-based tasks
- Vocabulary development tasks
- Sorting and classifying tasks

3 A resource that supports high-quality, research-based instruction by providing activities that can be used for various purposes, including—

- Engaging warm-ups and opening tasks that draw students into relevant and challenging mathematics
- Instructional support for all students, from at-risk to gifted and talented, to help learners articulate, refine, and retain important mathematical concepts, processes, and skills
- Short-cycle, formative assessments that provide immediate and ongoing feedback to guide instruction for the teacher and learning for the student
- Supplemental tasks to support intervention strategies

4 A resource that incorporates the mathematics process standards by promoting—

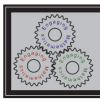
- Reasoning, generalizing, and problem-solving in mathematical and real-world contexts
- Modeling, using tools, and connecting representations
- Analysis
- Communication



What is found in an Engaging Mathematics TEKS-based activity?

TEKS have been phrased in student-friendly language so that students may gauge their learning.

Common classroom materials are used for ease of preparation. Materials are listed 1-per-student unless otherwise noted. Page titles for student handouts are bolded.



Representing the Value of Digits, Activity

Activity Objective

I can match the words, numerals, and expanded notation that represent the same value.

I can use formal language to explain representations of a number.

Materials

- **Same Value**
- **Expanded Notation Cards**
- Scissors
- Tape or glue

Answer Key

Word Form	Standard Notation	Expanded Notation
Seven and eighteen hundredths	7.18	$(7\times1)+\left(1\times\frac{1}{10}\right)+\left(8\times\frac{1}{100}\right)$
Seven and eighty-one thousandths	7.081	$(7\times1)+\left(0\times\frac{1}{10}\right)+\left(8\times\frac{1}{100}\right)+\left(1\times\frac{1}{1,000}\right)$
Eight and seventy-one hundredths	8.71	$(8\times1)+\left(7\times\frac{1}{10}\right)+\left(1\times\frac{1}{100}\right)$
Eight and one hundred seventy-eight thousandths	8.178	$(8\times1)+\left(1\times\frac{1}{10}\right)+\left(7\times\frac{1}{100}\right)+\left(8\times\frac{1}{1,000}\right)$

ELPS have been included in the form of a student-friendly language objective.

Debriefing questions are included to assist the teacher with facilitating a post-activity student discussion.

Debriefing Questions

- What strategies did you use to help you determine the matching Expanded Notation Card?
- How might the number in the ones place have helped you to eliminate some of the cards?
- How could a place value chart help verify that you have the correct solutions?

Communicating about Mathematics

Students may respond by talk
a partner and recording a writ
response in the space provide

Possible sentence frame:
I would use the _____
notation because _____.

Each activity includes an opportunity for students to articulate and summarize their own learning. A sentence frame is provided for students who may need language support.

Listen For . . .

- *Use of place value terms; ones, tenths, hundredths, thousandths, expanded notation.*
- *Connections between the value of the digit and the place of the digit.*

Listen/Look For . . .

*Connections between the nota
place value, and the model
selected.*

Key learning outcomes from the debriefing discussion are summarized here.

Key learning outcomes from the Communicating about Mathematics section are included here.

Texas Essential Knowledge and Skills (TEKS) Alignment Chart

# Comparing and Ordering Decimals, Activity 3
5(2)(B)

Activity Objective

I can use place value and the > and < symbols to compare two decimals.

I can explain why my model represents the mathematical statement.

Materials

- **Comparing Decimals: True and False Examples**

Answer Key

Possible answers.

When comparing two decimals . . .	True	False
the number with more digits is greater.	0.236 > 0.03	0.023 < 0.2
a number with 0 in the tenths place is less than a number with 2 in the tenths place.	0.01 < 0.2	1.012 > 0.2
a number with 1 in the tenths place is greater than a number with 1 in the hundredths place.	0.12 > 0.01	1.1 < 2.01
a three-digit number with 5 in the ones place and 2 in the tenths place is greater than a three-digit number with 5 in the ones place and 1 in the hundredths place.	5.25 > 5.01	5.25 < 15.01

Debriefing Questions

- Which statement was the easiest to create a true and false example?
- Which statement was the most difficult to create a true and false example?
- What strategies did you use to create a true and false example?
- Which model did you use to prove one of your statements true?

Listen For . . .

- *Understanding of place value when comparing decimals.*
- *Understanding of the decimal in relationship to place value.*

Communicating about Mathematics

Students may respond by talking to a partner and recording a written response in the space provided.

Possible sentence frame:
My model proves that _____ is true/false because _____.

Listen/Look For . . .

Use of hundreds grids, number lines, or other models.

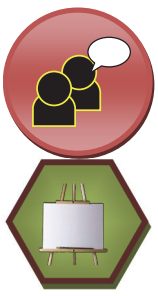
Student Name: _____ Date: _____

Comparing Decimals: True and False Examples

Ms. Kay wrote the following statements on the board and told her students that all four of them are only SOMETIMES true. Create an example using the > or < symbols that would make each statement true, and an example using the > or < symbols that would make each statement false.

When comparing two decimals . . .	True	False
the number with more digits is greater.		
a number with 0 in the tenths place is smaller than a number with 2 in the tenths place.		
a number with 1 in the tenths place is greater than a number with 1 in the hundredths place.		
a three-digit number with 5 in the ones place and 2 in the tenths place is greater than a three-digit number with 5 in the ones place and 1 in the hundredths place.		

Communicating about Mathematics
Draw a model of each decimal to prove **one** of your examples above is true.



# Representing Quotients of Decimals
5(3)(F)

Activity Objective

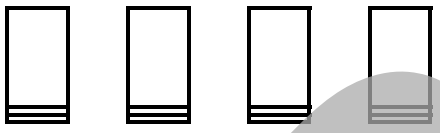
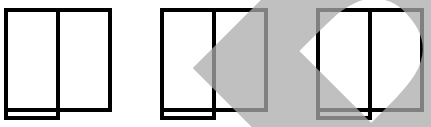
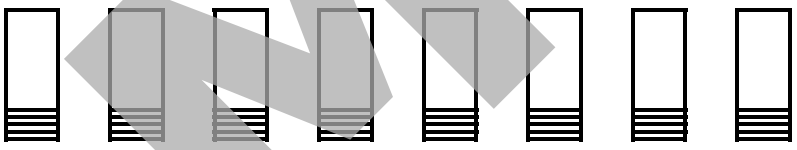
I can represent quotients of decimals using models.

I can explain the connection among an expression, its model, and its quotient for a problem involving decimals.

Materials

- **Modeling Division of Decimals**

Answer Key

Expression	Model	Quotient
4.8 ÷ 4		1.2
6.3 ÷ 3		2.1
3.3 ÷ 3		*1.1*
11.2 ÷ 8		*1.4*

Debriefing Questions

- What strategy did you use to sketch the models?
- How is the quotient represented in your model?
- How were the models for each expression similar? How were they different?
- How would the model change if the divisor is more than the dividend?

Listen For . . .

- *Connections between the size of the parts of the model and the dividend.*
- *Connections between the number of groups and the divisor.*
- *Connections between the model of each group and its quotient.*

Communicating about Mathematics

Students may respond by talking to a partner and recording a written response in the space provided.

Possible sentence frame:
The model of a division problem involving decimals connects to the expression/quotient because _____.

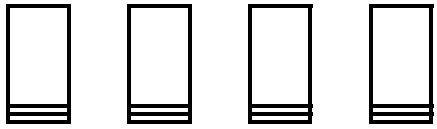
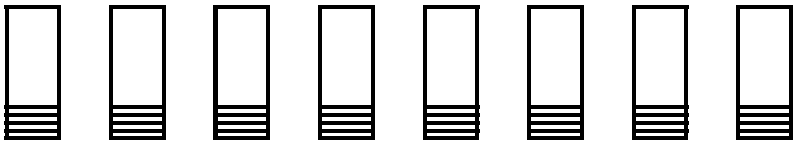
Listen/Look For . . .

Connections among an expression involving division of decimals, its model, and its quotient.

Student Name: _____ Date: _____

Modeling Division of Decimals

Complete the missing parts of the graphic organizer below.

Expression	Model	Quotient
4.8 ÷ 4		1.2
6.3 ÷ 3		2.1
3.3 ÷ 3		
11.2 ÷ 8		

Communicating about Mathematics
Describe how the model of a division problem involving decimals connects to its expression and its quotient.

_____

_____

_____

_____

_____

_____