Protocol for Review of Instructional Materials for ELLs V2

WIDA PRIME V2 CORRELATION
Introduction to PRIME

WIDA developed PRIME as a tool to assist publishers and educators in analyzing their materials for the presence of key components of the WIDA Standards Framework. PRIME stands for Protocol for Review of Instructional Materials for ELLs.

The PRIME correlation process identifies how the components of the 2012 Amplification of the English Language Development Standards, Kindergarten through Grade 12, and the Spanish Language Development (SLD) Standards, Kindergarten through Grade 12 are represented in instructional materials. These materials may include core and supplemental texts, websites and software (e.g., apps, computer programs), and other ancillary materials. PRIME is not an evaluative tool that judges the effectiveness of published materials.

Those who complete WIDA PRIME Correlator Trainings receive PRIME Correlator Certification. This may be renewed annually. Contact WCEPS for pricing details at store@wceps.org or 877-272-5593.

New in This Edition

PRIME has been expanded to include
- Correlation to the WIDA Standards Framework
- Connections to English and Spanish Language Development Standards
- Relevance for both U.S. domestic and international audiences

Primary Purposes

- To assist educators in making informed decisions about selecting instructional materials for language education programs
- To inform publishers and correlators on the various components of the WIDA Standards Framework and of their applicability to the development of instructional materials

Primary Audience

- Publishers and correlators responsible for ensuring their instructional materials address language development as defined by the WIDA English and Spanish Language Development Standards
- District administrators, instructional coaches, and teacher educators responsible for selecting instructional materials inclusive of or targeted to language learners

At WIDA, we have a unique perspective on how to conceptualize and use language development standards. We welcome the opportunity to work with both publishers and educators. We hope that in using this inventory, publishers and educators will gain a keener insight into the facets involved in the language development of language learners, both in the U.S. and internationally,
Overview of the PRIME Process

PRIME has two parts. In Part 1, you complete an inventory of the materials being reviewed, including information about the publisher, the materials’ intended purpose, and the intended audience.

In Part 2, you answer a series of yes/no questions about the presence of the criteria in the materials. You also provide justification to support your “yes” responses. If additional explanations for “No” answers are relevant to readers’ understanding of the materials, you may also include that in your justification. Part 2 is divided into four steps which correspond to each of the four elements being inventoried; see the following table.

**PRIME at a Glance**

<table>
<thead>
<tr>
<th>Standards Framework Elements Included in the PRIME Inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Asset-based Philosophy</strong></td>
</tr>
<tr>
<td>A. Representation of Student Assets and Contributions</td>
</tr>
<tr>
<td><strong>2. Academic Language</strong></td>
</tr>
<tr>
<td>A. Discourse Dimension</td>
</tr>
<tr>
<td>B. Sentence Dimension</td>
</tr>
<tr>
<td>C. Word/Phrase Dimension</td>
</tr>
<tr>
<td><strong>3. Performance Definitions</strong></td>
</tr>
<tr>
<td>A. Representations of Levels of Language Proficiency</td>
</tr>
<tr>
<td>B. Representations of Language Domains</td>
</tr>
<tr>
<td><strong>4. Strands of Model Performance Indicators and the Standards Matrices</strong></td>
</tr>
<tr>
<td>A. Connection to State Content Standards and WIDA Language Development Standards</td>
</tr>
<tr>
<td>B. Cognitive Challenge for All Learners at All Levels of Language Proficiency</td>
</tr>
<tr>
<td>C. Supports for Various Levels of Language Proficiency</td>
</tr>
<tr>
<td>D. Accessibility to Grade Level Content</td>
</tr>
<tr>
<td>E. Strands of Model Performance Indicators</td>
</tr>
</tbody>
</table>
PRIME Part 1: Provide Information about Materials

Provide information about each title being correlated.

Publication Title(s): Ready Classroom Mathematics, Common Core, Grades 6-8

Publisher: Curriculum Associates

Materials/Program to be Reviewed: Ready Classroom Mathematics, Common Core, Grades 6-8

Tools of Instruction included in this review: Ready Classroom Mathematics, Common Core, Teacher Guides and Student Worktexts grades 6, 7, and 8

Intended Teacher Audiences: 6-8 Grade Math Teachers that serve ALL students and English language learners

Intended Student Audiences: All students in grades 6, 7, and 8

Language domains addressed in material: Speaking, Reading, Writing, and Listening

Check which set of standards will be used in this correlation:

☐ WIDA Spanish Language Development Standards

X WIDA English Language Proficiency Standards

WIDA Language Proficiency Levels included: Language of Mathematics, Language of Science, Language of Social Studies, Language of English Language Arts and Social and Instructional Language

Most Recently Published Edition or Website:
https://www.curriculumasssociates.com/products/ready-classroom-mathematics/overview?utm_source=Google_RCM-GA1234&utm_medium=onlinewebsite_Display&utm_content=RCMLeadGen&utm_campaign=7010a000002pizb&gclid=EA1aIQobChMI0bKPucnH6AVDuDICh3MdQ9sEAAAYASAEgIKDvD_BwE

In the space below explain the focus or intended use of the materials: Our mission is to help students become strong, independent mathematical thinkers. Ready Classroom Mathematics takes a unique, yet proven approach that builds upon research-based practices that get results. Through a blend of purposeful print and digital components, this intentional design makes mathematics accessible, increases student engagement, and builds confidence. Everything works together to support teachers and help students connect to mathematics in new ways.
PRIME Part 2: Correlate Your Materials

1. Asset-Based Philosophy

   A. Representation of Student Assets and Contributions
The WIDA Standards Framework is grounded in an asset-based view of students and the resources and experiences they bring to the classroom, which is the basis for WIDA’s Can Do Philosophy.

   1) Are the student assets and contributions considered in the materials?

   2) Are the student assets and contributions systematically considered throughout the materials?

Justification: Provide examples from materials as evidence to support each “yes” response for this section. Provide descriptions, not just page numbers.

1) Ready Classroom Mathematics considers student assets and contributions in the materials. Each lesson includes a section that activates students’ background knowledge. This section is named “Connect to Culture,” and gives students the opportunity to connect with and leverage their diverse backgrounds and experiences. It engages students in sharing what they know about contexts before the teacher shares new information with them. The materials also include a letter to families which explains what students will be learning about and how to engage with their children in the new learning being taught. An additional section that considers students assets and contributions in the materials is the “Explore” page in the student book and the “Discuss It” section in the teacher’s guide. This draws on a student's prior knowledge and helps the teacher learn what background knowledge the students have around a particular concept.
LESSON 2
Overview | Work with Single Rigid Transformations in the Coordinate Plane

Connect to Culture

Use these activities to connect with and leverage the diverse backgrounds and experiences of all students. Engage students in sharing what they know about contexts before you add the information given here.

SESSION 1
Try It. Perhaps you have seen sheets of stickers in a stationery store, where the same design is repeated over and over to cover a sheet. Graphic designers use computer graphics programs to create original sticker designs, but they do not have to re-draw the design each time to create a new sticker on the page. Instead, they can use the copy and paste feature in their graphics program to create as many copies as they need. Graphics programs also allow the designer to move each copy around on the page. Ask students to think about how they could create a page of 30 stickers in the most efficient way possible. What kinds of transformations would they use?

SESSION 2
Try It. Ask if any students have been to a Chinese New Year celebration. Ask them to describe the foods, decorations, and activities involved in the celebration they attended. The festival of the Chinese New Year is a 15-day festival celebrated in Chinese communities in the United States. The date of the holiday varies due to phases of the moon but is normally sometime between January 21 and February 20. Festivities begin during a new moon and last until the following full moon. Celebrations often include a feast of traditional Chinese foods, fireworks, red clothes, and decorations such as paper dragon puppets. A parade is held near the end of each year’s event in which people hang glowing lanterns as well as a colorful dragon, which symbolizes good luck in the culture.

SESSION 3
Practice Example. Some toy model airplanes have a propeller that is powered by a rubber band. While holding the plane steady, the propeller is turned to wind up the rubber band over and over. Then, when the propeller is released, the rubber band snaps back into shape. This action rotates the propeller in the opposite direction, powering the flight of the toy plane. In fact, Wilbur and Orville Wright played with a toy like this when they were children, and it may have inspired them to achieve the first powered, sustained, and controlled airplane flight in 1903. Encourage students to share their experiences building models of airplanes or other vehicles.
Grade 8, Lesson 2, Connect to Family and Community

Connect to Family and Community

After the Explore session, have students use the Family Letter to let their families know what they are learning and to encourage family involvement.

Grade 6, Lesson 1, Explore

Explore The Area of a Parallelogram

Previously, you learned how to find the area of a rectangle. In this lesson, you will learn how to find the area of a parallelogram.

Use what you know to try to solve the problem below.

Kenji and Alec are making paper kites for a kite fight.
Kenji’s kite is a rectangle and Alec’s kite is a parallelogram that is not a rectangle. Each boy draws a model of his kite on grid paper. Does Alec’s kite use more paper than Kenji’s kite?

Try It

Math Taskkit: geoboards, grid paper, tracing paper, unit tiles
Possible work:

SAMPLE A
The rectangle is 5 units long and 4 units wide.
Area of Kenji’s kite = $5 \times 4 = 20$
There are 16 whole squares and 8 half squares inside the parallelogram.
Area of Alec’s kite $= 16 + \left(8 \times \frac{1}{2}\right) = 16 + 4 = 20$
The kites have equal areas. Alec’s kite does not use more paper than Kenji’s.

SAMPLE B
The parallelogram covers the same number of unit squares as the rectangle. So, Alec’s kite does not use more paper than Kenji’s kite.

Discuss It

Ask: How would you explain what the problem is asking in your own words?
Share: The problem is asking …
DISCUSS IT

**Support Partner Discussion**
After students work on Try It, have them respond to Discuss It with a partner and then explain their work on Try It. Listen for understanding that:
- both models have the same area.
- the parallelogram can be decomposed and reassembled into a rectangle.

**Facilitate Whole Class Discussion**
Call on students to share selected strategies. After each strategy, allow individual think time for students to process the ideas and ask questions.

Guide students to **Compare and Connect** the representations. If the discussion lags, have students turn and talk about other ways to find the area of the figures.

**ASK** How do [student name]’s and [student name]’s strategies show that both kites use the same amount of paper?

**LISTEN FOR** Both strategies show that the kites use the same number of unit squares, so both kites use the same amount of paper.

2) The student assets and contributions are systematically considered throughout the materials. In the beginning of every lesson in student books grades 6-8 students have an opportunity to connect with and leverage their diverse backgrounds and experiences through the letter to families. See examples below.
LESSON 7
Overview | Add, Subtract, and Multiply Multi-Digit Decimals

Connect to Culture

Use these activities to connect with and leverage the diverse backgrounds and experiences of all students. Engage students in sharing what they know about contexts before you add the information given here.

SESSION 1

Try It
Ask students to raise their hands if they have ever been on a swim team. At the 2008 Summer Olympics, a U.S. swimmer won a race by one-hundredth of a second. The win was confirmed by photo-finish technology, which is used to record images of an event’s finish at 100 frames per second. If any students have ever been in or witnessed a close race, ask them to share their experiences.

SESSION 2

Try It
Ask students to stand up if they have ever wondered why a dime is worth more than a nickel even though it is smaller and weighs less. The first U.S. coins were worth their melt value, or the amount of metal they contained. Dimes were minted out of ten cents’ worth of silver. Nickels were minted out of five cents’ worth of copper and nickel. The two metals for nickels were much cheaper than silver, so the coins had to be larger. Ask students to share questions they have about U.S. currency. Students can research answers if time allows.

SESSION 3

Try It
Ask students to raise their hands if they have ever taken a pet to a veterinarian. Veterinarians work with dogs, cats, and other household pets. Some veterinarians work with farm animals, while others work with exotic birds, fish, or reptiles in clinics, zoos, and aquariums. They can also specialize in a number of different areas such as surgery, ophthalmology, and dentistry. Survey students to see if they have ever considered becoming a veterinarian as their career and what types of veterinary careers seem most interesting to them.

SESSION 4

Apply It
Problem 3
Ask students to stand up if they have ever visited a horse farm and helped feed the horses. A horse’s diet should be made up mostly of forage, such as grass, alfalfa, or hay. The rest is made up of grains, such as oats or barley, or feed pellets. Horses have small stomachs compared to their large bodies. Considering they can eat up to 25 pounds of food a day, horses spend a lot of time eating! Ask students to guess how long it would take them to eat 25 pounds of food. For perspective, mention that the average hamburger contains a quarter pound of meat.

CULTURAL CONNECTION
Alternate Notation: The United States, United Kingdom, and Australia are a few of the countries that use a decimal point to separate the whole-number and fractional parts of a decimal. Most countries in Europe and South America use decimal commas instead. Some countries, like Canada, use both notations! Encourages students who have experience with using commas for decimal notation to share what they know with the class.

30.25
-OR-
30,25
Connect to Family and Community

After the Explore session, have students use the Family Letter to let their families know what they are learning and to encourage family involvement.

Dear Family,

This week your students will be learning about the importance of family involvement in education. The Family Letter is a tool to keep you informed about the activities and lessons your child is learning. It includes updates on their progress and opportunities for you to support their learning at home.

Activity: Thinking About

Encourage your child to think about how they can involve their family in their learning. This could be through conversations, helping with homework, or participating in family activities related to the topics covered in the lesson.

Sincerely,
[Your Name]
[Your Signature]
Grade 6, Lesson 7, Explore

**LESSON 7 | SESSION 1**

**Explore** Adding and Subtracting Multi-Digit Decimals

**Purpose**
- **Explore** the idea that you can add and subtract multi-digit decimals using place value.
- **Understand** that aligning multi-digit decimals by place value can make it easier to add and subtract.

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**START** CONNECT TO PRIOR KNOWLEDGE

<table>
<thead>
<tr>
<th>Same and Different</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0.4</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td>0.40</td>
</tr>
</tbody>
</table>

**Possible Solutions**
- All contain the digit 4.
- A has a value of 4 tenths.
- B and D have a value of 4 hundredths.
- C has a value of 4 thousandths.
- C and D show the same number of digits but have different values.

**WHY?** Support students' understanding of place value.

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**TRY IT**

**Make Sense of the Problem**
See **Connect to Culture** to support student engagement. Before students work on **Try It**, use **Co-Craft Questions** to help them make sense of the problem. If students need support in getting started, lead a group discussion of the quantities in the problem. Then have students turn and talk to compare their questions and revise before sharing the questions with the class.

**DISCUSS IT**

**Support Partner Discussion**
After students work on **Try It**, have them respond to **Discuss It** with a partner. Listen for understanding of:
- 24.138 and 25.393 as addends.
- the total lap time as the sum.
- the need to consider place value when adding.

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**LESSON 7 | SESSION 1**

**Explore** Adding and Subtracting Multi-Digit Decimals

Previously, you learned about decimal operations to the hundredths. In this lesson, you will learn about adding, subtracting, and multiplying decimals to the thousandths.

Use what you know to try to solve the problem below.

Matis is training to swim the 100-meter freestyle event in the Youth Olympic Games. During practice, he swims two laps. What is his total time for the two laps?

**Possible Solution**

<table>
<thead>
<tr>
<th>SAMPLE A</th>
<th>24.138</th>
<th>25.393</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>24</td>
<td>25</td>
</tr>
<tr>
<td>B</td>
<td>13</td>
<td>39</td>
</tr>
<tr>
<td>C</td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td>D</td>
<td>0.08</td>
<td>0.03</td>
</tr>
<tr>
<td>E</td>
<td>0.001</td>
<td>0.001</td>
</tr>
<tr>
<td>F</td>
<td>-0.001</td>
<td>-0.001</td>
</tr>
</tbody>
</table>

Total time for the two laps = 49.531 s.

**SAMPLE B**

<table>
<thead>
<tr>
<th>Time</th>
<th>Ones</th>
<th>Tenths</th>
<th>Hundredths</th>
<th>Thousandths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>9</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Sum</td>
<td>7</td>
<td>1</td>
<td>8</td>
<td>3</td>
</tr>
</tbody>
</table>

The total time for the two laps is 49.531 s.

**DISCUSS IT**

**Co-Craft Questions**
- What did you do first to find the total time?
- Share: I started by...

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**Common Misconception**
- Listen for students who do not address the decimal point while adding. As students share their strategies, ask them to use whole-number estimates to determine the reasonableness of their answers. Discuss the meaning of the decimal point and the numbers in the context of the **Try It** problem.

**Select and Sequence Student Strategies**
- Select 2–3 samples that represent the range of student thinking in your classroom.
- Here is one possible order for class discussion:
  - **(misconception)** strategies that ignore the decimal point, leading to a whole-number answer in the ten-thousands
  - base-ten blocks used to model 0.138 + 0.393 (flats used to represent tenths)
  - expressions that show the decimals in expanded form
  - place-value charts or tables to align by place value
  - use of the vertical format of the standard algorithm

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147 LESSON 7 Add, Subtract, and Multiply Multi-Digit Decimals

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LESSON 7 | SESSION 1
Explore

Facilitate Whole Class Discussion
Call on students to share selected strategies. After each strategy, allow individual think time for students to process the ideas and ask any questions.

Guide students to Compare and Connect the representations. Prompt students to project their voices so everyone can hear while they explain how to add multi-digit decimals.

ASK How does [student name/s] model show using place value?
LISTEN FOR The model shows that ones are added to ones, tenths are added to tenths, hundredths are added to hundredths, and so on.

CONNECT IT

Look Back Look for understanding that multi-digit decimals can be added by lining up the numbers by place value.

Look Ahead Place value can help you add in multi-digit decimals. You need to line up the decimals on their decimal points. Possible answer: Lining up the decimals on their decimal points also lined up digits by place value.

Look Ahead Place value can help you add in multi-digit decimals. You need to line up the decimals on their decimal points. Possible answer: Lining up the decimals on their decimal points also lined up digits by place value.

Reflect How do you use place value when adding and subtracting decimals?

Common Misconception If students set up addition or subtraction of decimals by aligning all digits to the right, then ask them to apply their reasoning to a problem such as 5.4 + 3.24 in order to see that aligning numbers to the right does not always apply when adding and subtracting decimals.
DISCUSS IT

Support Partner Discussion
After students work on Try It, have them respond to Discuss It with a partner. Listen for understanding of:
• 24.138 and 25.393 as addends.
• the total lap time as the sum.
• the need to consider place value when adding.

Facilitate Whole Class Discussion
Call on students to share selected strategies. After each strategy, allow individual think time for students to process the ideas and ask any questions.

Guide students to Compare and Connect the representations. Prompt students to project their voices so everyone can hear while they explain how to add multi-digit decimals.

ASK  How does [student name]’s model show using place value?

LISTEN FOR  The model shows that ones are added to ones, tenths are added to tenths, hundredths are added to hundredths, and so on.
LESSON 7
Overview | Understand Addition with Negative Integers

Connect to Culture

Use these activities to connect with and leverage the diverse backgrounds and experiences of all students. Engage students in sharing what they know about contexts before you add the information given here.

SESSION 1

Model It Some examples of video games are puzzle games, adventure games, and racing games. In some games, players collect or earn coins they can spend in the game. In other games, they collect and lose lives as they complete tasks. Have students share examples of scoring systems in the different types of video games they like to play.

SESSION 2

Model It Ask students to raise their hands if they watch or play American football. Ask those students to describe how teams gain or lose yards during a play. In American football, two teams take turns playing offense and defense. At the start of a new play, the team playing offense tries to move the football forward from its starting position by throwing it or running with it. If they succeed, the team gains yards. However, the defense can force the ball behind its starting position. If this happens, the team playing offense is said to have lost yards on the play.

SESSION 3

Apply It Problem 1 Ask if any students have lived in a place where temperatures are reported in Celsius. Ask these students what the temperature would be in degrees Celsius on a very hot day, a very cold day, or a nice, warm day. Celsius is a commonly used scale for measuring temperature in many countries. Other countries, such as the United States, use Fahrenheit to measure temperatures. On the Fahrenheit scale, 30°F is a cold temperature, but on the Celsius scale, 30°C is very warm. A temperature of 30°C is the same as a temperature of 86°F.

Apply It Problem 4 Orcas are not whales at all. They are actually the largest dolphins. They are social animals that travel in pods, or family groups. The groups can grow to have up to 50 members and 4 generations of Orca stay with their mothers when they become adults. The oldest female orca is in charge, telling the pod when and where to feed. Ask students what benefits they can see in living with multiple generations of their family.
Connect to Family and Community

After the Explore session, have students use the Family Letter to let their families know what they are learning and to encourage family involvement.

Activity: Thinking About
Positive and Negative Numbers Around You

- Draw a picture to show how you used numbers today.
- Identify the numbers you used in the picture and explain why you used them.

- Encourage students to share their pictures and explain their reasoning with their families.

Family Letter

Dear Family,

We hope you enjoyed exploring positive and negative numbers during today's lesson. Here are a few strategies we used:

1. **Visualize Numbers**
   - Use number lines to represent positive and negative numbers.
   - Draw pictures to show examples of positive and negative numbers in real-life situations.

2. **Compare Numbers**
   - Use symbols like >, <, and = to compare numbers.
   - Practice identifying which number is greater or less than another.

We encourage you to practice these strategies at home. Challenge your child to find examples of positive and negative numbers in their daily life.

Best regards,

[Teacher's Signature]

[Date]

Family Letter:

Dear Family,

We hope you had fun learning about positive and negative numbers today. Here are a few strategies we used:

1. **Visualize Numbers**
   - Use number lines to represent positive and negative numbers.
   - Draw pictures to show examples of positive and negative numbers in real-life situations.

2. **Compare Numbers**
   - Use symbols like >, <, and = to compare numbers.
   - Practice identifying which number is greater or less than another.

We encourage you to practice these strategies at home. Challenge your child to find examples of positive and negative numbers in their daily life.

Best regards,

[Teacher's Signature]

[Date]
Explore Addition with Negative Integers

Model It

1. Neva plays a video game. On her first turn, she gets 3 points. On her second turn, she loses 3 points. The expression $3 + (-3)$ represents her score after the two turns. You can use integer chips to find the sum of 3 and $-3$.
   a. The sum of any number and its opposite is 0. Another term for opposites is additive inverses. Since the sum of 1 and $-1$ is 0, 1 and $-1$ form a zero pair. Circle the zero pairs in the model.
      See model.
   b. How many points does Neva have after her second turn? 0
   c. What is $3 + (-3)$? 0

2. Neva starts the game over. The integer chips below represent the number of points she has after her first turn. Then she earns 5 points on her second turn.
   a. How many points does Neva have after her first turn? $-5$
   b. Draw chips to show the points Neva earns on her second turn. Then circle the zero pairs. See model.
   c. How many points does Neva have after her second turn? 0
   d. What is $(-5) + 5$? 0
Grade 7, Lesson 7, Discuss It

**DISCUSS IT**

**Support Partner Discussion**
After students complete problems 1 and 2, have them respond to Discuss It with a partner. Prompt them to think about the value of a positive chip and a negative chip.

Listen for understanding that:
- the value of a positive chip and a negative chip together is zero.
- $3 + (-3)$ can be read as *three plus negative three.*

**Facilitate Whole Class Discussion**
Prompt students to **Compare and Connect** the models for problems 1 and 2. To engage all students, ask them to turn and talk to answer the question below before calling on a few students to share their thinking with the class. As students present, call on others to say if they agree and how they might build on the answer.

**ASK** How are the models for the problems alike and different?

**LISTEN FOR** Both models show positive and negative integer chips with a sum of 0. The first model shows 3 positive and 3 negative integer chips. The second model shows 5 positive and 5 negative integer chips.

Grade 8, Lesson 7, Connect to Culture

**Connect to Culture**
Use these activities to connect with and leverage the diverse backgrounds and experiences of all students. Engage students in sharing what they know about contexts before you add the information given here.

**SESSION 1**
Try It: Ask students to think about roofs. Many of them are slanted. Do they know why? The slope of a roof has a direct impact on how well water drains off of it. There are recommended materials for covering of roofs based on the slope of the roof. For example, steep roofs can be covered with asphalt shingles, while flatter roofs may be covered with concrete. Many concrete roofs have drainage systems that help water quickly run off. Tessellating roofs, tracking sun rays or other vegetation to cover a roof. This method has a surprising long history. Ask students to talk about the steepness of roofs on homes and buildings in their area. Have students describe the unique roof structures they have seen.

**SESSION 2**
Try It: Invite students to tell the class about buildings and bridges they have seen with triangular features. The Auto Motor conference series, located on the Kandinsky Institute site in Senegal, holds a 1,000-seat auditorium and an exhibition hall. Its triangular building elements, along with triangular glass windows, steel frames and concrete columns, are all constructed to an exacting standard. This building is used for many scientific conferences, gala receptions, and festival lectures.

**SESSION 3**
Apply It: Problem 1: Invite students to share that experiences with leaning or leaning boards have been around since the 8th century, when Mongol soldiers once used tepees to build enemy towers. In the 18th century, paper was printed on sheets that were inserted in a box, but most people used their kitchen table or another flat surface. Then, in 1815, an African American man named Sarah Davis patented an apparatus for laying paper on a tray, curved shape to make it easier to iron. Modern ironing boards look a lot like her design.

**SESSION 4**
Apply It: Problem 4: Ask students why they think bicycle frames are designed with triangles. Making a frame of triangles from wood, metal, or even plastic is a logical choice. It is strong and lightweight and positioned for a rider's comfort. This design has been around since the 1860s. Triangles are a strong shape because it is very difficult to make a triangle disintegrate. A triangle disintegrate force efficiently to all of its sides. Encourage students to describe other structures they have seen that use triangles.
Connect to Family and Community

After the Explore session, have students use the Family Letter to let their families know what they are learning and to encourage family involvement.

Dear Family,

In this lesson, students will explore the relationships between angles in triangles. As they work through the activities, they will discover that the sum of the interior angles in a triangle is always 180 degrees. This property is fundamental in understanding the geometry of triangles and has numerous applications in real-world scenarios, such as in construction and engineering.

Activity: Tracing Angle Relationships in Triangles

Students will work in pairs to trace and measure angles in triangles using a protractor. They will then categorize the angles as acute, right, or obtuse and discuss the properties of each type of angle in the context of triangles.

Additional Resources:

- worksheet.pdf
- activity_tracing_angles.pdf

Thank you for supporting your child's learning.

Sincerely,

[Teacher's Name]
Previously, you learned about the measures of angles formed by parallel lines and transversals. In this lesson, you will learn about angle measures of triangles.

**Use what you know to solve the problem below.**

An architect needs to know the angle measures of the roof shown in the photo. The triangle to the right models the shape of the roof. What is the sum of the angle measures of the triangle?

**Try It**

Possible work:

**SAMPLE A**

- \( m\angle 1 + m\angle 2 = 141^\circ \) and \( m\angle 2 + m\angle 3 = 160^\circ \) → Alternate interior angles are congruent.
- \( m\angle 1 + m\angle 2 + m\angle 2 + m\angle 3 = 301^\circ \)
  - \( 180^\circ + m\angle 2 = 301^\circ \) → \( \angle 1, \angle 2, \text{ and } \angle 3 \) form a straight angle.
  - \( m\angle 2 = 121^\circ \)
- \( m\angle 4 + 160^\circ = 180^\circ \) → \( \angle 4 \) and the \( 160^\circ \)-angle form a linear pair. So, \( m\angle 4 = 20^\circ \).
- \( m\angle 5 + 141^\circ = 180^\circ \) → \( \angle 5 \) and the \( 141^\circ \)-angle form a linear pair. So, \( m\angle 5 = 39^\circ \).
- \( m\angle 2 + m\angle 4 + m\angle 5 = 121^\circ + 20^\circ + 39^\circ = 180^\circ \)

**SAMPLE B**

- \( m\angle 1 + 160^\circ = 180^\circ \); \( m\angle 3 + 141^\circ = 180^\circ \) → same-side interior angles
  - So, \( m\angle 1 = 20^\circ \) and \( m\angle 3 = 39^\circ \).
- \( m\angle 1 + m\angle 2 + m\angle 3 = 180^\circ \) → \( \angle 1, \angle 2, \text{ and } \angle 3 \) form a straight angle.
  - \( 20^\circ + m\angle 2 + 39^\circ = 180^\circ \), so \( m\angle 2 = 121^\circ \)
- \( m\angle 4 = m\angle 1 = 20^\circ \) and \( m\angle 5 = m\angle 3 = 39^\circ \) → alternate interior angles
- \( m\angle 2 + m\angle 4 + m\angle 5 = 121^\circ + 20^\circ + 39^\circ = 180^\circ \)

**Discuss It**

**Ask:** What did you do first to find the sum of the angle measures?

**Share:** First, I found the angle measures by...
**DISCUSS IT**

**Support Partner Discussion**
After students work on Try It, have them respond to Discuss It with a partner. Listen for understanding of:

- using alternate interior angles and/or same-side interior angles to find measures of certain angles.
- using supplementary angle relationships to find measures of certain angles.
- substituting known angle measures into equations to find measures of unknown angles.

**Facilitate Whole Class Discussion**
Call on students to share selected strategies. Before strategies are presented and discussed, remind students to be respectful when they disagree with another’s idea.

Guide students to **Compare and Connect** the representations. Encourage students to speak clearly and loudly as they present their responses.

**ASK** How did the strategies use angle relationships related to parallel lines?

**LISTEN FOR** The strategies used pairs of angles that were either congruent or supplementary, along with combinations of angles that form a linear pair to find the unknown measures.
2. Academic Language

WIDA believes that developing language entails much more than learning words. WIDA organizes academic language into three dimensions: discourse, sentence, and word/phrase dimensions situated in sociocultural contexts. Instructional material developers are encouraged to think of how the design of the materials can reflect academic language as multi-dimensional.

A. Discourse Dimension (e.g., amount, structure, density, organization, cohesion, variety of speech/written text)

1) **Do the materials address language features at the discourse dimension in a consistent manner for all identified proficiency levels?**
   
<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

2) **Are the language features at the discourse dimension addressed systematically throughout the materials?**
   
<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>
Justification: Provide examples from materials as evidence to support each “yes” response for this section. Provide descriptions, not just page numbers.

1. The materials address language features at the discourse dimension in a consistent manner for all identified proficiency levels. Each lesson offers ideas that provide access to students at their individualized language development levels. The Teacher’s Edition calls attention to the academic language required for content and language learning. This is through the explanation of how Language and Discourse are used throughout the instructional materials. The Language and Discourse page in the Teacher's Edition, points out how the features included support language and discourse. Please see in the example the Language Objectives, Preparation Stage, Explore Session, Try-Discuss-Connect Routine, Develop Academic Language and Discourse Cards. These features provide opportunities to extend conversations with other students. The pieces help students engage in productive struggle, participate in mathematical discourse and make connections between different models and solution strategies.

Example: Teacher’s Edition of Language and Discourse Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>How This Supports Language and Discourse</th>
<th>Where to Find It</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language Objectives</td>
<td>Language Objectives indicate the language students are expected to understand and produce as they work on Lesson Objectives.</td>
<td>Teacher’s Guide</td>
</tr>
<tr>
<td>Unit: Prepare for ...</td>
<td>Prepare for pages provide students with opportunities to activate prior knowledge while thinking about familiar math concepts that are important in the unit. These pages also begin a focus on general, all-purpose academic words and phrases.</td>
<td>Student Worktext, Teacher’s Guide</td>
</tr>
<tr>
<td>Explore Session:</td>
<td>Prepare for pages use graphic organizers to help students access prior knowledge and vocabulary they will build on in the lesson.</td>
<td>Student Worktext, Teacher’s Guide</td>
</tr>
<tr>
<td>Try-Discuss-Connect Routine</td>
<td>In Discuss It, students explain their ideas and begin to understand other students’ ideas, first with partners and then with the class. Through discourse, students see how the same problem can be represented with different models or solved with different strategies.</td>
<td>Student Worktext, Teacher’s Guide</td>
</tr>
<tr>
<td>Develop Academic Language</td>
<td>Develop Academic Language supports students in understanding and using academic language words and sentences and in engaging in productive mathematical discourse.</td>
<td>Teacher’s Guide</td>
</tr>
<tr>
<td>Discourse Cards</td>
<td>Discourse Cards provide sentence starters and questions to help students initiate, deepen, and extend conversations with partners, small groups, or the whole class.</td>
<td>Teacher Digital Experience &gt; Ready Classroom Mathematics Teacher Toolbox</td>
</tr>
</tbody>
</table>
Grade 6, Program Overview

Example: Differentiated support for various levels of English proficiency

Differentiated Instruction for English Learners

Every session includes differentiated support for various levels of English proficiency.

**Levels 1–3: Reading/Speaking**
- **Support students** as they make sense of the problem by identifying the key ideas and drawing a picture or diagram to illustrate the relationships between the numbers.
- **Levels 2–4: Reading/Speaking**
- **Support students** as they make sense of the problem by stating what they think they need to know to solve the problem.
- **Levels 5–6: Reading/Speaking**
- **Support students** as they make sense of the problem by stating what they need to know to solve the problem.

**Levels 2–4: Reading/Speaking**
- **Support students** as they make sense of the problem by stating what they think they need to know to solve the problem.
- **Levels 5–6: Reading/Speaking**
- **Support students** as they make sense of the problem by stating what they need to know to solve the problem.

Scaffolded language support for a specific problem is outlined. These suggestions for scaffolding and simplifying the language can be applied to other problems as well.
2. The language features at the discourse dimension are addressed systematically throughout the materials. Each student’s experience with the student support materials is organized for students to participate at a variety of English language proficiency levels throughout the materials including using academic language at the discourse level. The learning goals focus student attention to the unit of study and learning through content and language objectives. Each lesson is guided by the Try–Discuss–Connect Routine and a specific language goal which encourages academic language acquisition using discourse. This happens in every lesson in the materials grades 6-8. See an example from the Grade 6 materials below.
Connect to Language

For English language learners, use the Differentiation chart to scaffold the language in each session. Use the Academic Vocabulary routine for academic terms before Session 1.

DIFFERENTIATION | ENGLISH LANGUAGE LEARNERS

MATH TERM
To estimate means to give an approximate number or answer based on mathematical thinking.

ACADEMIC VOCABULARY
A portion is a part of a larger amount.

Levels 1–3: Reading/Listening
Support students as they interpret Connect It problem 2. Read the problem aloud. Display and clarify the Math Term and Academic Vocabulary. Guide students to make sense of the problem by sketching the examples provided in parts a and b and asking students to make observations about the sketches. Call on volunteers to help you label the quotient and dividend in each sketch. Have students turn and talk about each example using the phrases greater than or less than. Call on volunteers to share answers and explain their thinking. Reword as needed to model precise language and clarify ideas.

Levels 2–4: Reading/Listening
Support students as they interpret Connect It problem 2. Read the problem with students. Have students turn and talk to define estimate. Display the definition provided and have students revise and improve their definitions based on the one provided. Repeat for portion.

Allow time for partners to make sense of parts a and b by sketching the examples provided in each part. Review the sentence frames and ask partners to decide which to use for parts a and b:

- The quotient _____ is greater than the dividend _____.
- The quotient _____ is less than the dividend _____.

Levels 3–5: Reading/Listening
Support students as they interpret Connect It problem 2. Read the problem with students. Have them talk with a partner to develop a definition for estimate. Display the definition provided. Adapt Say It Another Way by recording different ways that partners state the meaning of the term. Repeat for portion.

Begin a Co-Constructed Word Bank of terms that might be used to talk and write about the problem. Students are likely to suggest quotient, dividend, greater than, and less than. You might add estimate and portion. Encourage students to use the terms as they respond to the problem.
Example: Learning goals focus student attention to the unit of study and learning through content and language objectives.
Example: Each lesson is guided by the *Try–Discuss–Connect* instructional routine and a specific language goal which encourages academic language acquisition using discourse.

Lesson 6 | Session 1
---

**Explore Circumference of a Circle**

**Purpose**
- **Explore** the idea that a circle is defined by points that are equidistant from a fixed center point.
- **Understand** the linear measurements that describe circles, including diameter, radius, and circumference.

**Start**

Connect to Prior Knowledge

Possible Solutions
- All are shapes that are two-dimensional, or flat.
- The circle is the only shape without straight sides.
- The square and equilateral triangle both have equal side lengths.
- The square and right triangle both have right angles, although the right triangle has other angles as well.

**Why?** Support students' understanding of the properties of different shapes.

**Try It**

Make Sense of the Problem

**See Connect to Culture** to support student engagement. Before students work on Try It, use **Say It Another Way** to help them make sense of the problem. Invite volunteers to describe the problem in their own words, including a description of the irrigation system. Ask: How do you think the irrigation system works? Where is the center point of the system?

**Discuss It**

Support Partner Discussion

After students work on Try It, have them respond to Discuss It with a partner. Listen for understanding that:
- the distance between the center point and the other end of the system is constant.
- the system rotates around the center, so the distance across the watered space is twice the length of the system.

**Common Misconception**

Listen for students who confuse the concept of the length of the system, which is 1,320 feet, with the width of the circle, which is twice the system's length. As students share their strategies, ask them to describe how they determined the central point. Ask students to use a diagram to show the widest distance across the circle, which is 2 times 1,320 feet, or 2,640 feet.

**Select and Sequence Student Strategies**

Select 1–3 samples that represent the range of student thinking in your classroom. Here is one possible order for class discussion:
- Sketch of the circular shape of the watered area
- (misconception) diagram that shows the pipe's length as the full distance across the circular area rather than as half that distance
- Labeled diagram of watered area on grid paper

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Page 26
**Facilitate Whole Class Discussion**

Call on students to share selected strategies. As students share, remind the class to look at each speaker and try to understand the ideas being expressed.

Guide students to **Compare and Connect** the representations. Allow students individual think time to consider all the strategies before beginning the discussion.

**ASK** How do the solutions of [student name] and [student name] both show that the shape of the watered area is a circle?

**LISTEN FOR** Both solutions show how the 1,200-foot length of the system rotates about a center point and that its far end traces a circle.

---

**CONNECT IT**

1. **Look Back** Look for understanding that the distance of 1,200 feet represents the distance from the center of the circle to the edge of the circle and that the greatest distance across the circle is twice this value.

**DIFFERENTIATION | RETEACH or REINFORCE**

**Visual Model**

- Rotate a radius to form a circle.

**Materials** For display: meter stick, sticky notes

- Have one student model the center point of the system by standing in the middle of a clear space and holding a meter stick at one end so it is parallel to the floor. The meter stick represents the irrigation system.

- Ask the student modeling the center to slowly rotate while holding the meter stick. After every ten or two of the rotation, have another student place a sticky note on the floor under the far end of the meter stick. After several notes have been placed, ask students to describe the shape of the path the notes are forming. The students should continue rotating and placing sticky notes for one full rotation.

- Ask: How does this activity show the shape of the irrigated region? (The shape is the region covered by the meter stick, which is a circle.)

- Ask: What is the distance from the center to the edge of the circle? What is the distance across the circle? (1 meter; 2 meters)

---

2. **Look Ahead** What is the shape of the space the system will water? What is the longest distance across the space? How do you know?

- A circle: 2,400 ft. Possible explanation: If the half the distance across the circle is 1,200 ft, then the distance across the whole circle must be 2,400 ft.

- **Look Ahead** How’s irrigation system water the shape of a circle. Every point on the edge of a circle is the same distance from the center. The radius of this system is 1,200 feet, or the diameter is 2,400 feet.

  a. The radius of a circle is the distance from the edge to the center.

  b. The diameter is the distance across a circle through the center. What is the relationship between the radius and the diameter of any circle? Possible answer: The radius of a circle is half the diameter, or the diameter is twice the radius.

  c. You can draw more than one diameter on a circle. Why?

    - There are many lines that you can draw from edge to edge on a circle that go through the center.

  d. Suppose two different diameters are drawn on a circle. Explain how you can use these diameters to find the center of the circle.

    - Every diameter goes through the center of a circle. So, if you draw two different diameters, the place where they cross must be the center of the circle.

  e. The distance around a circle is called the **circumference**. Trace the circumference of the circle. How is the circumference of a circle like the perimeter of a square?

    - See diagram. Both the circumference of a circle and the perimeter of a square are the distance around the shape.

3. **Reflect** You can draw more than one radius on a circle. What must be true about all the radii? (Radius is the plural of radius.)

    - Possible answer: All the radii start at the center of the circle and end at the circumference. They are all straight lines and they all have the same length.

**CLOSE | EXIT TICKET**

4. **Reflect** Look for understanding that all the radii of a circle have the same length.

**Common Misconception** If students confuse the radius with other line segments across a circle, such as a diameter or a chord, then draw a diagram of a circle with an unlabeled radius, diameter, and chord (segment across the circle that is not through the center). Have students compare and contrast the three segments and identify the radius.
Example: Discourse cards provide sentence starters and questions to help students initiate, deepen, and extend conversations with partners, small groups, or the whole class.

B. Sentence Dimension (e.g., types, variety of grammatical structures, formulaic and idiomatic expressions; conventions)

1) Do the materials address language features at the sentence dimension for all of the identified proficiency levels?  

   Yes   No

2) Are the language features at the sentence dimension appropriate for the identified proficiency levels?  

   Yes   No

3) Are the language features at the sentence dimension addressed systematically throughout the materials?  

   Yes   No

Justification: Provide examples from materials as evidence to support each “yes” response for
1. The materials address language features at the sentence dimension for all of the identified proficiency levels. Each student’s experience with the student support materials is organized for students to participate at a variety of English language proficiency levels throughout the materials including using academic language at the sentence level. Within the differentiation for English language learners there is leveled support that provides appropriate sentence frames for different proficiency levels. Students have an opportunity to engage in academic language using these sentence frames. For example, you will find frames that include academic language for students to use as follows, *One advantage of distributing first is ________. One advantage of dividing first is ________.* See below for an example.

2. The language features at the sentence dimension are appropriate for the identified proficiency levels. Ready Classroom Mathematics provides differentiation ideas and opportunities for different proficiency levels in both productive and receptive language, which provides access to the grade level content. Sentence frames are differentiated for varied proficiency levels as well as other supports.
3. The language features at the sentence dimension are addressed systematically throughout the materials at grade levels 6, 7, and 8. Every lesson has a differentiation piece that supports language and content providing access for English language learners at the sentence dimension.

Example: Grade 6, Lesson 4, Differentiation Suggestions
Example: Grade 7, Lesson 4, Differentiation Suggestions

Connect to Language

For English language learners, use the Differentiation chart to scaffold the language in each session. Use the Academic Vocabulary routine for academic terms before Session 1.

DIFFERENTIATION | ENGLISH LANGUAGE LEARNERS

Levels 1–3: Speaking/Listening
Help students interpret Connect It problem 2. Read the problem aloud. Help students highlight and add any unfamiliar words. Help students clarify meanings using short phrases and gestures and relate the meanings to the graph. Then reread each part of the problem and suggest math terms students could use in their response, such as quantities, ratios, equivalent, unit rate, constant of proportionality, and coefficient. Provide definitions and examples. Read problem 2d with students and review constant of proportionality. Display the equation and label y-term, x-term, and coefficient. Ask: What part shows the constant of proportionality?

Levels 2–4: Speaking/Listening
Help students interpret Connect It problem 2. Read the problem aloud. Help students create a Co-Constructed Word Bank. First have students highlight and add any unfamiliar words. Help students clarify meanings using simple sentences and examples. Then use Say It Another Way to help students rephrase each part of the problem. Help students add other math terms to the word bank, such as equivalent ratios, unit rate, constant of proportionality, and coefficient. Prompt students to provide definitions and examples. Have students read problem 2d and review constant of proportionality. Have students name the parts of the equation before discussing their responses in pairs.

Levels 3–5: Speaking/Listening
Support students’ understanding of Connect It problem 2. Have students work in pairs to read the problem. Have partners use a Co-Constructed Word Bank to identify words that will be helpful in talking about the problem. Encourage partners to review the lesson vocabulary and discuss how they might use the words. Invite students to share the words they listed and create a class word bank. Suggest students add the following: math terms if needed: plot, graph, equivalent ratios, unit rate, constant of proportionality, term, and coefficient. Prompt students to discuss meanings with peers. Have partners read and discuss problem 2d. Have partners share which part of the equation shows the constant of proportionality.

Example: Grade 8, Lesson 4, Differentiation Suggestions

Connect to Language

For English language learners, use the Differentiation chart to scaffold the language in each session. Use the Academic Language routine for academic terms before Session 1.

DIFFERENTIATION | ENGLISH LANGUAGE LEARNERS

MATH TERM

Vertices are the points where two lines, line segments, or rays meet to form an angle.

Levels 1–3: Reading/Speaking
Help students interpret Model It problem 4. Display and define the terms vertices and ray, using visuals. Read the problem aloud, providing support for understanding if/then sentences in the bulleted statements. Display If A, then B and explain that this means that if A (the first part) is true, then B (the second part) is true. Clarify the meaning of at least. Use a Co-Constructed Word Bank so students have a list of words they can refer to as they talk about or write about the problem. Then guide students as they work to tell if each figure is a dilation of the other.

Levels 2–4: Reading/Speaking
Help students interpret Model It problem 4. Read the problem with students. Use a Co-Constructed Word Bank to identify and clarify unfamiliar terms. Confirm understanding of vertices, ray, each pair of, and at least. Ask students to underline the words if and then in each bulleted statement. Explain that in if/then statements when the first part of the sentence is true, the second part is also true. Ask students to turn and talk to a partner to say the bullet points another way. Have partners tell if each figure is a dilation of the other. Ask them to complete part b. Have them tell which bullet point best describes the figures.

Levels 3–5: Reading/Speaking
Help students interpret Model It problem 4. Have them work in pairs and use a Co-Constructed Word Bank to list unfamiliar words. Clarify meanings as needed. Confirm understanding of if/then statements by asking partners to read the first bulleted statement. Ask: If you know the first part of the sentence is true, what else do you know? Have partners discuss and paraphrase the bulleted statements using terms from the word bank when appropriate. Then have them complete part b.
C. Word/Phrase Dimension (multiple meanings of words, general, specific, and technical language)

1) **Do the materials address language features at the word/phrase dimension in a consistent manner for all identified proficiency levels?**

   Yes  No

2) **Are words, expressions, and phrases represented in context?**

   Yes  No

3) **Is the general, specific, and technical language appropriate for the targeted proficiency levels?**

   Yes  No

4) **Is the general, specific, and technical language systematically presented throughout the materials?**

   Yes  No

**Justification:** Provide examples from materials as evidence to support each “yes” response for this section. Provide descriptions, not just page numbers.

1. The materials address language features at the word/phrase dimension in a consistent manner for all identified proficiency levels. There are a variety of opportunities for students to work with vocabulary throughout the instructional materials. Ready Classroom Mathematics helps students communicate ideas using both academic and math-specific vocabulary and language. As students prepare for a new unit and/or lesson students have the opportunity to receive explicit instruction in vocabulary through Academic Vocabulary Routines, Cognate Supports, a Prepare Stage that has students study terms and define the term, and activate prior background knowledge about the term, and also asks students to show examples and non-examples.

---

1 General language refers to words or expressions not typically associated with a specific content areas (e.g., describe a book).

2 Specific language refers to words or expressions used across multiple academic content areas in school (chart, total, individual).

Technical language refers to the most precise words or expressions associated with topics within academic content areas in school and is reflective of age and developmental milestones.
2. Words, expressions, and phrases are represented in context. At the beginning of each lesson there is an opportunity to pre-teach words, expressions, and phrases. These words, expressions and phrases are found in the context of the materials. See this example of vocabulary for Grade 7, lesson 4 at the beginning of the lesson.
Vocabulary

Math Vocabulary
There is no new vocabulary. Review the following key terms.

constant of proportionality the unit rate in a proportional relationship.

ordered pair a pair of numbers, \((x, y)\), that describes the location of a point in the coordinate plane. The \(x\)-coordinate gives the point’s horizontal distance from the \(y\)-axis, and the \(y\)-coordinate gives the point’s vertical distance from the \(x\)-axis.

origin the point \((0, 0)\) on the coordinate plane where the \(x\)-axis and \(y\)-axis intersect.

proportional relationship the relationship between two quantities where one quantity is a constant multiple of the other quantity. If the quantities \(x\) and \(y\) are in a proportional relationship, you can represent that relationship with the equation \(y = kx\), where the value of \(k\) is constant (unchanging).

\(x\)-coordinate the first number in an ordered pair. It tells the point’s horizontal distance from the \(y\)-axis.

\(y\)-coordinate the second number in an ordered pair. It tells the point’s vertical distance from the \(x\)-axis.

Academic Vocabulary
identify to know and say what something or someone is.

illustrate to be proof or evidence of something.
Then notice an example of the vocabulary, *proportional relationship* being used in context on student book, page 61 below.

3. General, specific, and technical language is appropriate for the targeted proficiency levels. Ready Classroom Mathematics provides differentiated supports that support
language at the word/phrase dimension. Suggestions to support this differentiation includes but is not limited to; Co-constructed Word Banks, Say It Another Way, Act It Out, and Three Reads. See the differentiated examples below.

Example: Co-constructed word banks

Example: Say It Another Way
Example: Act It Out

Levels 1–3: Listening/Speaking
Help students make sense of Try It by explaining the photograph of the center pivot irrigation system. Then display the photograph from Connect to Culture and help students list words to describe it. Tell students that irrigation systems, like the one shown, create green circles. Read aloud Try It and use Act It Out to support understanding of the phrase turn around a center point. Adapt Say It Another Way by asking questions and guiding students to respond. (e.g., What does Mal order, or buy?) Have students respond with words, phrases, gestures, and/or drawings. If students' ideas are unclear, reward so others can understand.

Levels 2–4: Listening/Speaking
Help students make sense of Try It by discussing the photograph of the center pivot irrigation system and reading the caption. Then display the photograph from Connect to Culture and have partners turn and talk about how the green circles were created. Read aloud Try It and invite volunteers to use Act It Out to support the second sentence. Adapt Say It Another Way by reading each sentence of the problem and providing students with think time to consider how to paraphrase that sentence. Ask for volunteers to paraphrase the text. Reward any unclear statements, or ask another student to do so, so that others understand. Confirm with the speaker that the rewording is correct.

Levels 3–5: Listening/Speaking
Help students make sense of Try It. Have students turn and talk about how the word problem connects to their discussion from Connect to Culture and the photograph of the center pivot system. Have students ask for clarification of terms. Invite them to offer additional prior knowledge related to farming or irrigation by asking: How might a farmer or gardener bring water when there is not enough rain? Use Say It Another Way to have students paraphrase each sentence of the problem. Remind students to be respectful if they disagree with another's ideas. Select students who showed thumbs down and have them explain what is inaccurate or missing in the paraphrase.

Example: Three Reads

Levels 1–3: Reading/Speaking
Guide students as they interpret and discuss Connect It problem S. Display and discuss the academic terms approximate and exact. Support understanding by asking students to estimate and count things in the classroom. Provide these frames to help students talk about problem:

- The formula for the circumference of a circle is ___.
- An approximate value of \( \pi \) is ____.
- The exact circumference is ____.
- The approximate circumference is ____.

Levels 2–4: Reading/Speaking
Adapt Three Reads to support students as they interpret and discuss Connect It problem S. First review the definitions for exact and approximate. After the first read, have students turn and talk about the difference between an exact circumference and an approximate circumference. Have partners work together to complete the second and third read and answer the corresponding questions. Have them sketch and label the circle described and use the the model to restate the problem.

Levels 3–5: Reading/Speaking
Use Three Reads to support students as they make sense of Connect It problem S. Adapt the routine by asking students to preview the problem to identify unfamiliar vocabulary. Clarify the terms as needed. Before each reading, display the question students will answer. After the read, provide students with individual think time to consider their responses. Have students compare their responses with partners. Call on several students to share their ideas. To prompt students to use precise language, call on volunteers to reward vague or unclear statements.
You will also notice that there are examples of specific and technical language within the vocabulary section in each lesson overview. This example shows specific language which is the academic vocabulary that may cut across content areas and the technical language which is the math vocabulary. Students interact with this vocabulary throughout the lesson as well as general vocabulary.

Vocabulary

Math Vocabulary

**exterior angle** when you extend one side of a polygon, the angle between the extended side and the adjacent side. This angle forms a linear pair with the adjacent interior angle of the polygon.

Review the following key terms.

**linear pair** two angles that are adjacent and supplementary.

**similar triangles** triangles that are scale drawings of one another. Similar triangles have the same shape but may have a different size.

Academic Vocabulary

**nonadjacent** not touching or being next to. Nonadjacent angles do not share a vertex or side.

**related** to connect one thing with one or more other things.

4. General, specific, and technical language is systematically presented throughout the materials in Ready Classroom Mathematics. At the beginning of each lesson in grade levels 6, 7, and 8 specific and technical vocabulary is highlighted. General vocabulary shows up throughout the lessons. Each lesson in all grade levels also provides ideas for differentiation as it relates to language. The support for vocabulary development also exists in all lessons in grades 6, 7, and 8 which supports students with general, specific and technical language. See the examples below from Grade 6, Lesson 11.
**Vocabulary**

**Math Vocabulary**
There is no new vocabulary. Review the following key terms.

*base (of a three-dimensional figure)* a face of a three-dimensional figure from which the height is measured.

*cube* a rectangular prism in which each face of the prism is a square.

*right rectangular prism* a right prism where the bases and other faces are all rectangles.

*volume* the amount of space inside a solid figure. Volume is measured in cubic units such as cubic inches.

**Academic Vocabulary**

*approach* to begin to think about.

*diagram* a drawing that explains or shows the parts of something.

*maximum* the greatest amount that is possible or allowed, or the greatest value in a group.
Levels 1–3: Writing/Speaking
Use Co-Constructed Word Bank to prepare students to talk and write about Connect It problem 2. Review lesson vocabulary and point out other math terms students may need as they work on the problem, such as edge, length, formula, and make up. Encourage students to suggest other words and phrases they want to include. Have students turn and talk to partners to identify the length, width, and height of the large cube. Provide frames to help them describe the dimensions in terms of the small cubes.
- The length is ___ small cubes.
- The ___ is ___ small cubes.
  Refer them to the word bank as they complete the frames.

Levels 2–4: Writing/Speaking
Use Co-Constructed Word Bank to prepare students to talk and write about Connect It problem 2. Guide students to add relevant terms they can use as they work on the problem. Adapt Stronger and Clearer Each Time by providing sentence frames for students to complete and then working to clarify and revise ideas through partner discussion.
- The edge length is ___ because ___.
- The volume is ___ because ___.
  I know that ___ because ___.
- The volume of a small cube is ___.
  My answer using the formula is the same as/ different from ___.

Levels 3–5: Writing/Speaking
Have pairs discuss Connect It problem 2 before drafting answers individually. Ask one person in each pair to point to the small cube and tell how to find its volume. Then ask the other partner to point to the large cube and tell how to find its volume.
- Have students draft their answers individually. Use a brief two-person version of Stronger and Clearer Each Time to allow partners to help revise each other’s answers so that they make sense.
- Remind students to use precise math and academic vocabulary in their written responses. Identify student responses that can be used as models of precise language to present to the class.

Support Vocabulary Development
Assign Prepare for Solving Volume Problems with Fractions as extra practice in class or as homework. If you have students complete it in class, use the guidelines below.
- Ask students to consider the term volume. Provide support as needed, helping students see that volume is a way of finding the volume of a solid figure to guide their thinking.
- Inquire students’ work individually to complete the graphic organizer. Invite students to share their completed organizers, and prompt a whole-class comparative discussion of the words, illustrations, and examples given.
- Have students look at the pictures in problem 2 and discuss with a partner how the volume of the prism can be compared. Have students discuss the terms compare cubes and explain why this information is needed to solve the problem.

Problem Notes
1. Students should understand that volume is the amount of space inside a three-dimensional figure. Students may respond that the formula for finding the volume of a rectangular prism is \(V = l \times w \times h\). Students should recognize that \(l\) is length, \(w\) is width, and \(h\) is height. Students should also recognize that volume is measured in cubic units.
2. Students should recognize that the volume of the prism is greater than the volume of a cube because it is made up of more cubes.

Prepare for Solving Volume Problems with Fractions

Preview of Possible Explanations: Prior to reading the problem, students may be interested in finding the volume of a rectangular prism, so ask students to draw a rectangular prism and label its dimensions. Then, have students find the volume of the prism.

Real-World Connection
To prevent bacteria from growing in pools, chlorine must be added to the water. To determine the correct amount of chlorine, the volume of the water in the pool must be known. In a rectangular pool, the volume can be calculated with the formula for the volume of a rectangular prism. Some Olympic pools are 50 m long, 25 m wide, and 1.4 m deep. The volume of water needed to fill this pool is

\[
(50 \times 25 \times 1.4) \, \text{m}^3 = 1750 \, \text{m}^3
\]

To get an idea of how much water is, think about how many gallons of water would be needed to fill the pool. There are about 264 gallons in one cubic yard. If the Olympic pool is divided into 14.3 cubic yards, the volume is 3914 gallons.

Prepare for Solving Volume Problems with Fractions
3. Performance Definitions

The WIDA Performance Definitions define the WIDA levels of language proficiency in terms of the three dimensions of academic language described above (discourse, sentence, word/phrase) and across six levels of language development.

A. Representation of Levels of Language Proficiency

1) **Do the materials differentiate between the language proficiency levels?**
   - **Yes**
   - **No**

2) **Is differentiation of language proficiency developmentally and linguistically appropriate for the designated language levels?**
   - **Yes**
   - **No**

3) **Is differentiation of language systematically addressed throughout the materials?**
   - **Yes**
   - **No**

**Justification:** Provide examples from materials as evidence to support each “yes” response for
1. The materials differentiate between the proficiency levels in the Ready Classroom Mathematic materials. Each English language proficiency level is outlined in the differentiation chart at each of the grade levels in each lesson. This differentiation is broken down into three parts that suggest different ideas for levels 1-3, 2-4 and 3-5.

2. The differentiation of language proficiency is developmentally and linguistically appropriate for the designated language levels within the 6, 7, and 8 grade materials in the Ready Classroom Mathematics. There is a chart in each Teacher’s Guide that shows examples of what English learners at different levels of English language proficiency can do in connection with the grade level learning goals as they are addressed in the units. As a teacher plans for a unit, these examples of language expectations will help differentiate instruction to meet the needs of English learners.
3. Differentiation of language is systematically addressed throughout the Ready Classroom Mathematics in grade levels 6, 7 and 8 for each unit. Suggestions are made of what English learners can do at different proficiency levels in connection with the grade level Common Core State Standards (CCSS) as they are addressed in the units. As a teacher plans for a unit, these examples of language expectations will help differentiate instruction to meet the needs of English learners. See the example below from grade level 6 for units 1, 2, and 3.
## Language Expectations

The chart below shows examples of what English learners at different levels of English language proficiency can do in connection with one of the Common Core State Standards (CCSS) addressed in this unit. As you plan for this unit, use these examples of language expectations to help you differentiate instruction to meet the needs of English learners.

**Standard 6.EE.A.2c** Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).

<table>
<thead>
<tr>
<th>LANGUAGE DOMAINS</th>
<th>BEGINNING Level 1</th>
<th>INTERMEDIATE Level 2</th>
<th>INTERMEDIATE Level 3</th>
<th>ADVANCED/ADVANCED HIGH Level 4</th>
<th>ADVANCED/ADVANCED HIGH Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>LISTENING</td>
<td>Listen to a series of one-step instructions and identify the corresponding steps for evaluating an expression using a model with teacher support as needed.</td>
<td>Match an oral sequence of steps for evaluating an expression to the corresponding steps in a model working with a partner.</td>
<td>Carry out oral directions to evaluate an expression by listening to the directions multiple times and working with a partner.</td>
<td>Carry out oral directions to evaluate an expression by working with a partner and asking questions for clarification as needed.</td>
<td>Carry out oral directions to evaluate an expression, asking for clarification or additional information as needed.</td>
</tr>
<tr>
<td>SPEAKING</td>
<td>Explain how the value of a variable affects the value of an expression by working with the teacher to complete sentence frames using lesson vocabulary.</td>
<td>Explain how the value of a variable affects the value of an expression by using lesson vocabulary to complete sentence frames.</td>
<td>Explain how the value of a variable affects the value of an expression by using lesson vocabulary to complete sentence frames.</td>
<td>Explain how the value of a variable affects the value of an expression by using lesson vocabulary.</td>
<td>Explain how the value of a variable affects the value of an expression by using lesson vocabulary.</td>
</tr>
<tr>
<td>READING</td>
<td>Choose answers to multiple-choice questions by defining key terms with an illustrated glossary and by identifying variables, values, and operations with a partner.</td>
<td>Interpret real-world problems that involve evaluating expressions by defining key terms using the interactive Glossary or a bilingual dictionary and by identifying variables, values, and operations with a partner.</td>
<td>Interpret real-world problems that involve evaluating expressions by using the glossary or a dictionary to clarify word meanings as needed and by identifying variables, values, and operations with a partner.</td>
<td>Interpret real-world problems that involve evaluating expressions by identifying the variables, values, and operations with a partner.</td>
<td>Interpret real-world problems that involve evaluating expressions by identifying the variables, values, and operations.</td>
</tr>
<tr>
<td>WRITING</td>
<td>Record the order of steps to evaluate an expression using models, variables, numbers, and symbols.</td>
<td>Record the order of steps to evaluate an expression using models and a list of sequence words.</td>
<td>Describe the order of steps to evaluate an expression using sentence frames and a list of sequence words.</td>
<td>Describe the order of steps to evaluate an expression using sentence starters.</td>
<td>Describe and explain the order of steps to evaluate an expression.</td>
</tr>
</tbody>
</table>
**Example: Grade Level 6, Unit 2**

### Connect Mathematics and Language Development

#### Language Expectations

The chart below shows examples of what English learners at different levels of English language proficiency can do in connection with one of the Common Core State Standards (CCSS) addressed in this unit. As you plan for this unit, use these examples of language expectations to help you differentiate instruction to meet the needs of English learners.

**Standard 6.NS.A.1** Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.

<table>
<thead>
<tr>
<th>LANGUAGE DOMAINS</th>
<th>BEGINNING Level 1</th>
<th>INTERMEDIATE Level 2</th>
<th>INTERMEDIATE Level 3</th>
<th>ADVANCED/ADVANCED HIGH Level 4</th>
<th>ADVANCED/ADVANCED HIGH Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LISTENING</strong></td>
<td>Match the word forms of fractions to the number forms on a visual fraction model representing quotients of fractions with a partner.</td>
<td>Match oral descriptions of quotients of fractions to their visual and numerical representations using bar models, number lines, and equations.</td>
<td>Categorize numbers as dividends, divisors, or quotients, based on oral descriptions of quotients of fractions using bar models, number lines, and equations.</td>
<td>Categorize numbers as dividends, divisors, or quotients, based on complex oral discourse involving quotients of fractions using bar models, number lines, and equations.</td>
<td></td>
</tr>
<tr>
<td><strong>SPEAKING</strong></td>
<td>Identify a strategy to find the quotient of fractions by showing the model or diagram they used, and then justify the strategy in partner discussion in English and/or their home language.</td>
<td>Describe a strategy to find the quotient of fractions using a model or diagram, and then justify the strategy in partner discussion in English and/or their home language.</td>
<td>Describe a strategy to find the quotient of fractions using a model or diagram, and then justify the strategy in partner discussion using word banks or sentence frames.</td>
<td>Justify a strategy to find the quotient of fractions using a model or diagram in partner discussion.</td>
<td></td>
</tr>
<tr>
<td><strong>READING</strong></td>
<td>With visual and teacher support, locate important quantities in word problems and demonstrate understanding of their relationships using a bar model and an equation.</td>
<td>With partners, locate important quantities in word problems and demonstrate understanding of their relationships using a bar model and an equation.</td>
<td>Demonstrate understanding of word problems involving fractions by paraphrasing the problem with a partner before representing the relationships among important quantities with bar models or equations.</td>
<td>Demonstrate understanding of word problems by working with partners to use a bar model and an equation to represent the problem.</td>
<td></td>
</tr>
<tr>
<td><strong>WRITING</strong></td>
<td>Compare strategies for finding a quotient of fractions by using models to show different strategies and then labeling the similarities and differences with teacher support.</td>
<td>Compare strategies for finding a quotient of fractions by using models to show different strategies and then labeling the similarities and differences with a partner.</td>
<td>Compare strategies for finding a quotient of fractions by using models to show different strategies and then using sentence frames to explain how the models are the same and different.</td>
<td>Compare strategies for finding a quotient of fractions by explaining similarities and differences.</td>
<td></td>
</tr>
</tbody>
</table>

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## Language Expectations

The chart below shows examples of what English learners at different levels of English language proficiency can do in connection with one of the Common Core State Standards (CCSS) addressed in this unit. As you plan for this unit, use these examples of language expectations to help you differentiate instruction to meet the needs of English learners.

**Standard 6.RP.A.1** Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.

<table>
<thead>
<tr>
<th>LANGUAGE DOMAINS</th>
<th>BEGINNING</th>
<th>INTERMEDIATE</th>
<th>ADVANCED/ADVANCED HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LISTENING</strong></td>
<td>Level 1</td>
<td>Level 2</td>
<td>Level 3</td>
</tr>
<tr>
<td>Use teacher modelling and visual supports to follow a series of one-step instructions to sort manipulatives and then represent the relationship between their quantities with a ratio.</td>
<td>With a partner, follow oral descriptions to sort manipulatives by using a graphic organizer and then represent the relationship between their quantities with a ratio.</td>
<td>With a partner, categorize manipulatives based on examples from oral and visual descriptions and then represent the relationship between their quantities with a ratio.</td>
<td></td>
</tr>
<tr>
<td><strong>SPEAKING</strong></td>
<td></td>
<td>Level 4</td>
<td>Level 5</td>
</tr>
<tr>
<td>Describe a ratio relationship in a labeled visual representation by completing a sentence frame with the two quantities and by repeating the sentence aloud, phrase by phrase.</td>
<td>Describe a ratio relationship in a visual representation based on a modeled sentence with ratio language before speaking the description aloud.</td>
<td>Describe a ratio relationship in a visual representation by using a list of modeled sentences with ratio language and a dictionary.</td>
<td></td>
</tr>
<tr>
<td><strong>READING</strong></td>
<td></td>
<td>Level 5</td>
<td></td>
</tr>
<tr>
<td>With a partner, identify words, phrases, or a sentence that describes a ratio relationship by locating the two quantities and by matching words in the problem, e.g., for each and for every, to a word bank of ratio language.</td>
<td>With a partner, identify words, phrases, or a sentence that describes a ratio relationship by locating the two quantities and by using a list of modeled sentences to locate the ratio language in the problem.</td>
<td>Identify a ratio relationship in a problem by using a list of ratio language terms to locate the quantities being compared.</td>
<td></td>
</tr>
<tr>
<td><strong>WRITING</strong></td>
<td></td>
<td>Level 6</td>
<td></td>
</tr>
<tr>
<td>Draw a model to compare quantities in a problem situation and work with a partner to label the model using a simple sentence frame with ratio language.</td>
<td>Draw a model to compare quantities in a problem situation and use a sentence frame to describe the model with ratio language.</td>
<td>Draw a model to compare quantities in a problem situation and explain in writing how it can be used by previewing and revising ideas with a partner.</td>
<td></td>
</tr>
</tbody>
</table>

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B. Representation of Language Domains

WIDA defines language through expressive (speaking and writing) and receptive (reading and listening) domains situated in various sociocultural contexts.

1) **Are the language domains (listening, speaking, reading, and writing) targeted in the materials?**  
   - Yes  
   - No

2) **Are the targeted language domains presented within the context of language proficiency levels?**  
   - Yes  
   - No

3) **Are the targeted language domains systematically integrated throughout the materials?**  
   - Yes  
   - No

*Justification: Provide examples from materials as evidence to support each “yes” response for this section. Provide descriptions, not just page numbers.*

1. The language domains (listening, speaking, reading, and writing) are targeted in the Ready Classroom Mathematics materials. Many opportunities for both receptive and productive language opportunities are present throughout grade levels 6, 7, and 8.

2. The targeted language domains are presented within the context of language proficiency levels. In the differentiation chart there are supports that address all language domains. All units provide opportunities for use of all domains throughout lessons.
3. The targeted language domains are systematically integrated throughout the materials. Each unit throughout Ready Classroom Mathematics has a Language Expectation Chart that shows examples of what English learners at different levels of English language proficiency can do in each of the four language domains; listening, speaking, reading, and writing. This is provided for each unit through the 6, 7, and 8 grade materials.

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>LISTENING</td>
<td></td>
<td>Match an oral sequence of steps for evaluating an expression to the corresponding steps in a model with teacher support as needed.</td>
<td>Carry out oral directions to evaluate an expression by listening to the directions multiple times and working with a partner.</td>
<td>Carry out oral directions to evaluate an expression by working with a partner and asking questions for clarification as needed.</td>
<td>Carry out oral directions to evaluate an expression, asking for clarification or additional information as needed.</td>
</tr>
<tr>
<td>SPEAKING</td>
<td>Explain how the value of a variable affects the value of an expression by working with the teacher to complete sentence frames using lesson vocabulary.</td>
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</tr>
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<td>READING</td>
<td>Choose answers to multiple-choice questions by defining key terms with an illustrated glossary and by identifying variables, values, and operations with a partner.</td>
<td>Interpret real-world problems that involve evaluating expressions by using the glossary or a bilingual dictionary to clarify word meanings as needed and by identifying variables, values, and operations with a partner.</td>
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</table>

**Differentiation for English Language Learners**

**Language Expectations**

The chart below shows examples of what English learners at different levels of English language proficiency can do in connection with one of the Common Core State Standards (CCSS) addressed in this unit. As you plan for this unit, use these examples of language expectations to help you differentiate instruction to meet the needs of English learners.

**Standard 6.EE.A.2c:** Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
4. The Strands of Model Performance Indicators and the Standards Matrices

The Strands of Model Performance Indicators (MPIs) provide sample representations of how language is processed or produced within particular disciplines and learning contexts. WIDA has five language development standards representing language in the following areas: Social and Instructional Language, The Language of Language Arts, The Language of Mathematics, The Language of Science, The Language of Social Studies as well as complementary strands including The Language of Music and Performing Arts, The Language of Humanities, The Language of Visual Arts.

The Standards Matrices are organized by standard, grade level, and domain (Listening, Speaking, Reading, and Writing). The standards matrices make an explicit connection to state academic content standards and include an example for language use. Each MPI includes a uniform cognitive function (adopted from Bloom’s taxonomy) which represents how educators can maintain the cognitive demand of an activity while differentiating for language. Each MPI provides examples of what students can reasonably be expected to do with language using various supports.

A. Connection to State Content Standards and WIDA Language Development Standards

1) Do the materials connect the language development standards to the state academic content standards?  
Yes  No

2) Are the academic content standards systematically represented throughout the materials?  
Yes  No

3) Are social and instructional language and one or more of the remaining WIDA Standards present in the materials?  
Yes  No

Justification: Provide examples from materials as evidence to support each “yes” response for this section. Provide descriptions, not just page numbers.

1. The Ready Classroom Mathematics materials connect the language development standards to the state academic content standards. Ready Classroom Mathematics lessons reflect the same focus as the major work of the learning goals. The materials build on prior knowledge, making connections within and across all domains, grade levels, and content areas.

2. The academic content standards are systematically represented throughout the materials in Ready Classroom Mathematics in grade levels 6, 7, and 8. Lessons build upon one another and provide a learning progression chart for each lesson per unit. See example
below from the 7th grade materials in lesson 26.

Example: Grade 7, Lesson 26

**MATH FOCUS**

**Focus Standard**

7.G.B.6  Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

See Unit 6 Pacing Guide for developing and applied standards.

**STANDARDS FOR MATHEMATICAL PRACTICE (SMP)**

SMP 1, 2, 3, 4, 5, and 6 are integrated into the Try-Discuss-Connect routine.*

This lesson provides additional support for:

4 Model with mathematics.

7 Look for and make use of structure.

* See page 1q to learn how every lesson includes these SMP.

<table>
<thead>
<tr>
<th>Learning Progression</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In Grade 6</strong>, students recognized concepts of volume measurement, such as filling a shape with unit cubes. They determined the volumes of right rectangular prisms and derived formulas for the volume. <strong>Earlier in Grade 7</strong>, students found the surface areas of various prisms and solved real-world and mathematical problems involving surface area of composite figures. <strong>In this lesson</strong>, students extend their understanding of surface area and volume to composite three-dimensional figures. They will use the formula ( V = Bh ) to find the volume of right prisms with bases that are not rectangles. They also will apply the formula to find missing side lengths when the volume and other measurements of a prism are known. <strong>Later in Grade 7</strong>, students will identify and compare plane sections of prisms. <strong>In Grade 8</strong>, they will solve surface area and volume problems involving other three-dimensional shapes such as cones, cylinders, and spheres.</td>
</tr>
</tbody>
</table>
MATH FOCUS

Focus Standard

7.SP.A.2 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.

See Unit 5 Pacing Guide for developing and applied standards.

STANDARDS FOR MATHEMATICAL PRACTICE (SMP)

SMP 1, 2, 3, 4, 5, and 6 are integrated into the Try-Discuss-Connect routine.*

This lesson provides additional support for:

4 Model with mathematics.
5 Use appropriate tools strategically.

* See page 1q to learn how every lesson includes these SMP.

Learning Progression

Earlier in Grade 7, students solved proportional relationship problems.

In the previous lesson, students learned what it means for a sample to be representative of a population. They built understanding that random samples are likely to be representative and explored methods of selecting random samples.

In this lesson, students learn that it is possible to draw inferences about a population from one random sample or from many random samples. Students use proportional reasoning to make inferences about a population from a single sample or from multiple samples. They gauge how close to the mean or median any one random sample in the set is.

Later in Grade 7, students will make informal inferences about two populations by comparing random samples drawn from each population.
3. Social and instructional language and one or more of the remaining WIDA Standards are present in the materials. Ready Classroom Mathematics has coherence with content areas. In the Real-World Connections portion of the materials it draws attention to how mathematics is related to the real world, for example how it may have a focus on Science, Technology, Engineering, Art, and Mathematics (STEAM). There are many opportunities to interact with social language as well as the language of science, English language arts, social studies as well as the extended strands to include the language of art, music, and physical education.

Real-World Connection

Fashion designers work with fractions when they design and sew clothes. Figuring out how to place buttonholes on the front of a shirt may require dividing with fractions. Suppose a designer wants to place 7 buttons on a shirt so that the distance between the top and bottom buttons is $13 \frac{1}{2}$ inches. The space between the buttons can be found by calculating $13 \frac{1}{2} \div 6$. Or, suppose a designer wants to put buttons $3 \frac{1}{4}$ inches apart so that the distance between the top and bottom buttons is $19 \frac{1}{2}$ inches. The number of buttons needed can be found by calculating $19 \frac{1}{2} \div 3 \frac{1}{4}$, and then adding 1 to the quotient. Ask students to think of other real-world examples where dividing fractions might be useful.

Coherence with Content Areas

Real-World Connections draw attention to how mathematics is related to the real world, with a focus on Science, Technology, Engineering, Art, and Mathematics (STEAM).
B. Cognitive Challenge for All Learners at All Levels of Language Proficiency

1) **Do materials present an opportunity for language learners to engage in various cognitive functions (higher order thinking skills from Bloom’s taxonomy) regardless of their language level?**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

2) **Are opportunities for engaging in higher order thinking systematically addressed in the materials?**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

**Justification:** Provide examples from materials as evidence to support each “yes” response for this section. Provide descriptions, not just page numbers.

1. The Ready Classroom Mathematics materials present an opportunity for language learners to engage in various cognitive functions (higher order thinking skills from Bloom’s taxonomy) regardless of their language level. Every lesson in the 6th, 7th, and 8th grade materials provides a lesson overview which includes language objectives that ask students to engage in various cognitive functions. There are many opportunities throughout the lessons for students to use language to compare, describe, interpret, justify, apply, etc.

**Language Objectives**

- Use lesson vocabulary and comparative adjectives, such as *faster, steepest, least, greater, greatest, smallest* to analyze, describe, and compare linear functions.
- Interpret, explain, or classify statements about linear functions using *true, always, never, and sometimes*.
- Compare strategies with a partner and explain the connection between two strategies.
2. Higher order thinking is systematically addressed in the Ready Classroom Mathematics materials. As stated above, every lesson in the 6th, 7th, and 8th grade materials provides a lesson overview which includes language objectives that ask students to engage in various cognitive functions. There are many opportunities throughout the lessons for students to use language to compare, describe, interpret, justify, apply, etc. See the examples below.

**Language Objectives**

- Discuss connections between visual models and equations in word problems involving fraction division with a partner.
- Read and interpret word problems to determine which quantity is the dividend and which quantity is the divisor.
- Justify the size of the quotient in relationship to the dividend and divisor using reasoning and understanding of fraction division in class discussion.
- Apply understanding of division with fractions to write a word problem to match a given expression using complete sentences.
- Understand and use lesson vocabulary to accurately explain division of fractions.
**Language Objectives**

- Discuss connections between visual models and equations in word problems involving fraction division with a partner.
- Read and interpret word problems to determine which quantity is the dividend and which quantity is the divisor.
- Justify the size of the quotient in relationship to the dividend and divisor using reasoning and understanding of fraction division in class discussion.
- Apply understanding of division with fractions to write a word problem to match a given expression using complete sentences.
- Understand and use lesson vocabulary to accurately explain division of fractions.
Example: Grade 7, Lesson 10, Students are asked to explain, solve problems, respond

**Language Objectives**

- Explain solution strategies to subtraction problems with negative numbers using lesson vocabulary and academic language.
- Explain how to rewrite and reorder to solve problems involving addition or subtraction of negative numbers during class discussions.
- Respond to clarifying questions about positive and negative numbers by accurately using the lesson vocabulary in speech and writing.

Example: Grade 8, Lesson 10, Students are asked to interpret, explain, describe, solve

**Language Objectives**

- Read and interpret problems in order to represent them with an equation with one variable.
- Explain steps for solving linear equations in one variable in speaking or writing.
- Understand lesson vocabulary and use it accurately to explain reasoning when solving linear equations with rational number coefficients.
- Build on strategies described by a partner by adding examples to explain why a selected strategy makes sense.
C. Supports for Various Levels of Language Proficiency

1) Do the materials provide scaffolding supports for students to advance within a proficiency level?  Yes  No

2) Do the materials provide scaffolding supports for students to progress from one proficiency level to the next? Yes  No

3) Are scaffolding supports presented systematically throughout the materials?  Yes  No

Justification: Provide examples from materials as evidence to support each “yes” response for this section. Provide descriptions, not just page numbers.

1. The Ready Classroom Mathematics materials provide scaffolding supports for students to advance within a proficiency level. Each lesson session provides a Connect to Language section for English language learners. The Differentiation chart is used to scaffold the language in each session. As you see in the example below the Differentiation chart addresses proficiency levels 1-3, 2-4, and 3-5 within proficiency level bands.

2. As stated above the materials provide scaffolding supports for students to progress from one proficiency level to the next. If teachers use the Differentiation chart for English language learners, students will have an opportunity to advance from one proficiency level to the next in the domains of language that are addressed through the language differentiation.
3. Scaffolding supports are presented systematically throughout the materials in the Ready Classroom Mathematics in grade levels 6, 7 and 8. Each unit lesson session provides a Differentiation chart for English language learners. Using this chart throughout each session will support the growth in proficiency levels for English learners. See the examples below from the 6th grade materials and notice the progression of the differentiation throughout each lesson session.

Example: Grade 6, Lesson 9, Session 1

**DIFFERENTIATION | ENGLISH LANGUAGE LEARNERS**

**Levels 1–3: Listening/Speaking**
Guide students to make sense of Model It problem 1 and share ideas in the first Discuss It. Read the problem aloud. Use gestures and rephrasing to help students understand the problem. Begin a Co-Constructed Word Bank of big ideas that might be included in discussion about the bar model, such as equal parts, parts, sizes, and fraction. Have small groups discuss the bar model using terms from the word bank. Call on volunteers to share ideas. Invite students to paraphrase the speaker’s ideas using the frame:

- I think you said ___. Is that correct?
- Allow the speaker to respond to the paraphrase.

**Levels 2–4: Listening/Speaking**
Guide students to make sense of Model It problem 2 and prepare them to share ideas in the first Discuss It. Adapt Notice and Wonder by providing sentence starters to help students verbalize ideas about the bar model in problem 2:

- I notice that…
- I wonder…

Reward as needed and record student responses. If necessary, guide them to interpret the quotient of 4 as 4 equal groups, each with 3 parts of size \( \frac{1}{4} \). During Discuss It, have students confirm understanding by paraphrasing their partner’s ideas.

**Levels 3–5: Listening/Speaking**
Prepare students to share ideas about Model It problem 2 in Discuss It. Use Notice and Wonder to provoke thought about the bar model in problem 2. Have students turn and talk with a partner before calling on volunteers to share what they noticed or wondered.

Encourage partners to adapt Co-Constructed Word Bank by creating a bank of terms that they can use in Discuss It. Remind students to listen to understand their partner’s message during Discuss It by using engaged body language and asking clarifying questions.

Example: Grade 6, Lesson 9, Session 2

**DIFFERENTIATION | ENGLISH LANGUAGE LEARNERS**

**Levels 1–3: Speaking/Writing**
Prepare students to respond in writing to Connect It problem 4 by facilitating partner discussion before writing. Prompt partners to explain the parts of the number line in problem 3, including the tick marks and labels. Support them as they draw and describe a bar model. Ask: When you draw a model of \( \frac{5}{6} \), how many equal-size parts do you make?

Have partners display the models and use sticky notes to record at least one similarity and one difference. Provide sentence frames to help students organize their writing:

- The number line and the bar model _____.
- The bar model _____, but the number line _____.

**Levels 2–4: Speaking/Writing**
Prepare students to respond in writing to Connect It problem 4. Pose the following questions for partners to discuss, and then call on volunteers to share ideas: How does the number line in problem 3 represent the quotient? How can a quotient be shown in a bar model? Allow time for students to draw their bar models individually.

Have partners display the models and discuss similarities and differences. Then have them draw a Venn diagram to compare. Support writing with sentence frames:

- Both models _____.
- One model _____, but the other _____.

**Levels 3–5: Speaking/Writing**
Prepare students to respond in writing to Connect It problem 4. Have students turn and talk to a partner to review and describe the number line in problem 3. Ask them to compare a bar model and a number line.

Encourage them to tell which parts and labels will be the same and which ones will be different. Then have them draw and describe a bar model.

Have partners display the models, side by side and discuss similarities and differences. Then have them draw a Venn diagram to compare. Have partners refer to their diagrams as they write comparisons. Encourage them to use comparison words and phrases such as similar, different, both, however, and in contrast.
D. Accessibility to Grade Level Content

1) **Is linguistically and developmentally appropriate grade-level content present in the materials?**
   - Yes
   - No

2) **Is grade-level content accessible for the targeted levels of language proficiency?**
   - Yes
   - No

3) **Is the grade-level content systematically presented throughout the materials?**
   - Yes
   - No

**Justification:** Provide examples from materials as evidence to support each “yes” response for this section. Provide descriptions, not just page numbers.

1. The grade-level content present in the Ready Classroom Mathematics materials is linguistically and developmentally appropriate for grade levels 6, 7, and 8. The materials align to the grade level standards and linguistic supports are provided in order for students to be able to access them. These supports are integrated through language and mathematics and include language routines as well as scaffolded language supports. The suggestions for scaffolding and amplifying the language can be applied to many contexts within the materials.
2. Grade-level content is accessible for the targeted levels of language proficiency. Linguistic supports are provided in order for students to be able to access content. These supports are integrated through language and mathematics and include language routines as well as scaffolded language supports. The suggestions for scaffolding and amplifying the language can be applied to many contexts within the materials.
Differentiated Instruction for English Learners
Every session includes differentiated support for various levels of English proficiency.

<table>
<thead>
<tr>
<th>Levels 1–3: Reading/Listening</th>
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| Use Three Reads to help students interpret and apply the problem. Explain the difference between scores and points. Have students state the number of points earned for a touchdown and a field goal. Then have volunteers use Act It Out with one person tossing a coin 3 times, while other students record points and the final score. Let heads be a touchdown and tails be a field goal. Reread the second paragraph and have students relate their own test game to the equations in the problem. For the last read, read the problems. Ask: What is the system of equations? What do the variables represent? Have students solve the problem.

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<th>Levels 2–4: Reading/Listening</th>
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| Use Three Reads to help students interpret and apply the problem. After the first read, have students discuss the difference between scoring multiple times and earning points. Point to the score board and ask: What does the number on the scoreboard represent? Have students share what they know about scoring points in sports. After the second read, have students use a coin toss to Act It Out to show the way teams earn points in a football game. Let heads be a touchdown and tails be a field goal. After the last read, display these questions: What do the variables represent? What information is in each equation? Have them talk about different ways to score and earn points in sports.

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<th>Levels 3–5: Reading/Listening</th>
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| Use Three Reads to help students interpret and apply the problem. After the first read, have partners discuss the quantities and relationships in the problem. Display these questions to support discussion: What do the variables represent? What information is in each equation? Have students share their explanations using complete sentences and precise vocabulary.

Scaffolded language support for a specific problem is outlined. These suggestions for scaffolding and amplifying the language can be applied to other problems as well.

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A27

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Support for Language, Discourse, Community, and Culture

Ready Classroom Mathematics recognizes the linguistic and cultural assets that all students, especially English Learners, bring to the classroom. Building on students’ background knowledge, experiences, and insights can enrich the classroom culture and help ensure engagement and academic success.

See a few program highlights below and a complete list in the chart to the right.

Vocabulary Development

Ready Classroom Mathematics helps students communicate ideas using both academic and math-specific vocabulary and language.

Connect to Culture

- Use these activities to connect with and leverage the diverse backgrounds and experiences of all students. Engage students in sharing what they know about contexts before you add the information given here.

SESSION 1

TRY IT

A yard sale or garage sale is a sale of used household goods or personal items, typically held in a private home or yard. Yardsales can be held at any time of the year, but are most popular during the summer months.

Explore Session: Prepare for . . .

(Cognate Support)

Explore Session: Prepare for . . .

Connect to Culture

Provides background information and cultural connections to help build on all students’ experiences and to enhance learning.

SESSION 2

TRY IT

Ask students to draw their hands if they have ever seen or worked in a garden on the roof of a building. Encourage these students to share their experiences. Rooftop gardens are becoming more popular because they add beauty to the city and provide fresh food. Rooftop gardens also have significant environmental benefits. They can help in building a cooler and help to reduce the heat island effect. They can also help reduce the amount of water needed to keep the garden healthy. Rooftop gardens can be used to suggest other possible benefits of rooftop gardens that they can add to the list.
3. The grade-level content is systematically presented throughout the Ready Classroom Mathematics materials. Each unit lesson brings students through a progression of learning. You can see an example of the systems below in the pacing guide and how lessons build upon one another.
Pacing Guide provides session-by-session pacing to support planning for daily instruction and practice.

PREPARE students for the lesson content with Interactive Tutorials.

Additional Practice is for use as in-class small group work, after-class work, or at-home learning.

REINFORCE understanding with Fluency & Skills Practice, Apply it problems, and differentiated Math Center Activities. Hands On Activities and Visual Models may also be useful in reinforcing mathematical concepts.

RETEACH mathematical concepts using Hands On Activities and Visual Models. Tools for instruction also provide targeted skills instruction.

Optional Add On PERSONALIZE resources provide students with opportunities to strengthen grade-level skills by working on their personalized path with i-Ready Online Instruction or to build fluency skills with interactive Learning Games.

The Lesson Quiz or Digital Comprehension Check assesses student progress toward mastery of lesson content and is a way to identify where reteaching is needed.

EXTEND mathematical concepts with Deepen Understanding, Challenge Activities, and Enrichment Activities.
E. Strands of Model Performance Indicators

1) **Do materials include a range of language functions?**
   - Yes
   - No

2) **Are the language functions incorporated into a communicative goal or activity?**
   - Yes
   - No

3) **Do the language functions support the progression of language development?**
   - Yes
   - No

*Justification: Provide examples from materials as evidence to support each “yes” response for this section. Provide descriptions, not just page numbers.*

1. The Ready Classroom Mathematics materials include a range of language functions which can be found in the language objectives for each lesson. Students are asked to use language to explain, describe, interpret, justify, apply, etc throughout the math content. The materials also have a Develop Academic Language feature that contains conversation tips based on six language functions, including listening, explaining, agreeing, and building on, disagreeing and justifying.
Example: Language Objectives including language functions describe and compare

**Language Objectives**

- Describe translations, reflections, and rotations using lesson vocabulary and the verbs *turn*, *slide*, and *flip*.
- Compare figures and images by reading and answering questions about length of line segments, the measures of angles, or parallel lines.
- Name the corresponding parts of a figure and image and use symbols to compare them.
- Describe the size, shape, orientation, and location of images using words and symbols.
- Listen to the ideas of others by looking at the speaker and asking clarifying questions about the corresponding sides of a figure and its image.

Example: Develop Academic Language Feature

**DEVELOP ACADEMIC LANGUAGE**

**WHY?** Understand questions by restating them as statements.

**HOW?** Tell students that one way to start to understand how and why questions is to restate all or part of them as statements. Demonstrate with Connect It problem 2: Why does multiplying by 2 tell you how many \( \frac{1}{2} \) are in a number? 

*Multiplying by 2 tells you how many \( \frac{1}{2} \) are in a number. Why? Encourage students to restate questions they find confusing.*

**DEVELOP ACADEMIC LANGUAGE**

**WHY?** Reinforce understanding of *based on* in math.

**HOW?** Have students discuss how they answer questions about probability. Guide students to understand that they need to use results from an experiment. Say: *The prediction or answer is based on results.* Read Connect It problem 3. Help students use the phrase to talk about the answers:

*Erin rolled a 3 _____ times. Based on this result, the probability of rolling a 3 is _____.*
2. The language functions are incorporated into a communicative goal or activity in each of the lessons. You will notice that the materials focus on language and discourse and discussion is a large part of the learning. Students also have opportunities to write. Productive language is a focus within the Ready Classroom Mathematics materials in grades 6, 7, and 8. Also, oftentimes the language objectives are directly connected to the conversation tips in the Develop Academic Language feature. See this example below and how it incorporates productive language.

Example: Grade 7, Lesson 11

Students are asked to, **Explain how to model multiplication with negative integers using opposite numbers and product** and to, **Connect patterns with integers to equations involving multiplication during partner and class discussions**, and to, **Use the lesson vocabulary when justifying answers and explaining if a product is positive or negative**. These language adjectives are focused around a communicative goal.

**Language Objectives**
- Explain how to model multiplication with negative integers using **opposite numbers** and **product**.
- Connect patterns with integers to equations involving multiplication during partner and class discussions.
- Use the lesson vocabulary when justifying answers and explaining if a product is positive or negative.

3. The language functions support the progression of language development. Paying attention to the Differentiation Chart that is provided for each session on each lesson you will notice that the suggestions support the progression of language development.

For example, in **levels 1-3** it suggests to **Read the problem with students and explain that the order of the factors is the sequence of the numbers being multiplied.** Help students **identify** cognates, such as the Spanish cognates orden and secuencia. Guide students to **list** sequence words that **describe** order, like first, second, and next. Then have them point to the equations in problems 5a and 5b and tell the order of the factors using sequence words. Prepare students to write written responses by asking them to **tell what they notice about the equations.** Record statements that show how the equations are the same or different for students to refer to as they write.
For example, in **levels 2-4** it suggests to **Encourage students to describe and compare** the equations using product and factor. **Call on students to share their ideas. Ask others to repeat and rephrase** the statements. **Record the ideas for students to refer to as they write. Have students read problem 5c and discuss** the meanings of order of the factors and change the product. **Ensure students understand that, in this context, order refers to the sequence. Have partners discuss** their ideas before writing. **Encourage them to identify** any statements from the earlier discussion that they may use in their answer.

For example, in **levels 3-5** it suggests students to **discuss** what they notice about the equations in problems 5a and 5b. **Encourage them to use precise mathematical language, like product, factor, and integers. Call on several students to rephrase** important ideas. **Emphasize statements that compare** the factors and products in the equations. **Have students read problem 5c and use Say It Another Way to confirm** their understanding. **Ask partners to discuss** how the question relates to the equations in problems 5a and 5b. **Remind students that they should compare** the order of the factors and the products of the two equations in their written responses.

Within this example of language progression notice the highlighted words and how the linguistic complexity grows throughout the progression. You will notice the linguistic complexity grows as the language proficiency grows but the task remains similar, which keeps students working at their zones of proximal development.
Additionally, the Develop Academic Language feature that is included in the conversation tips are presented in a systematic progression throughout the units. Each conversation tip builds on the one introduced previously for the given language function.

**DEVELOP ACADEMIC LANGUAGE**

**WHY?** Support understanding of solved for in mathematical language.

**HOW?** During Model It, display: You can rewrite the second equation so both equations are solved for \( v \). Underline solved for and ask students what this phrase is asking them to do. Explain that solving for a variable means that you find the value of the variable. Have students share what other variable you could solve for in Model It.

**DEVELOP ACADEMIC LANGUAGE**

**WHY?** Develop awareness of precision in academic language.

**HOW?** Explain that words and phrases that add or qualify details make definitions more precise. Display: *Diameter is the distance from one side of a circle to the other, passing through the center of the circle.* Ask students to discuss how the final phrase makes the definition more precise. Then have them discuss the use of *approximate circumference* and *exact circumference* in Apply It.