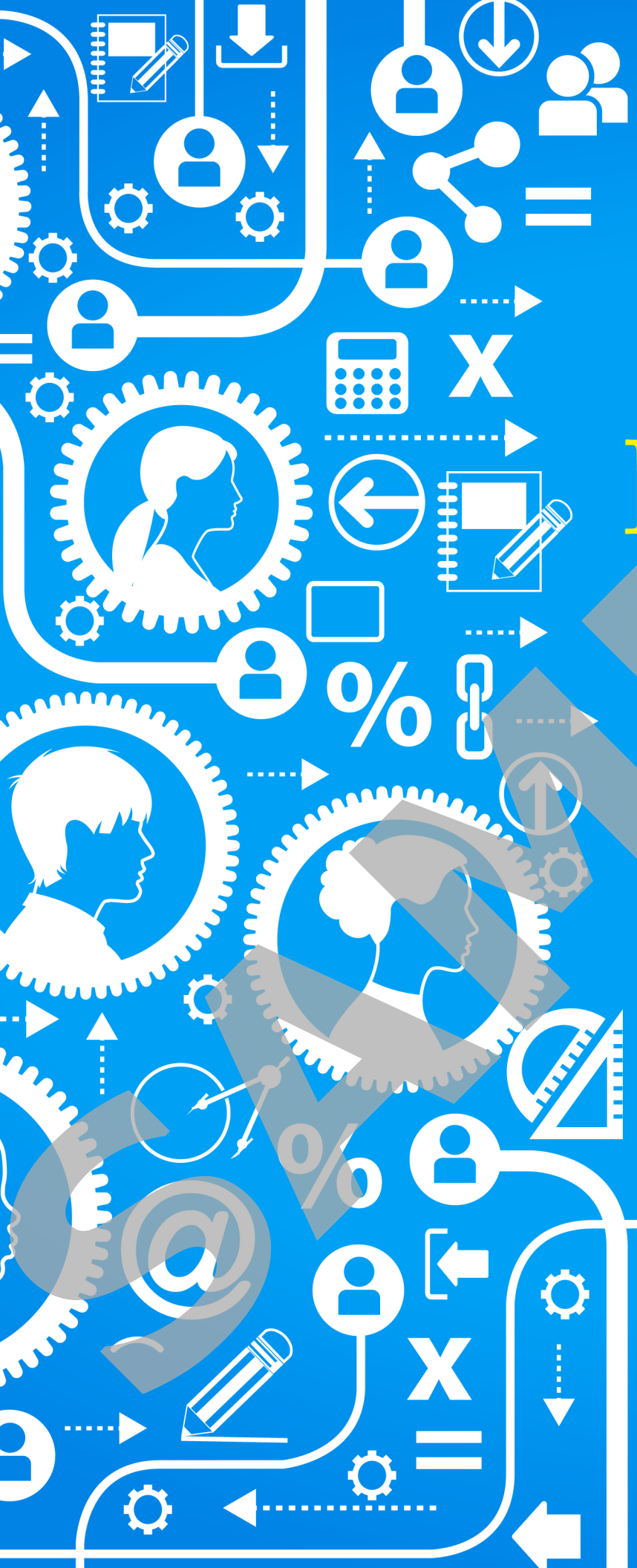


Engaging Mathematics, Volume II: Grade 2

region4®

Engaging Mathematics, Volume II: Grade 2

Teacher Edition

Product ID
407-1806

This page intentionally left blank.

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

Published by
Region 4 Education Service Center
7145 West Tidwell Road
Houston, Texas 77092-2096
www.esc4.net

ISBN-13: 978-1-937403-67-6

Printed in the United States of America

Acknowledgments

Region 4 Education Service Center would like to acknowledge the talent and expertise of those who contributed to the development of this book. Their dedication to our core values of excellence in service for children made possible the creation of this resource to assist educators in providing quality, effective instruction for all students.

Writing Team
Shannon Alba
Sana Brennan
Stefani Kulhanek, EdD
Crystal Munsinger
Sherry Olivares
Peggy O'Neal
Shelley Bolen-Abbott
Sharon Benson, EdD

Design Team
Dave Martinez

Table of Contents

What is *Engaging Mathematics, Volume II: Grade 2*?

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 2 mathematics TEKS and provides—

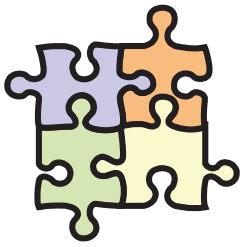
- Rigorous problem-solving tasks
- Manipulative-based tasks
- Vocabulary development tasks
- Sorting and classifying tasks

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.

Directions are included as a separate document to guide student completion of activities with multiple steps.

Representing Numbers, Activity 1
2(2)(B)

Activity Objective

I can represent numbers.

I can draw a model to represent the value of a number.

Materials

- **Directions: Using Expanded Form and Words**
- **Using Expanded Form and Words**
- **Number Strips**
- Scissors
- Colored pencils
- Tape or glue

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

Answer Key

Standard form: (folded paper) | 1 | 1 | 9 | 3 |

Expanded form: 1,000 + 100 + 90 + 3

Word form: one thousand, one hundred ninety-three

Standard form: (folded paper) | 5 | 8 | 7 |

Expanded form: 500 + 80 + 7

Word form: five hundred eighty-seven

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.

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

Debriefing Questions

- How did you determine the value of each digit?
- How does your understanding of place value help you create your model?

Communicating about Mathematics

Students may respond by talking to a partner and drawing a picture in the space provided.

Possible sentence frame:
My model represents _____ 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 . . .

- *Connections between the total values of each place and the number.*
- *Connections between the digits and the value of each digit.*
- *Appropriate use of digits and place value.*

Listen For . . .

Correct use of a model, such as base-ten blocks, to represent the value of each digit in the number.

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

# Compare and Order Numbers, Activity 1
2(2)(D), 2(2)(E)

Activity Objective

I can compare and order whole numbers.

I can use a number line or place value chart to compare and order numbers.

Materials

- **Directions: Comparing Numbers with Words**
- **Comparing Numbers with Words**

Answer Key

Possible answers.

	My Three-Digit Number	Greater Than, Less Than, Equal To	My Partner's Three-Digit Number
1	*861*	is *greater than*	*381*
2	*192*	is *less than*	*534*
3	*735*	is *greater than*	*402*
4	*280*	is *equal to*	*280*
5	*305*	is *less than*	*714*

Debriefing Questions

- How did you use place value to help you compare the two numbers?
- How do you compare two three-digit numbers that have the same digit in the hundreds place?

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 because _____.

Listen For . . .

- *Appropriate use of place value to compare three-digit numbers.*
- *Understanding of when to use the phrases greater than, less than, or equal to when comparing numbers.*
- *Understanding that when comparing the digits of two different numbers based on the same place-value position, the number with the larger digit in the largest place-value position that does not have the same digits is the greater number.*

Listen/Look For . . .

Appropriate use of a number line or place value chart to compare numbers based on the place value of the digits.

Directions: Comparing Numbers with Words

- Record 5 different three-digit numbers.
- Have a partner record 5 different three-digit numbers.
- Compare the two numbers in each row.
- Use words to show the relationship between the two numbers.
    - Greater than
    - Less than
    - Equal to

Student Name: _____ Date: _____

Comparing Numbers with Words

	My Three-Digit Number	Greater Than Less Than Equal To	My Partner's Three-Digit Number
1		is _____	
2		is _____	
3		is _____	
4		is _____	
5		is _____	

Communicating about Mathematics
Create a number line or a place-value chart to prove that **one** of the examples is true.

# Representing Data Points
2(10)(A)

Activity Objective

I can represent data points using a bar graph.

I can explain what the length of each bar in a bar graph represents.

Materials

- **How Many Cookies?**

Answer Key

1 *Becca ate 10 cookies.*

2 *Charlie ate 20 cookies.*

3 *Adam and Dot each ate 15 cookies.*

Debriefing Questions

- By what number do the intervals skip count?
- How can you determine the number of cookies that Charlie ate? Will this method work for Dot? Why?
- How did the length of each bar help you answer the questions?

Communicating about Mathematics

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

Possible sentence frame:
The length of each bar represents _____.

Listen For . . .

- *Understanding of the intervals given on the vertical axis.*
- *Appropriate use of the relative heights of the bars to make comparisons regarding the number of cookies eaten by each friend.*
- *Understanding that the length of a bar on a bar graph represents the number of data points for a given category.*

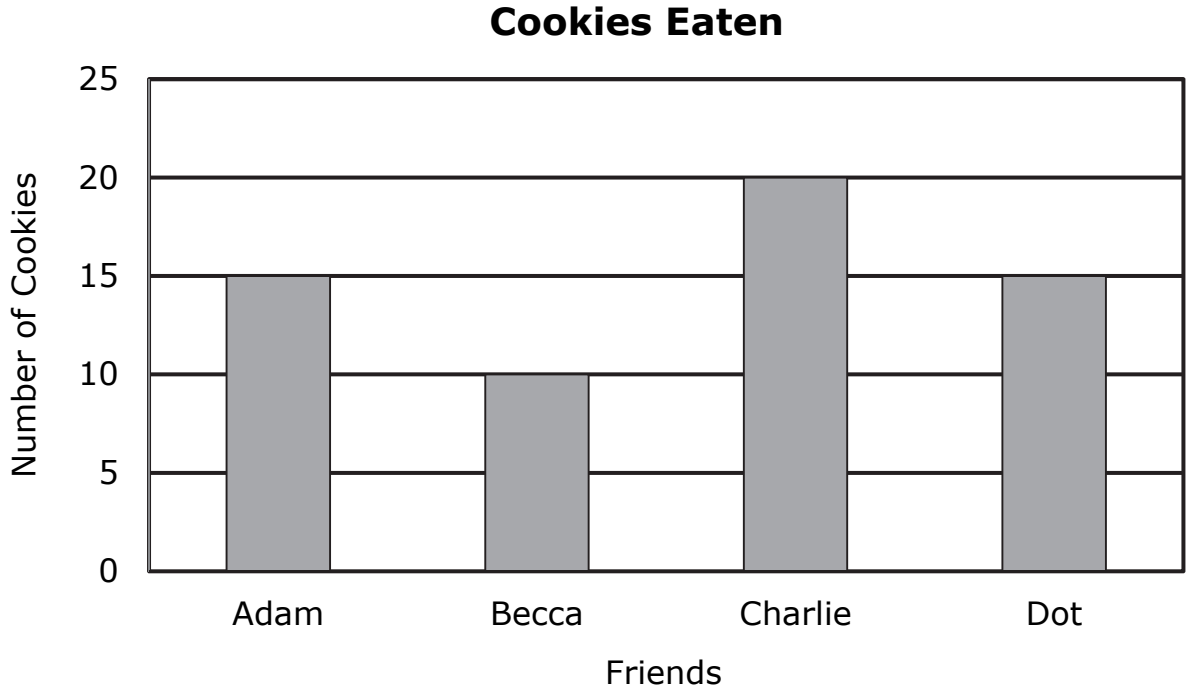
Listen/Look For . . .

Understanding that the length of each bar represents the number of cookies eaten by the corresponding friend.
Understanding that the labels on the vertical axis identify the length of each bar (number of cookies) and the labels on the horizontal axis identify the friend.

Student Name: _____ Date: _____

How Many Cookies?

The bar graph shows the number of cookies eaten by four friends.

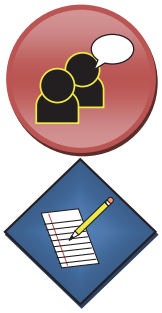


1 How many cookies did Becca eat?

2 Who ate 20 cookies?

3 Which two friends ate the same number of cookies?

Communicating about Mathematics
What does the length of each bar in the bar graph represent?



_____

_____

_____

_____