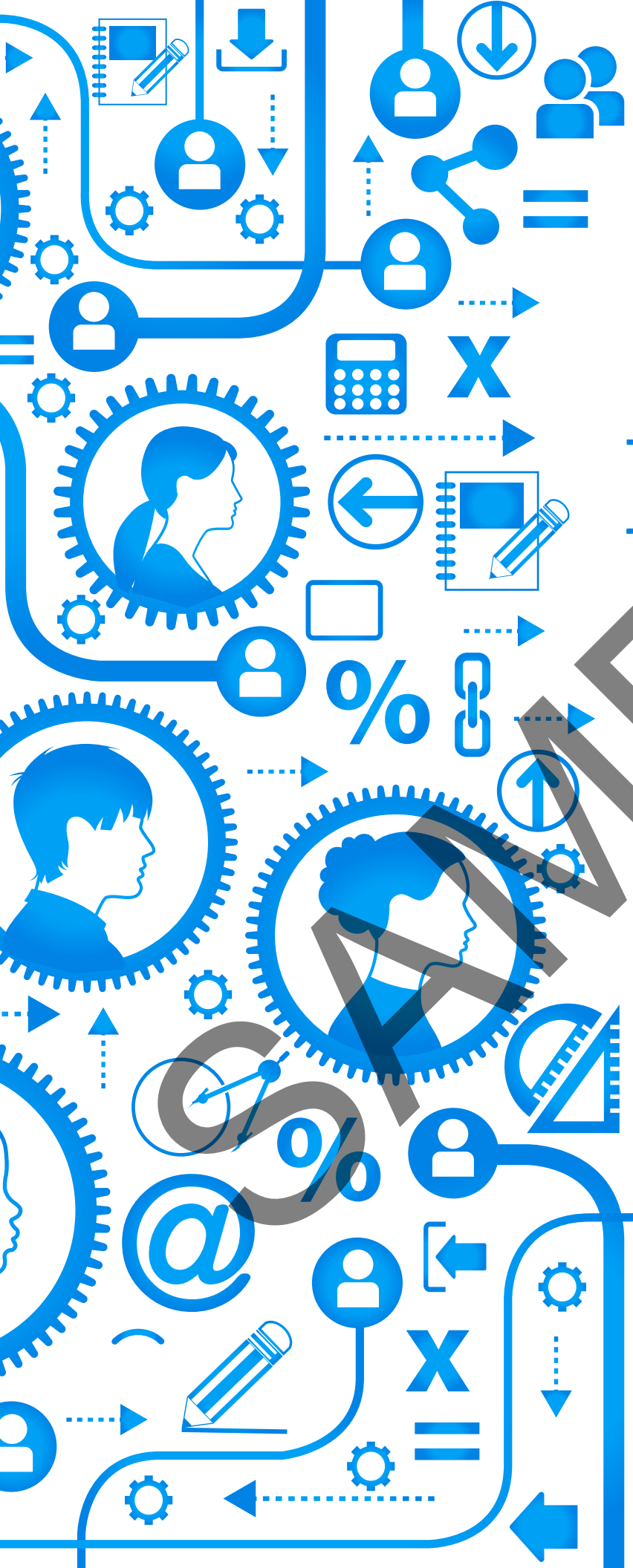

Engaging Mathematics, Volume I: Grade 5

region4®

Engaging Mathematics, Volume I: 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 I: Grade 5*?

1 An instructional resource featuring 78 Texas Essential Knowledge and Skills (TEKS)-based, classroom-ready mathematics activities that each take approximately 10 to 15 minutes to complete. We took the best activities of the original series, refreshing and revising them, and then added new activities where needed to create a complement for *Engaging Mathematics, Volume II*.

2 A TEKS-based resource that addresses the majority of the grade 5 mathematics TEKS. *Engaging Mathematics, Volume I* complements *Engaging Mathematics, Volume II.* Both volumes provide—

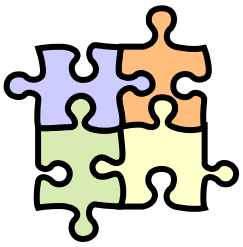
- Rigorous problem-solving tasks;
- Manipulative-based tasks;
- Vocabulary development tasks; and
- Sorting and classifying tasks.

3 A resource that supports high-quality, research-based practices 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 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; and
- Supplemental tasks to support intervention strategies.

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

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



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

Each activity addresses a specific student expectation that is reflected in the content objective.

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

Facilitation questions are provided for teacher use when supporting student thinking and discourse.

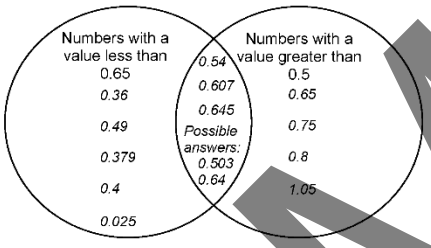
Comparing and Ordering Decimals, Activity 2
5(2)(B)

Activity Objective
The student will compare decimal numbers to sort the numbers into a graphic organizer.

Materials
- **Sorting Numbers**

Facilitation Questions
- How can you use place value to help you sort the numbers?
  I can compare the numbers by lining up the decimal points and comparing the digits according to their place values, starting with the digits in the greatest place value position.
- What is true about the numbers that are placed in the overlapping region of the graphic organizer?
  These numbers are greater than 0.5 and less than 0.65.
- What is true about the numbers that are not placed inside either circle?
  These numbers are either less than or equal to 0.25 or greater than or equal to 1.

Answers



An answer key is included for each activity.

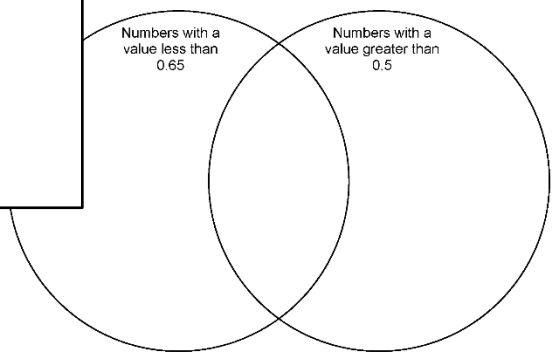
Each activity includes an opportunity for students to articulate and summarize aspects of their learning.

Date: _____

Sorting Numbers

ic organizer to sort the numbers based on their values.
itional numbers that belong in the overlapping region of the graphic organizer.

	0.379	0.607	0.8	0.4	0.025
	0.75	0.36	0.54	0.645	0.49



Communicating about Mathematics
How did you determine which numbers to place in the overlapping region of the graphic organizer?

# Multiplying Decimals, Activity 3
5(3)(E)

Activity Objective
The student will solve for the products of decimals.

Materials
- **Study the Solution**

Facilitation Questions
- What information do you know about problem 1?
  I know that Patrick needs to build 16 birdhouses and each birdhouse requires 126.25 square inches of cedar to build.
- What are you being asked to determine in problem 1?
  I need to determine the total amount of cedar Patrick needs to build the birdhouses.
- What operation did Gabe use to determine the total number of square inches of cedar needed to build the birdhouses?
  Gabe used multiplication to determine the total number of square inches of cedar needed to build the birdhouses.
- What do you notice about the method Gabe used to determine the product of 126.25 and 16?
  Possible answer: I notice that Gabe decomposed each factor and used an open array model to determine partial products. Then Gabe added the partial products to determine his answer.

Answer
Celeste collected $268.75 from jam sales.
Possible open array model shown:

	10	+ 0.75
20	20×10 200	20×0.75 15
+		
5	5×10 50	5×0.75 3.75

$$200 + 50 + 15 + 3.75 = 268.75$$

Student Name: _____ Date: _____

Study the Solution

- Fold your paper along the dashed line so that problem 1 and Gabe's Solution Method are visible.
- Review problem 1 and Gabe's Solution Method.
- Unfold your paper and solve problem 2 using Gabe's method.

1 Patrick is building birdhouses to sell at the farmer's market. He is building 16 birdhouses. Each birdhouse requires 126.25 square inches of cedar. How many square inches of cedar does Patrick need to make all 16 birdhouses?

Gabe correctly solved the problem. His solution and method are shown below.

Gabe's Solution Method

	126	+ 0.25
10	10×126 1,260	10×0.25 2.5
+		
6	6×126 756	6×0.25 1.5

$1{,}260 + 756 + 2.5 + 1.5 = 2{,}020$

2,020 square inches of cedar

---

2 Celeste sold homemade jam at the farmer's market. Each jar of jam sold for $10.75. By the end of the day, Celeste sold 25 jars of jam. How much money did Celeste collect from jam sales that day?

Communicating about Mathematics

Why does Gabe's method work?

_____

_____

_____

_____

_____

# Adding and Subtracting Rational Numbers, Activity 9
5(3)(K)

Activity Objective
The student will solve problems involving addition and subtraction of mixed numbers and whole numbers.

Materials
- **Fractions Loop**
- **Fractions Loop Cards**
- Tape or glue
- Scissors

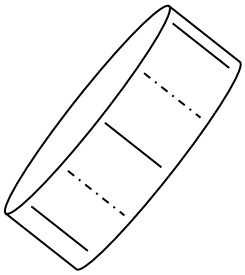
Facilitation Questions
- How can you use estimation to help you to match the cards?
  Possible answer: I can estimate $1\frac{1}{8}$ to one, and then I can subtract one from two.
  I could find a card that represents a solution that is close to one.
- When subtracting fractions, how can you regroup if necessary?
  I can regroup one whole from the whole number part of the mixed number with the fractional part of the mixed number.
- How can you find a common denominator?
  I need to find a common multiple of the denominators in the problem.

Answers

Jim's rock collection fills 2 boxes. Sedimentary rocks fill $1\frac{1}{8}$ boxes. The rest of his collection is igneous rocks. What fraction represents the part of a box filled by igneous rocks?	$\frac{7}{8}$
Bianca rode her bicycle $\frac{6}{10}$ mile to the library. Then she rode $1\frac{1}{2}$ miles further to the store. How many total miles did Bianca ride?	$2\frac{1}{10}$
Mr. Ma had a board that was $7\frac{5}{8}$ feet long. He used $2\frac{1}{4}$ feet to build a step for his porch. How many feet of the board did Mr. Ma have left?	$5\frac{3}{8}$
Mrs. Vincek had 4 yards of fabric. She used $2\frac{3}{8}$ yards of the fabric to make curtains. How many yards of fabric did Mrs. Vincek have left?	$1\frac{5}{8}$
Tom used $\frac{3}{4}$ pounds of turkey and $1\frac{1}{3}$ pounds of beef to make chili. How many total pounds of turkey and beef did Tom use to make chili?	$2\frac{1}{12}$

Student Name: _____ Date: _____

Fractions Loop



- Cut apart the **Fractions Loop Cards**.
- Choose a card and solve the problem.
- Attach the top of the card that contains the solution to the bottom of the card that contains the problem.
- Continue this process for the remaining problems.
- When complete, the taped cards should form a loop.

My Workspace:

Communicating about Mathematics
Describe your process for solving the problem about Mrs. Vincek.

_____
_____
_____
_____
_____

Fractions Loop Cards

Cut along the dashed lines.

$\frac{7}{8}$ Bianca rode her bicycle $\frac{6}{10}$ mile to the library. Then she rode $1\frac{1}{2}$ miles further to the store. How many total miles did Bianca ride?	$2\frac{1}{10}$ Mr. Ma had a board that is $7\frac{5}{8}$ feet long. He used $2\frac{1}{4}$ feet to build a step for his porch. How many feet of the board does Mr. Ma have left?	$2\frac{1}{12}$ Jim's rock collection fills 2 boxes. Large rocks fill $1\frac{1}{8}$ boxes. The rest of his collection are small rocks. What fraction represents the part of a box filled by small rocks?
$1\frac{5}{8}$ Tom used $\frac{3}{4}$ pounds of turkey and $1\frac{1}{3}$ pounds of beef to make chili. How many total pounds of turkey and beef did Tom use to make chili?	$5\frac{3}{8}$ Mrs. Vincek had 4 yards of fabric. She used $2\frac{3}{8}$ yards of the fabric to make curtains. How many yards of fabric did Mrs. Vincek have left?	