

DEVELOP AND USE Academic Language

Classroom Mathematics California ensures that all students, including English learners (ELs), have the support they need to engage with rigorous content and communicate their ideas effectively. Language-related features and resources address the California ELD Standards and show teachers how to scaffold instruction so that ELs can develop the academic language they need for success in mathematics.

Integrate Language Objectives

Language Objectives in every lesson are tied directly to the math Content Objectives. They address the four domains of language students will understand and use (listening, speaking, reading, writing) to meet the math objectives.

Develop Mathematical and Academic Vocabulary

Math and academic vocabulary are learned and practiced through routines, activities, and in-context use. Students are encouraged to leverage cognates from their home languages.

Language Objectives

- Explain strategies for rounding a number to the nearest ten or hundred using place value language and lesson vocabulary.
- Use lesson vocabulary such as *halfway* and *nearest* to explain problem-solving strategies.
- Explain ideas clearly and check for understanding by asking for and answering questions.

LESSON 1

Overview | Use Place Value to Round Numbers

CALIFORNIA STANDARDS

Math Focus

3.NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100.

SMP.1 It is embedded in

fort.

6.

1.3, 1.2

3.6

Objectives

Class Objectives

- Round two- and three-digit numbers to the nearest ten.
- Round three-digit numbers to the nearest hundred.
- Explain how to round numbers to the nearest ten and to the nearest hundred.

Language Objectives

- Explain strategies to transform a number to the nearest ten or hundred using place value and lesson vocabulary.
- Use known vocabulary such as halfway and nearest to explain problem-solving strategies.
- Explain clearly why asking for and answering questions.

Prior Knowledge

- Identify the hundreds, tens, and ones places in numbers.
- Understand the value of the hundreds, tens, and ones places in numbers.
- Skip-count by tens and hundreds.
- Identify whether a given digit is less than, equal to, or greater than 5.

In this lesson students apply their place-value knowledge to round numbers to the nearest ten or nearest hundred. They learn that rounded numbers can be used to estimate and are easier to use when calculating.

Students use models such as a number line and a hundred chart to round two-digit numbers to the nearest ten. They learn how to use the halfway number to decide how to round a number. Students use similar reasoning and models to round three-digit numbers to the nearest ten or hundred.

Vocabulary

New Terms students will begin to use **round** to find a number that is close in value to a given number by finding the nearest ten, hundred, or other place value.

Review Items students comfortably use **estimate (verb)** a close guess made using mathematical thinking.

estimate (verb) to give an approximate number or answer based on mathematical thinking.

Halfway Items students mark the halfway point on a number line at equal spaces to show numbers. **place value** the value assigned to a digit based on its position in a number (for example, the 2 in 324 is in the tens place but has a value of 20 or 200).

Academic Items students hear and use **hundred** in the middle.

model (noun) an object or picture that represents a situation.

nearest closest

In Grade 4 students will extend their place-value understanding to include the value of a digit in one place is ten times the value of the digit would have in the place to its right. Students will use this extended understanding to compare and to round multi-digit numbers (up to and round multi-digit numbers, thousands, and ten thousands.

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Lesson 1 Use Place Value to Round Numbers

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DEVELOP ACADEMIC LANGUAGE

WHY? Clarify the meaning of *non-rectangular* by discussing the prefix *non-*.

HOW? Remind students that when they come to an unfamiliar word, it helps to look for parts of the word they know. Display the word *non-rectangular* from Connect It problem 5. Guide students to identify the base word, *rectangle*. Help them determine that *non-* means *not* by making connections to other known words, such as *nonfiction* or *non-toxic*.

 **ELD.PI.3.12**

LESSON 14 | SECTION 2 ■ ■ ■

Develop

Purpose

- Develop the idea that square units can be used to measure the area of rectangular and non-rectangular shapes.

Understand that square units of different sizes can be used to measure area and that the larger the square units, the fewer squares it takes to cover a shape.

START

CONNECT TO PRIOR KNOWLEDGE

What Do You Remember?

Possible Solutions

- A partitioned into larger squares.
- B partitioned into more squares.
- C a smaller rectangle.

WHY? Support students' understanding that square units of different sizes can be used to cover a shape.

— DEVELOP ACADEMIC LANGUAGE —

WHY? Clarify the meaning of non-rectangular by discussing the perimeter.

HOW? Kerosed students that when they come to an unfamiliar word, it helps to look for parts of the word they know. Display the word non-rectangle from Connect It problem 5. Guide students to identify the base word, rectangle, and then deconstruct it so that they are not by making connections to other known words, such as nonfiction or non-toxic.

ELP L.1.12

MODEL IT

OMP 3

As students complete the problems, have them identify that they are being asked to find the area of square A and rectangle B, and that they are using different square units for each shape.

Common Misconception: If students are confused by using two different square units, then explain that unit is a general term used when the actual unit of measure is unknown. Stress that the size of 1 unit may change from one situation to another, but it should remain a consistent 1 in given problem.

Lesson 14

Develop Understanding of Area

LESSON 14 ■ ■ ■

MODEL IT: RECTANGULAR SHAPES

There are two problems.

Problem 1

- Use unit sticks to measure the length and width of the square and start to square it.
- What is the area of square A?

- What is the area of square A?
_____ square inches
- What is the area of square B?
_____ square inches

- Look at rectangle B (rectangle).

- Use a unit-sticker rule to measure the length and width of rectangle B and start to square it. What is the area of the square?

- What is the area of rectangle B?
_____ 35 square centimeters

DISCUSS

- How did you find the area of square A?
- How did you find the area of square B?
- How did you find the area of rectangle B?

DISCUSS IT

OMP 3

Support Partner Discussion

Encourage students to think of different ways to find the areas of the shapes.

Support as needed with questions such as:

• How do you count each square of rectangle B one by one?

• Could you have used another method to find the total number of squares?

Facilitate Whole Class Discussion

For each problem, have several students share their answers.

ASK What is the difference between 1 square A and 1 square centimeter? Do you think the area of square A is more or less than 4 square centimeters? Do you think it is more or less than 35 square centimeters? What do you estimate the area of square A to be in square centimeters?

LISTEN FOR A square inch is much bigger than a square centimeter. The area of square A is more than 4 square centimeters, but less than 35 square centimeters. Square A looks a little bigger than half of rectangle B, so its area is probably

20–30 square

Unit 4

Build Your Vocabulary

REVIEW

halves	whole
thirds	greater than ($>$)
fourths	less than ($<$)

Math Vocabulary

Label the illustrations with a fraction review word. Then compare and discuss your answers with your partner.





Prepare for Finding Equivalent Fractions

LESSON 23

SESSION 1

Work with your team using the comparison cards.

88 is _____

56 is _____

Academic Vocabulary

Put a check next to the words to complete the sentence.

☐ compare

1 I would like to _____.

2 I can _____.

3 I will _____ each part is _____.

4 If you _____ four equal parts, _____.

fraction models

Examples

Examples

Examples

Examples

Examples

Examples

2 Each fraction model below shows thirds. Draw lines on each model to show sixths.





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Math Vocabulary

Differentiate to Support English Learners

Every session includes activity-specific support for a continuum of English proficiency levels, focused on California ELD standards. Scaffolding often includes an invitation for students to leverage their home language.

DIFFERENTIATION | ENGLISH LEARNERS

Use with Session 1 Connect It

 ELD.PI.3.10a Writing, ELD.PI.3.11 Supporting opinions

Emerging: Speaking/Writing	Expanding: Speaking/Writing	Bridging: Speaking/Writing
Support students as they express opinions in Connect It problem 3. Read the problem and use Say It Another Way with the whole group. Then have students point to each model in problem 2. In three different corners of the room, display signs with <i>Model a</i>, <i>Model b</i>, and <i>Another Way</i>. Invite students move to the area with the sign that shows their preferred model. Ask each small group to discuss why they chose that model. Encourage students to use gestures, drawings, phrases, and their home language to support opinions. Provide sentence frames for writing: • I think _____ is easier. • I can solve _____. Then I can _____.	Support students as they express opinions in Connect It problem 3. Read the problem aloud and have students work with a partner to Say It Another Way. In three different corners of the room, display signs with <i>Model a</i>, <i>Model b</i>, and <i>Another Way</i>. Invite students move to the area with the sign that shows their preferred model. Ask each small group to discuss their choice using their shared home language or English. Encourage students to use models, drawings, and simple sentences to explain their thinking. Provide sentence frames to support writing: • I think the _____ model is easier because _____. • I know _____, so _____.	Support students as they express opinions in Connect It problem 3. Have students read the problem with a partner. Encourage partners to Say It Another Way or use home language to confirm understanding. Then discuss if they think the first model is easier, the second model is easier, or if they would use another way to solve the problem. Remind students to use complete sentences to respond to the prompt and to give reasons to support their opinions. Then have students write their explanations independently and share with their partner. Invite partners to compare responses and ask clarifying questions. Encourage students to revise their writing based on their partner's feedback.

Combine Academic Language Focus and Formative Language Assessment

An Academic Language Focus, such as Explain, Compare, or Justify, is identified in each unit. Students learn about the academic language focus and then practice and get feedback on their progress at the beginning, middle, and end of the unit. Teachers can use the Formative Language Assessment Recording Sheet to monitor progress.



ACADEMIC LANGUAGE FOCUS

UNIT 1 • EXPLAIN

Academic Language Focus: Explain

In this unit, students **explain** how to use place value to round and to add and subtract three-digit numbers.

How to EXPLAIN in Unit 1

- Use terms about place value like *ones*, *tens*, *hundreds*, *place*, *break apart*, and *regroup* so that listeners or readers know exactly what is meant.
- Tell each step in a solution in order. Use connecting words like *first*, *next*, *then*, *last*, and *finally* to help the listener or reader understand what to do.
- Refer to a model or math work to help make the explanation clear.

Sample Academic Language

First, find the two the number falls between. Then find the halfway number. If the number you are rounding is equal to or greater than the halfway number, round to the greater ten. If your number is less than the halfway number, round to the lesser ten.

Build Academic Language for All Students

This feature highlights one lesson Language Objective and shows how teachers can help students bridge from everyday language to academic language over the course of lesson activities.

Build Academic Language for All Students: Explain

This chart is an example of how to help students progress from everyday to academic language. Use with the Academic Language Focus and Formative Assessment Resources.

LESSON 1 EXAMPLE PROGRESSION

LANGUAGE OBJECTIVE: Explain strategies for rounding a number to the nearest ten or hundred using place value language and lesson vocabulary.

Sample Everyday Language

You say the number and go to the counting-by-10s number it is closest to. Go up if it's more than the middle. Go down if it's less.

Academic Language Targets

- Use place value language (*tens*, *hundreds*, *nearest ten/hundred*).
- Use *is greater than*, *is equal to*, or *is less than* to compare the number to the halfway number.
- Use *halfway* and *round to the greater/lesser value*.

Guidance by Session

- 1: Introduce target terms.
- 2: Use EL Differentiation for support as students begin using the target language. Listen for and highlight effective explanations.
- 3: Circulate during Discuss It to encourage, demonstrate, and reinforce target terms.
- 4: Expect students to use the terms in written response. Affirm strong use of academic language.

Go to Success Central for implementation support for Academic Language Focus.