



# PRIME V2<sup>TM</sup>

Protocol for Review of  
Instructional Materials for ELLs V2

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**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](mailto: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, as they pertain to products.

## 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

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

## PRIME Part 1: Provide Information about Materials

Provide information about each title being correlated.

Publication Title(s): Florida Reveal Math

Publisher: McGraw-Hill

Materials/Program to be Reviewed: Florida Reveal Math Course Algebra 1, Geometry, Algebra 2 (Grades 9, 10, 11)

Tools of Instruction included in this review: Language Development Handbook, Teacher Edition and Student Edition

Intended Teacher Audiences: High School Math Teachers

Intended Student Audiences: High School Students (Grades 9, 10 & 11)

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

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

WIDA Spanish Language Development Standards

WIDA English Language Proficiency Standards

WIDA Language Development Standards addressed: (e.g. Language of Mathematics). Language of Mathematics, Social and Instructional Language

WIDA Language Proficiency Levels included: The WIDA language proficiency levels are not explicitly named as WIDA levels, but the materials do provide support, activities and descriptors for three sets of levels: Entering/Emerging, Developing/Expanding, and Bridging. These are the same names as WIDA levels 1-5.

Most Recently Published Edition or Website: Materials are labeled as Copyright ©2020, which is when they will be available to the public

In the space below explain the focus or intended use of the materials: *Florida Reveal Math* is a 6-12 math program designed to help reveal the mathematician in every student. Florida's high academic standards and rigorous courses are designed for each student to reach his or her full potential. This is why *Florida Reveal Math* has a strong focus on rigor-especially the development of conceptual understanding-an emphasis on student mindset, and ongoing formative assessment feedback loops.

## 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.

- |  |                   |    |
|--|-------------------|----|
| <b>1) Are the student assets and contributions considered in the materials?</b>                        | <b><u>Yes</u></b> | No |
| <b>2) Are the student assets and contributions systematically considered throughout the materials?</b> | <b><u>Yes</u></b> | No |

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

- 1) Students' assets and contributions are considered in the materials. In the Language Development Handbook (LDH) for each grade level, the Guiding Principles for Supporting English Learners explain their philosophy about ELLs. One asset-based statement within this description on page v of the LDH says, "A great many ELLs come to school with a variety of rich linguistic and cultural backgrounds from Spanish-speaking communities and countries all throughout the Americas...The experiences and identities acquired in the context of ELLs' homes and communities can transform the simplest classroom into a unique cultural and linguistic microcosm." Additionally, despite this being a math program, there are opportunities for student reflection, as evidenced here on page 608 of the Algebra 2, Module 12:

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### Pause and Reflect

Did you struggle with anything in this lesson? If so, how did you deal with it?

Record your observations here

- 2) Students' assets and contributions are systematically considered throughout the materials. An asset-based philosophy is stated in the Guiding Principles for Supporting English Learners mentioned above, but is also considered through the scaffolds and supporting activities which occur in each lesson. In the "Launch" component of the lesson, the students will "view a real-world scenario and image to pique their interest in the lesson content. Then, in the "Explore" section, the students "work in partners or small groups to explore a rich mathematical problem related to the lesson content" (page iv, Algebra 1 Teacher Edition Volume 1). There are also specific resources for English Language Learners, often incorporating Spanish language materials and resources (the dominant L1 in Florida). An example can be seen here, from pages xvi-xviii of the table of English/Spanish Cognates used in Geometry:

### English/Spanish Cognates Used in Geometry

English Term	Spanish Term	Lesson
adjacent	adyacentes	2-1
angle	ángulo	2-1
arc	arco	10-2
area	área	2-3
auxiliary line	línea auxiliar	5-1
axiom	axioma	1-1
axiomatic system	sistema axiomático	1-1
center	centro	10-1
central angle	ángulo central	10-2
chord	cuerda	10-1
circle	círculo	10-1
circumcenter	circuncentro	6-1
circumference	circunferencia	2-3
circumscribed	circunscrito	10-5
collinear	colineal	1-2
combination	combinación	12-4
common tangent	tangente común	10-5
complement	complemento	12-2
complementary angles	ángulo complementarios	2-2
concave polygon	polígono cóncavo	2-3
concentric circles	círculos concéntricos	10-1
conclusion	conclusión	3-2
concurrent lines	líneas concurrentes	6-1
conditional probability	probabilidad condicional	12-7
cone	cono	2-5
congruent	congruente	1-3
conic sections	secciones cónicas	11-5
conjecture	conjetura	3-1
conjunction	conjunción	3-2
constructions	construcciones	1-3
convex polygon	polígono convexo	2-3
coplanar	coplanar	1-2
corollary	corolario	5-1
corresponding parts	partes correspondientes	5-2
cylinder	cilindro	2-5
decomposition	descomposición	11-1
deductive argument	argumento deductivo	3-4
defined term	término definido	1-1
density	densidad	11-9
dependent events	eventos dependientes	12-5
diagonal	diagonal	7-1
diameter	diámetro	10-1

These tables can be found in each Language Development Handbook for each of the three courses.

The LDH also contains “Multicultural Teacher Tips” throughout, to help teachers better understand the particular needs, strengths, and differences that ELLs bring to the classroom. See example below, taken from page xii of the Teacher’s Edition of the LDH for Geometry:

**Multicultural Teacher Tip**

These tips provide insight on academic and cultural differences you may encounter in your classroom. While math is the universal language, some ELLs may have been shown different methods to find the answer based on their native country, while cultural customs may influence learning styles and behavior in the classroom.

## 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?** Yes No

**2) Are the language features at the discourse dimension addressed 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 materials address language features at the discourse dimension in a consistent manner for all identified proficiency levels. The LDH provides a chart on collaborative conversations, because students engage in whole and small group and also partner discussions during each lesson. The chart, seen below, provides frames for these conversations:



## Collaborative Conversations

Students engage in whole-class, small-group, and partner discussions during every lesson. The chart below provides prompt frames and response frames that will help students at different language proficiency levels interact with each other in meaningful ways.

You may wish to post these frames in the classroom for student reference.

Core Skills	Prompt Frames	Response Frames
<b>Elaborate and Ask Questions</b>	Can you tell me more about it? Can you give me some details? Can you be more specific? What do you mean by...? How or why is it important?	I think it means that... In other words... It's important because... It's similar to when...
<b>Support Ideas with Evidence</b>	Can you give any examples from the text? What are some examples from other texts? What evidence do you see for that? How can you justify that idea? Can you show me where the text says that?	The text says that... An example from another text is... According to... Some evidence that supports that is...
<b>Build On or Challenge Partner's Ideas</b>	What do you think of the idea that...? Can we add to this idea? Do you agree? What are other ideas/ points of view? What else do we need to think about? How does that connect to the idea...?	I would add that... I want to follow up on your idea... Another way to look at it is... What you said made me think of...
<b>Paraphrase</b>	What do we know so far? To recap, I think that... I'm not sure that was clear. How can we relate what I said to the topic/ question?	So, you are saying that... Let me see if I understand you... Do you mean that...? In other words... It sounds like you are saying that...
<b>Determine the Main Idea and Key Details</b>	What have we discussed so far? How can we summarize what we have talked about? What can we agree upon? What are main points or ideas we can share? What relevant details support the main points or ideas? What key ideas can we take away?	We can say that... The main idea seems to be... As a result of this conversation, we think that we should... The evidence suggests that...

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In another section of the LDH, called “Strategies for Classroom Discussion,” guidance and sentence frames are provided at each identified level for helping students use discourse in the classroom:



### Asking about Meaning

- Repeating an answer offers an opportunity to clarify the meaning of a response.
- Repeating an answer allows you to model the proper form for a response. You can model how to answer in full sentences and use academic language.
- When you repeat the answer, correct any grammar or pronunciation errors.

#### ENTERING/EMERGING

- What is \_\_\_\_\_?
- What does \_\_\_\_\_ mean?
- \_\_\_\_\_ is \_\_\_\_\_.
- \_\_\_\_\_ means \_\_\_\_\_.

#### DEVELOPING/EXPANDING

- Could you tell me what \_\_\_\_\_ means?
- \_\_\_\_\_ is similar to \_\_\_\_\_.
- \_\_\_\_\_ is another way of saying \_\_\_\_\_.

#### BRIDGING

- Could you give me a definition of \_\_\_\_\_?
- Can you point to the evidence from the text?
- What is the best answer? Why?

2) Language features at the discourse dimension are systematically addressed throughout the materials. In the margins of the Student Editions are prompts that the students can use to talk about what they've just learned. Usually, there is also a prompt for students to think about something before they discuss. An example can be seen below, taken from page 593 of the Student Edition, Algebra 2:

 **Think About It!**

How can you graphically check that your simplification is correct and is equivalent to the original expression?

The Teacher Edition provides example sample responses for these questions.

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

- |  |                   |    |
|--|-------------------|----|
| <b>1) Do the materials address language features at the sentence dimension for all of the identified proficiency levels?</b> | <b><u>Yes</u></b> | No |
| <b>2) Are the language features at the sentence dimension appropriate for the identified proficiency levels?</b>             | <b><u>Yes</u></b> | No |
| <b>3) Are the language features at the sentence dimension addressed systematically throughout the materials?</b>             | <b><u>Yes</u></b> | 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 the language features at the sentence dimension for all identified proficiency levels. Each lesson contains a chart, organized by the three identified proficiency levels (Entering/Emerging, Developing/Expanding, and Bridging) with leveled activities for the lesson topic. As seen in the example below, there are often sentence frames and other grammatical features, like using comparative language to

discuss ways to solve equations. This example comes from the LDH, Algebra 1, Lesson 2-3, page T9:

### English Language Development Leveled Activities

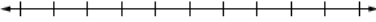
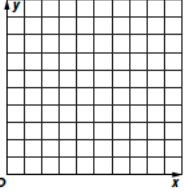
Beginning Level	Intermediate Level	Advanced Level
<p><b>Choral Responses</b></p> <p>Ask students to respond verbally to the question <i>What is the opposite operation?</i> using the sentence frame <b>The opposite operation of ____ is ____.</b> [addition – subtraction; multiplication – division; division – multiplication; subtraction – addition]</p>	<p><b>Turn and Talk</b></p> <p>Have students independently record the steps they take to find the solutions of <math>3x + 4 = 18</math>, <math>\frac{3}{4}x - 8 = 18</math>, and <math>ax + 3 = 21</math>. When they are done, ask students to turn and talk with a partner to compare their steps and solutions.</p>	<p><b>Communication Guide</b></p> <p>Ask students to write a short story that contains the words <i>equivalent</i>, <i>expression(s)</i>, and <i>equation</i> that accurately demonstrates the use of each term. Then, have students read their stories aloud to a partner.</p>

Additionally, students are provided with many types of graphic organizers throughout the materials to help provide understanding, including Cornell Notes. According to the description, on page xv of the LDH, Cornell notes “provide students with a method to take notes thereby helping them with language structure. Scaffolded sentence frames are provided for students to fill in important math vocabulary by identifying the correct word or phrase according to context.” An example of this method is seen here, from page 4 of the LDH for Geometry, Lesson 1-4:

## Lesson 1-4 Note-Taking

### Distance

Complete the notes. Then write a summary of the process used to find the distance between two points.

Questions	Notes
<p>1. How can I find the distance between any two points on a number line?</p>	 <p><b>Subtract</b> the two numbers and find the <b>absolute value</b>.</p> <p><math> x_2 - x_1  = \text{distance}</math></p>
<p>2. How can I find the distance between any two points on a coordinate grid?</p>	 <p>Subtract <b>x-coordinates</b> and square the result.</p> <p>Subtract <b>y-coordinates</b> and square the result.</p> <p><b>Add</b> the two answers together.</p> <p>Take the <b>square root</b> to find the distance.</p> <p><math>d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}</math></p>
<p style="text-align: center;"><b>Summary</b></p> <p>How does the process of finding the distance between two points relate to the Pythagorean Theorem?</p> <p><b>The Distance Formula is a variation of the Pythagorean Theorem, using coordinates to determine the length of the hypotenuse of a triangle.</b></p>	

- 2) The sentence dimension language features are appropriate for the identified proficiency levels. As mentioned above, the LDH contains leveled activities for each lesson, which contain appropriate sentence dimension features. In this example, the teachers are reminded to ask questions based on their student's level of English comprehension:

# Lesson 1-5 Graphing Linear Functions and Inequalities

## English Learner Instructional Strategy

### Language Structure Support: Tiered Questions

Before the lesson, review the terms *slope*, *x-intercept*, *y-intercept*, and *table* to ensure that students understand how to graph a function by using the given information. Provide a visual example of each, and ask students the following questions based on their language proficiency.

Beginning: *Can you point to where the y-intercept goes in a table?*

Intermediate: *Where can you find the slope in the equation of a function? What letter is used to represent slope?*

Advanced: *When given the x-intercept, how can you find the y-intercept?*

### English Language Development Leveled Activities

Beginning Level	Intermediate Level	Advanced Level
<p><b>Sentence Frames</b></p> <p>Identify the symbols <math>&lt;</math> and <math>&gt;</math>, and explain to students that they mean <i>less than</i> and <i>greater than</i> when used to compare two numbers. Have students draw cards from a deck with the face cards removed and use the numbers to complete the sentence frames aloud:</p> <p>_____ is greater than _____ .</p> <p>_____ is less than _____ .</p>	<p><b>Word Knowledge</b></p> <p>Identify the symbols <math>\leq</math> and <math>\geq</math>, and ask students <i>What do these symbols mean?</i> If students are unfamiliar with them, explain that they mean <i>less than or equal to</i> and <i>greater than or equal to</i>.</p> <p>Explain that we use the words <i>less</i> and <i>greater</i> to compare. Ask students to identify other comparative words that end in <i>-er</i> and create an illustrated poster for the classroom.</p>	<p><b>Word Knowledge</b></p> <p>Identify the symbols <math>\leq</math> and <math>\geq</math>, and ask students <i>What are these symbols called?</i> If students are unfamiliar with them, explain that they mean <i>less than or equal to</i> and <i>greater than or equal to</i>. Explain that we use the words <i>less</i> and <i>greater</i> to compare. Ask students to identify irregular comparative words that do not follow the <i>-er</i> ending rule (such as <i>good/better</i>) and create an anchor chart for the classroom.</p>

### Multicultural Teacher Tip

English language learners may be unfamiliar with the percent-based grading system we use in the United States. Many countries use different numbered scales, words, and standards. Before completing the real-world example in the lesson, make sure students understand the U.S. grading scale.

**T5** Algebra 2 • Module 1 Relations and Functions

3) The features at the sentence dimension are present systematically throughout the materials. Every lesson contains the aforementioned English Language

Development Leveled Activities, which address the lesson content in an appropriate manner for each of the three identified proficiency levels. Oftentimes there are additional tips, and language support, as seen here in this example from Lesson 3-2 of the LDH, Geometry, page T17, for using Tiered Questions:

## **Lesson 3-2** Statements, Conditionals, and Biconditionals

### *English Learner Instructional Strategy*

#### **Language Structure Support: Tiered Questions**

Tiered questions, instruction, and assessments increase understanding. Ask advanced English language learners yes/no questions such as *Does the sentence have the word if?* After students identify the word, instruct them to point to or underline the hypothesis. For counterexamples, ask *Can you think of another \_\_\_\_\_ that doesn't \_\_\_\_\_?* Then have students verbally provide an example. For beginning students, provide two pictures. For intermediate students, provide written statements, and ask *Which is represented, the converse, the inverse, or the contrapositive?* For advanced students, provide two pictures or written statements, and ask *How are the two statements related to each other?*

### **C. Word/Phrase Dimension (multiple meanings of words, general, specific, and technical language<sup>1</sup>)**

- |   |                   |    |
|---|-------------------|----|
| <b>1) Do the materials address language features at the word/phrase dimension in a consistent manner for all identified proficiency levels?</b> | <b><u>Yes</u></b> | No |
| <b>2) Are words, expressions, and phrases represented in context?</b>   | <b><u>Yes</u></b> | No |
| <b>3) Is the general, specific, and technical language appropriate for the targeted proficiency levels?</b>                                     | <b><u>Yes</u></b> | No |

**4) Is the general, specific, and technical<sup>2</sup> 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 the language features of the word/phrase dimension in a consistent manner for all three identified proficiency levels. There is a relatively strong emphasis on vocabulary development throughout the series. For example, in the English Language Development Leveled Activities chart in the LDH, the Entering/Emerging level often targets academic vocabulary. There are also many accompanying graphic organizers to help with these new vocabulary words. An example of a vocabulary graphic organizer can be seen below, taken from Geometry, Module 2, Lesson 2-3:

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<sup>2</sup>General language refers to words or expressions not typically associated with a specific content areas (e.g., describe a book).

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.



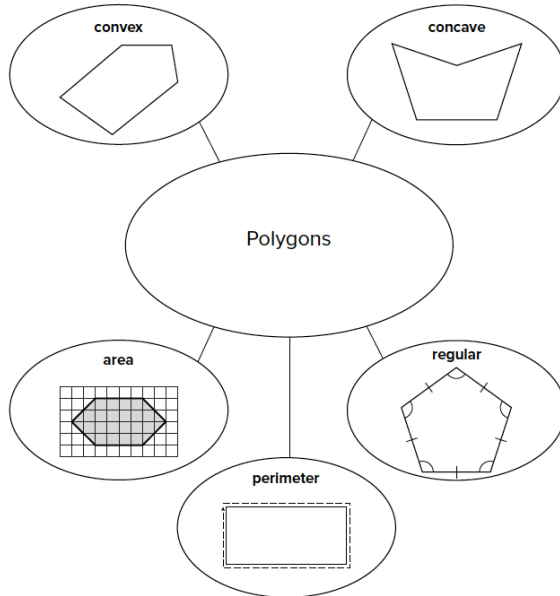
NAME \_\_\_\_\_ DATE \_\_\_\_\_ PERIOD \_\_\_\_\_

### Lesson 2-3 Vocabulary

#### Two-Dimensional Figures

Use the concept web to identify key words and diagrams used with polygons.  
Match the words from the word bank to the correct diagram.

Word Bank				
convex	concave	regular	perimeter	area



10 Geometry • Module 2 Angles and Geometric Figures

Another example of a graphic organizer for vocabulary development gives the students opportunities to connect the vocabulary words to the same word in Spanish, the predominant language of the population of ELL students the materials are targeting. These activities also give students the opportunity to recognize cognates that may be familiar to them:

NAME \_\_\_\_\_ DATE \_\_\_\_\_ PERIOD \_\_\_\_\_

## Lesson 1-1 Vocabulary

### Numerical Expressions

Use the three-column chart to organize the vocabulary in this lesson. Write the term in your native language. Then write the definition of each term.

Three-Column Chart		
English	Native Language	Definition
<b>factors</b>	factores	Numbers being multiplied.
<b>product</b>	producto	The result of quantities being multiplied.
<b>exponent</b>	exponente	A number of times a number is multiplied by itself.
<b>order of operations</b>	orden de funcionamientos	P: Parentheses E: Exponent M: Multiply D: Divide A: Add S: Subtract *Multiply/Divide from left to right *Add/Subtract from left to right

2) Words, phrases and expressions are represented in context throughout the materials. All the vocabulary and phrases used within a lesson connect to the math content it is targeted to. Often, as in the example below from Algebra 1, Module 4, the students will check off the vocabulary they may already know before beginning the Module:

## What Vocabulary Will You Learn?

Check the box next to each vocabulary term that you may already know.

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> absolute value function   | <input type="checkbox"/> identity function                     | <input type="checkbox"/> rate of change       |
| <input type="checkbox"/> arithmetic sequence       | <input type="checkbox"/> linear equation                       | <input type="checkbox"/> reflection           |
| <input type="checkbox"/> common difference         | <input type="checkbox"/> linear function                       | <input type="checkbox"/> slope                |
| <input type="checkbox"/> constant function         | <input type="checkbox"/> $n$ th term of an arithmetic sequence | <input type="checkbox"/> slope-intercept form |
| <input type="checkbox"/> dilation                  | <input type="checkbox"/> piecewise defined function            | <input type="checkbox"/> step function        |
| <input type="checkbox"/> greatest integer function |  | <input type="checkbox"/> translation          |

The students then proceed with the lesson and encounter the words in context:

### Learn Graphing Linear Functions by Using Tables

A table of values can be used to graph a linear equation. Every ordered pair that makes the equation true represents a point on its graph. So, the graph of an equation represents all its solutions.

#### Example 1 Graph by Making a Table

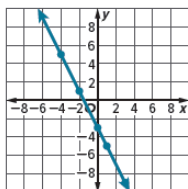
Graph  $-2x - 3 = y$  by making a table.

**Step 1** Choose any values of  $x$  from the domain and make a table.

$x$	$-2x - 3$	$y$	$(x, y)$
-4			
-2			
0			
1			
3			

**Step 2** Substitute each  $x$ -value into the equation to find the corresponding  $y$ -value. Then, write the  $x$ - and  $y$ -values as an ordered pair.

**Step 3** Graph the ordered pairs in the table and connect them with a line.



- 3) The general, specific and technical vocabulary are appropriate for the targeted proficiency levels. The LDH is designed for educators to be able to differentiate the language of math and provide support for students as they navigate the academic content. In the example below, from Algebra 1, Module 1, Lesson 1-1, the students will learn about Numerical Expressions. At the Entering/Emerging level, students are using a memory device strategy to help them remember and understand the order or operations. The students then create a phrase in their native language to help them

remember the order. At the Developing/Expanding level, students will engage in a listen and write activity that has them writing the order of operations on index cards, then listening to the teacher read numerical expressions. The students will then determine, by holding up the index cards, which operation should be completed first. At the Bridging level, students will be working in pairs to compare and contrast their answers from the lesson, while the teacher monitors and reminds students to use mathematical vocabulary.

**English Language Development Leveled Activities**

<b>Beginning Level</b>	<b>Intermediate Level</b>	<b>Advanced Level</b>
<p><b>Memory Device</b> The expression <i>Please Excuse My Dear Aunt Sally</i> is often used in math classes to help students remember the order of operations. Encourage students to create a phrase in their native language to help them remember that when simplifying expressions, they should start with parentheses, then exponents, followed by multiplication and division, and ending with addition and subtraction.</p>	<p><b>Listen and Write</b> Distribute index cards with the words <i>parentheses, exponents, multiply, divide, add, and subtract</i> written on them. Read several numerical expressions aloud. Have students write the expressions in symbolic form as they hear them. Then, ask them to hold up the index card that shows the operation that should be completed first to simplify the given expression.</p>	<p><b>Pairs Check</b> After completing several exercises from the lesson, have students compare their answers with a partner. If their answers differ, have each student explain how their answer was calculated until they can determine where an error was made. Monitor conversations and listen for students to use mathematical vocabulary, such <i>order of operations, multiply before adding, and calculate within parentheses first.</i></p>

- 4) The general, specific, and technical language is systematically presented throughout the materials. At the beginning of each module, the students see a section called “What Vocabulary Will You Learn?” which provides a checklist of the vocabulary words presented in the module, and instructions for students to check off what vocabulary they may already know. In this example, from Geometry, Module 5, page 272, the students are presented with a list of vocabulary related to triangles and congruence:

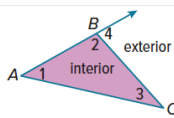
## What Vocabulary Will You Learn?

Check the box next to each vocabulary term that you may already know.

- |  |  |  |  |
|--|--|--|--|
| <input type="checkbox"/> auxiliary line                      | <input type="checkbox"/> coordinate proofs   | <input type="checkbox"/> interior angle                | <input type="checkbox"/> principle of superposition            |
| <input type="checkbox"/> base angle of an isosceles triangle | <input type="checkbox"/> corollary           | <input type="checkbox"/> included side                 | <input type="checkbox"/> remote interior angles                |
| <input type="checkbox"/> congruent polygons                  | <input type="checkbox"/> corresponding parts | <input type="checkbox"/> legs of an isosceles triangle | <input type="checkbox"/> vertex angle of an isosceles triangle |
| <input type="checkbox"/> exterior angle                      |  |  |  |

Following this are explicit definitions, accompanied by graphic support and activities to help understand and apply the meaning of the vocabulary:

### Learn Exterior Angles of Triangles



Interior Angles	The sum of measures of the interior angles of a triangle is $180^\circ$ .
Exterior Angles	An <b>exterior angle of a triangle</b> is formed by one side of the triangle and the extension of an adjacent side. A triangle has three exterior angles.
Remote Interior Angles	Each exterior angle of a triangle has two <b>remote interior angles</b> that are not adjacent to the exterior angle.

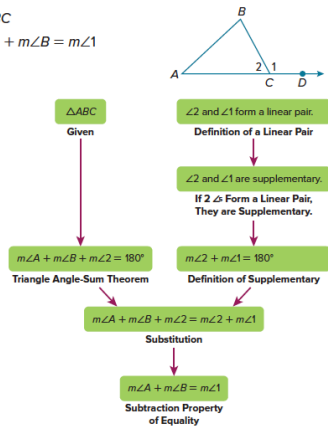
#### Theorem 5.2 Exterior Angle Theorem

The measure of an exterior angle of a triangle is equal to the sum of the measures of the two remote interior angles.

Given:  $\triangle ABC$

Prove:  $m\angle A + m\angle B = m\angle 1$

Proof:



[Go Online](#) to see the proof of the Exterior Angle Theorem.

## 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**

- |   |                   |    |
|---|-------------------|----|
| <b>1) Do the materials differentiate between the language proficiency levels?</b>   | <b><u>Yes</u></b> | No |
| <b>2) Is differentiation of language proficiency developmentally and linguistically appropriate for the designated language levels?</b> | <b><u>Yes</u></b> | No |
| <b>3) Is differentiation of language systematically addressed throughout the materials?</b>   | <b><u>Yes</u></b> | 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 differentiate between the identified language proficiency levels. The Language Development Handbook (LDH) provides differentiated instructional support and guidance for teachers, beginning with an understanding of what skills a students at each level may look like:

**An Entering/Emerging Level ELL**

- New to this country; may have memorized some everyday phrases like, "Where is the bathroom", "My name is...", may also be in the "silent stage" where they listen to the language but are not comfortable speaking aloud
- Struggles to understand simple conversations
- Can follow simple classroom directions when overtly demonstrated by the instructor

**A Developing/Expanding Level ELL**

- Is dependent on prior knowledge, visual cues, topic familiarity, and pretaught math-related vocabulary
- Solves word problems with significant support
- May procedurally solve problems with a limited understanding of the math concept.

**A Bridging Level ELL**

- May struggle with conditional structure of word problems
- Participates in social conversations needing very little contextual support
- Can mentor other ELs in collaborative activities.

The lessons contain leveled discussion questions, to use with students who are approaching level (AL), beyond level (BL) or are on level (OL). The lessons also provide resources to support any ELLs the teachers may have, as outlined in this example from the Algebra 2, Volume 2, Teacher Edition, page 385a:

## DIFFERENTIATE



View reports of student progress of the Checks after each example to differentiate instruction.

Resources	AL	OL	BL
Remediation: Inverses of Linear Functions	●	●	
Extension: Comparing Logarithmic Graphs		●	●

### Language Development Support

A variety of resources are available to support students as they build mathematical language and understanding of key math concepts, including:

- Scaffolds and supports in the *Language Development Handbook*
- Activities designed to build mathematical discourse

**ELL** You can use these resources as well as point-of-use ELL tips and strategies to support students who are building English proficiency.

- 2) The differentiation of language proficiency is developmentally and linguistically appropriate for the secondary school target age of the materials. On page ix of the LDH for each grade level, there is a page outlining strategies for classroom discussion. This is a helpful resource for helping teachers work with students of varying linguistic abilities. The section “Asking about Meaning” provides sentence frames to use at each of the three proficiency levels in order to encourage all students to participate in classroom discussions, thus building oral competency and confidence in all students:



## Strategies for Classroom Discussion

Providing multiple opportunities to speak in the classroom and welcoming all levels of participation will motivate English learners to take part in class discussions and build oral proficiency. These basic teaching strategies will encourage whole class and small group discussions for all language proficiency levels of English learners.

### ✓ Wait time/Different Response

- Be sure to give students enough time to answer the question. They may need more time to process their ideas.
- Let them know that they can respond in different ways depending on their levels of proficiency. Students can:
  - Answer in their native language; then you can rephrase in English
  - Ask a more proficient ELL speaker to repeat the answer in English
  - Answer with nonverbal cues.

### ✓ Elaborate

- If students give a one-word answer or a nonverbal clue, elaborate on the answer to model fluent speaking and grammatical patterns.
- Provide more examples or repeat the answer using proper academic language.

### ✓ Elicit

- Prompt students to give a more comprehensive response by asking additional questions or guiding them to get an answer, such as can you tell me more?
- This strategy is very effective when students are asked to justify or explain their reasoning.

### ✓ Asking about Meaning

- Repeating an answer offers an opportunity to clarify the meaning of a response.
- Repeating an answer allows you to model the proper form for a response. You can model how to answer in full sentences and use academic language.
- When you repeat the answer, correct any grammar or pronunciation errors.

#### ENTERING/EMERGING

- What is \_\_\_\_\_?
- What does \_\_\_\_\_ mean?
- \_\_\_\_\_ is \_\_\_\_\_.
- \_\_\_\_\_ means \_\_\_\_\_.

#### DEVELOPING/EXPANDING


- Could you tell me what \_\_\_\_\_ means?
- \_\_\_\_\_ is similar to \_\_\_\_\_.
- \_\_\_\_\_ is another way of saying \_\_\_\_\_.

#### BRIDGING

- Could you give me a definition of \_\_\_\_\_?
- Can you point to the evidence from the text?
- What is the best answer? Why?

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3) Language differentiation occurs systematically throughout the materials. In the LDH, each lesson contains a section called “English Language Development Activities.” An example of this chart, seen below, contains specific activities to support the lesson, divided up by proficiency level:

English Language Development Leveled Activities		
Beginning Level	Intermediate Level	Advanced Level
<p><b>Word Identification</b></p> <p>Practice the names of shapes by giving students an outline of the word using its corresponding physical shape. Have students fill in the correct spelling of the word based on the visual clue of the shape of each letter. (Example: Rectangle)</p> 	<p><b>Choral Response</b></p> <p>Practice the concept of geometric models by presenting images of real objects and having students respond in unison with the name of the shape(s) represented. If time permits, allow students to find their own illustrative objects and share them with the class.</p>	<p><b>Look and Write</b></p> <p>Practice the concept of geometric models by presenting images of real objects and having students complete a sentence frame:</p> <p>The _____ can be modeled with a _____ and a _____.</p>

The 9-12 Florida Reveal Math Program Overview also explains the tools and

## resources they provide for differentiated instruction, both digitally and in the LDH, Student and Teacher Editions:

### Targeted Instruction

*Florida Reveal Math empowers teachers with impactful resources to deliver the right math, at the right time, for the right student. With powerful adaptive technology and differentiation resources, teachers have the tools they need to reach all learners.*

#### Leveled Discussion Questions

- A1** What do you know about the distance between two parallel lines?  
Sample answer: Parallel lines are everywhere equidistant.
- C1** What is the slope of a line perpendicular to the parallel lines?  $\frac{1}{3}$
- D1** Is the point used in the problem the only point through which to draw the perpendicular? no. Sample answer: You could use any point since the distance between the lines is always the same.

### Offer Opportunities for Discourse and Differentiation

Leveled Discussion Questions and Differentiation tips in the Teacher Edition provide point-of-use strategies for:

- A1** Approaching Level  
**C1** On Level  
**D1** Beyond Level

#### Common Misconception

A common misconception students have about function translations, is when a constant is added or subtracted to  $x$ , the translation is the direction as the sign. For example, students think  $f(x + 1)$  would be a shift of one unit to the right, when really the shift is to the left. Reinforce the general form  $f(x - h)$  since students may need to rewrite the given transformation as  $f(x - (-1))$  so identify the transformation.

### Uncover Misconceptions to Improve Understanding

Common Misconception tips in the Teacher Edition allow teachers to pinpoint and correct errors in students' thinking. By using mistakes as an opportunity to understand, students learn that the process is just as important as the end result.

## B. Representation of Language Domains

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

- |   |                   |    |
|---|-------------------|----|
| <b>1) Are the language domains (listening, speaking, reading, and writing) targeted in the materials?</b> | <b><u>Yes</u></b> | No |
| <b>2) Are the targeted language domains presented within the context of language proficiency levels?</b>  | <b><u>Yes</u></b> | No |
| <b>3) Are the targeted language domains systematically integrated throughout the materials?</b>           | <b><u>Yes</u></b> | No |

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

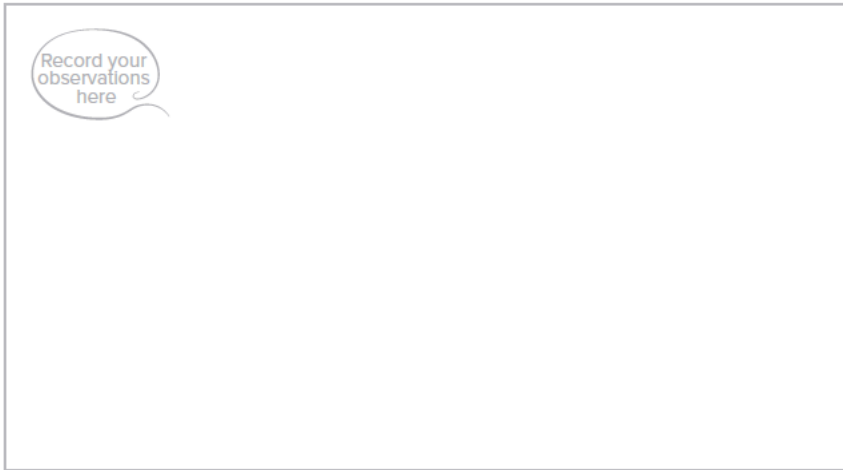
- 1)** All four language domains are targeted in the materials. Each lesson provides opportunities for students to engage in each of the language domains. There is a "Launch the Module" and "Launch the Lesson" feature where the teacher will play a video or introduces the topic for the students to listen to and discuss. As would be expected, the Student Books are filled with problems for the students to solve in writing, as well as fill in the blank-style items. There are also inquiry-based items, and reflection activities, where the student needs to explain something related to the topic and also reflect on what they have learned or how it can be applied elsewhere. The examples below, from Algebra 1, Module 4, pages 222 and 230 show this:

### Explore Investigating Slope

 **INQUIRY** How does slope help to describe a line?

## Pause and Reflect

Did you struggle with anything in this lesson? If so, how did you deal with it?



Record your observations here

- 2) On page vii of each Language Development Handbook (for all three Courses), there is a chart entitled “Proficiency Level Descriptors” which outlines the three targeted proficiency levels of ELLs and then descriptors at each level, broken down by language domain. This chart, seen below, will guide the teacher as s/he works through the lessons and all four language domains:

## Proficiency Level Descriptors

	Interpretive (Input)		Productive (Output)	
	Listening	Reading	Writing	Speaking
<p><b>An Entering/Emerging Level ELL</b></p> <ul style="list-style-type: none"> <li>• New to this country; may have memorized some everyday phrases like, "Where is the bathroom", "My name is....", may also be in the "silent stage" where they listen to the language but are not comfortable speaking aloud</li> <li>• Struggles to understand simple conversations</li> <li>• Can follow simple classroom directions when overtly demonstrated by the instructor</li> </ul>	<ul style="list-style-type: none"> <li>• Listens actively yet struggles to understand simple conversations</li> <li>• Possibly understands "chunks" of language; may not be able to produce language verbally</li> </ul>	<ul style="list-style-type: none"> <li>• Reads familiar patterned text</li> <li>• Can transfer Spanish decoding somewhat easily to make basic reading in English seem somewhat fluent; comprehension is weak</li> </ul>	<ul style="list-style-type: none"> <li>• Writes labels and word lists, copies patterned sentences or sentence frames, one- or two-word responses</li> </ul>	<ul style="list-style-type: none"> <li>• Responds non-verbally by pointing, nodding, gesturing, drawing</li> <li>• May respond with yes/no, short phrases, or simple memorized sentences</li> <li>• Struggles with non-transferable pronunciations.</li> </ul>
<p><b>A Developing/Expanding Level ELL</b></p> <ul style="list-style-type: none"> <li>• Is dependent on prior knowledge, visual cues, topic familiarity, and pretaught math-related vocabulary</li> <li>• Solves word problems with significant support</li> <li>• May procedurally solve problems with a limited understanding of the math concept.</li> </ul>	<ul style="list-style-type: none"> <li>• Has ability to understand and distinguish simple details and concepts of familiar/previous learned topics</li> </ul>	<ul style="list-style-type: none"> <li>• Recognizes obvious cognates</li> <li>• Pronounces most English words correctly, reading slowly and in short phrases</li> <li>• Still relies on visual cues and peer or teacher assistance</li> </ul>	<ul style="list-style-type: none"> <li>• Produces writing that consists of short, simple sentences loosely connected with limited use of cohesive devices</li> <li>• Uses undetailed descriptions with difficulty expressing abstract concepts</li> </ul>	<ul style="list-style-type: none"> <li>• Uses simple sentence structure and simple tenses</li> <li>• Prefers to speak in present tense.</li> </ul>
<p><b>A Bridging Level ELL</b></p> <ul style="list-style-type: none"> <li>• May struggle with conditional structure of word problems</li> <li>• Participates in social conversations needing very little contextual support</li> <li>• Can mentor other ELs in collaborative activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Usually understands longer, more elaborated directions, conversations, and discussions on familiar and some unfamiliar topics</li> <li>• May struggle with pronoun usage</li> </ul>	<ul style="list-style-type: none"> <li>• Reads with fluency, and is able to apply basic and higher-order comprehension skills when reading grade-appropriate text</li> </ul>	<ul style="list-style-type: none"> <li>• Is able to engage in writing assignments in content area instruction with scaffolded support</li> <li>• Has a grasp of basic verbs, tenses, grammar features, and sentence patterns</li> </ul>	<ul style="list-style-type: none"> <li>• Participates in most academic discussions on familiar topics, with some pauses to restate, repeat, or search for words and phrases to clarify meaning.</li> </ul>

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Additionally, the lessons themselves in the LDH contain English Language Development Leveled Activities, to allow students at the three levels to engage appropriately with the content. In the example below, students at the Entering/Emerging level will be Listening, Reading and Speaking. The Developing/Expanding level students will be doing the same but at a higher level (using sentence frames) and the students at the Bridging level will be writing in addition to engaging in the other three domains:

English Language Development Leveled Activities

Beginning Level	Intermediate Level	Advanced Level
<p><b>Look and Say</b> Trace the graph of a projected function and have students say, <b>extreme</b> when you trace any extreme and <b>Intercept</b> when you cross the <math>x</math>- or <math>y</math>-axis. Starting at the <math>y</math>-Intercept, trace the graph to the right and left and have students identify the end behavior with a thumbs up, thumbs down, or zero.</p>	<p><b>Developing Oral Skills</b> Repeat the Look and Say activity. Ask Intermediate students to use the sentence frames to explain why a point is an extreme or Intercept and why they chose thumbs up, down, or zero.</p> <p><b>This point is an _____ because _____.</b></p> <p><b>I chose _____ because the end behavior _____.</b></p>	<p><b>Cooperative Learning</b> Give pairs of advanced students two sets of key features of a function and grid paper. Have each partner sketch a function with graph of one set of key features. Then, have partners share their graphs with one another and identify each of the key features in their sketch. Encourage partners to question one another and justify answers.</p>

LDH, Algebra 2, Module 1, page T4

3) The targeted language domains are systematically integrated throughout the materials. The lessons are all detailed and interactive, with opportunities to engage in all four domains every time. During the “Launch the Lesson” section, students will typically be listening and possibly speaking. The students also have an opportunity to fill out a “What Will You Learn?” chart, seen below, so they can identify, by content topic, what they know already, what they have heard of, or what they don’t know:

**What will you learn?**

Place a checkmark (✓) in each row that corresponds with how much you already know about each topic **before** starting this module.

**KEY**

— I don't know. — I've heard of it. — I know it!

	Before			After		
find trigonometric values using trigonometric identities						
simplify trigonometric expressions using trigonometric identities						
verify trigonometric identities by transforming equations						
find trigonometric values using sum and difference identities						
verify identities using sum and difference identities						
find values of sine and cosine using double-angle and half-angle identities						
solve equations and determine extraneous solutions using trigonometric identities						

Opportunities for speaking are also present throughout the materials. Several times during the lessons, there is a “Talk About It” feature where the students

have a chance to process the information they are learning:

 **Talk About It**

In the first step, the fractions on the left side of the equation were multiplied by two different fractions,  $\frac{1 + \sin x}{1 + \sin x}$  and  $\frac{1 - \sin x}{1 - \sin x}$ , while the right side of the equation was not multiplied by anything. Justify how equality was maintained?

Algebra 2, Student Edition, page 601

## 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

- |   |                   |    |
|---|-------------------|----|
| <b>1) Do the materials connect the language development standards to the state academic content standards?</b>            | <b><u>Yes</u></b> | No |
| <b>2) Are the academic content standards systematically represented throughout the materials?</b>                         | <b><u>Yes</u></b> | No |
| <b>3) Are social and instructional language and one or more of the remaining WIDA Standards present in the materials?</b> | <b><u>Yes</u></b> | 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 connect the language development standards to the state academic content standards. The Language Development Handbook (LDH) for each Course



(Grade Level) is representative of this idea when it states on page v “McGraw-Hill Education is committed to providing English Learners appropriate support as they simultaneously learn content and language.” Each Lesson in the LDH connects the Language of Mathematics to the content topic of the lesson. An example is seen here, taken from Algebra 2, Module 1, page 5. The example uses a word bank and concept web to support understanding of the lesson on graphing linear functions and inequalities:

**Lesson 1-5 Vocabulary**  
**Graphing Linear Functions and Inequalities**

Use the concept web to identify and define the different parts of a *linear inequality*. Use the words from the word bank.

Word Bank			
boundary	constraint	half-plane	test point
open half-plane		closed half-plane	

**linear inequalities**

**boundary:** a line that separates a graph into two half-planes

**constraint:** all solutions of an inequality must meet this

**half-plane:** shaded region on a graph made of inequality solutions

**open half-plane:** boundary line is dashed,  $<$  or  $>$

**closed half-plane:** boundary line is solid,  $\leq$  or  $\geq$

**test points:** x- and y-values used to check which side of a boundary is shaded

Algebra 2 • Module 1 Relations and Functions 5

2) The academic content standards are systematically represented throughout the materials. The Mathematics Florida Standards (MAFS) are identified at the beginning of each Module in the Student Edition, as seen in the example below,

from the Algebra 1, Module 1 Student Edition:

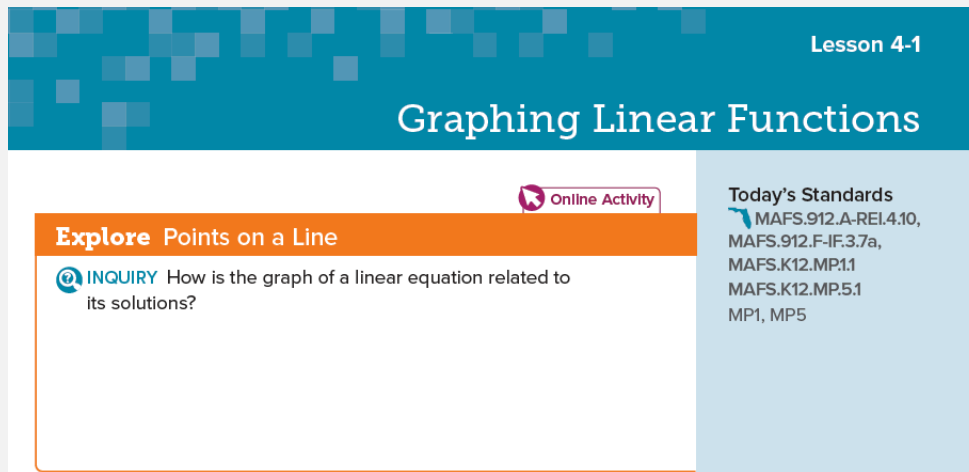


Module 1  
**Expressions**

**e Essential Question**  
How can mathematical expressions be represented and evaluated?

MAFS.912.N-RN.2.3, MAFS.912.N-Q.1.2, MAFS.912.N-Q.1.3, MAFS.912.A-SSE.1.1, MAFS.912.A-SSE.1.2  
Mathematical Practices: MP1, MP2, MP3, MP4, MP5, MP6, MP7, MP8

Throughout the Module, the Lessons themselves note what “Today’s Standards” are that the student will be working on:



Lesson 4-1  
**Graphing Linear Functions**

Online Activity

**Explore** Points on a Line

**INQUIRY** How is the graph of a linear equation related to its solutions?

**Today's Standards**  
MAFS.912.A-REI.4.10,  
MAFS.912.F-IF.3.7a,  
MAFS.K12.MP.1.1  
MAFS.K12.MP.5.1  
MP1, MP5

In the Teacher Editions, at the beginning of each Module, the teacher is given an overview of the Standards that are being addresses through the “Focus” section:

## Focus

**Domain:** Algebra and Functions

**Standards for Mathematical Content:**

**MAFS.912.A-SSE.1.2** Use the structure of an expression to identify ways to rewrite it.

**MAFS.912.F-LE.1.4** For exponential models, express as a logarithm the solution to  $ab^{ct} = d$  where  $a$ ,  $c$ , and  $d$  are numbers and the base  $b$  is 2, 10, or  $e$ ; evaluate the logarithm using technology.

Also addresses *MAFS.912.A-CED.1.1, MAFS.912.A-CED.1.2, MAFS.912.A-CED.1.3, MAFS.912.A-CED.1.4, MAFS.912.A-REI.4.11, MAFS.912.F-IF.2.4, MAFS.912.F-IF.2.5, MAFS.912.F-IF.3.7e, MAFS.912.F-IF.3.8b, MAFS.912.F-IF.3.9, MAFS.912.F-BF.2.3.*

**Standards for Mathematical Practice:**

All Standards for Mathematical Practice will be addressed in this module.

Algebra 2, Teacher Edition, page 383a

Furthermore, the teachers have a Suggested Pacing guide and a “Coherence” section which shows a vertical alignment with what Standard the students studied previously, what they are going to study now and what comes next. Examples of these are seen here, from Algebra 2, Volume 2, page 383a:

## Suggested Pacing

Lessons	Standards	45-min classes	90-min classes
Module Pretest and Launch the Module Video		1	0.5
8-1 Logarithms and Logarithmic Functions	MAFS.912.A-SSE.1.2, MAFS.912.F-IF.3.7e	2	1
8-2 Properties of Logarithms	MAFS.912.A-SSE.1.2, MAFS.912.A-CED.1.1	2	1
8-3 Common Logarithms	MAFS.912.A-REI.4.11, MAFS.912.F-LE.1.4	2	1
8-4 Natural Logarithms	MAFS.912.A-SSE.1.2, MAFS.912.F-LE.1.4	2	1
8-5 Using Exponential and Logarithmic Functions	MAFS.912.A-CED.1.1, MAFS.912.F-LE.1.4	1	0.5
Module Review		1	0.5
Module Assessment		1	0.5
Total Days		12	6

## Coherence

### Vertical Alignment

#### Previous

Students graphed and solved exponential functions and generated geometric series.

**MAFS.912.A-CED.1.1, MAFS.912.A-SSE.2.4**

#### Now

Students will write, evaluate, and simplify expressions involving logarithms, and solve exponential equations using logarithms.

**MAFS.912.A-SSE.1.2, MAFS.912.F-LE.1.4**

#### Next

Students will perform operations on rational expressions, and analyze and graph rational functions.

**MAFS.912.F-IF.2.5, MAFS.912.A-CED.1.1**

Finally, in the Teacher Edition for each Course, there is a table that shows all the MAFS, the topic they cover, and the Lesson the Standard(s) connect to:

## Mathematics Florida Standards (MAFS), Geometry

Correlated to *Florida Reveal Geometry*



Lessons in which the standard is the primary focus are indicated in **bold**.

Standard	Lesson(s)
<b>Geometry</b>	
<b>Circles G-C</b>	
<b>MAFS.912.G-C.1.1</b>	Prove that all circles are similar. <b>10-1</b>
<b>MAFS.912.G-C.1.2</b>	Identify and describe relationships among inscribed angles, radii, and chords. <i>Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.</i> <b>10-2, 10-3, 10-4, 10-5, 10-6</b>
<b>MAFS.912.G-C.1.3</b>	Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle. <b>10-4</b>
<b>MAFS.912.G-C.2.5</b>	Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector. <b>10-2, 11-3</b>
<b>Congruence G-CO</b>	
<b>MAFS.912.G-CO.1.1</b>	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc. <b>1-2, 1-3, 1-4, 2-1, 2-2, 3-7, 10-1</b>
<b>MAFS.912.G-CO.1.2</b>	Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch). <b>2-4, 8-1</b>
<b>MAFS.912.G-CO.1.3</b>	Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself. <b>4-6</b>
<b>MAFS.912.G-CO.1.4</b>	Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments. <b>4-1, 4-2, 4-3, 4-5, 4-6</b>
<b>MAFS.912.G-CO.1.5</b>	Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another. <b>4-1, 4-2, 4-3, 4-4, 4-5, 4-6</b>
<b>MAFS.912.G-CO.2.6</b>	Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent. <b>4-1, 4-2, 4-3, 4-4, 4-6</b>
<b>MAFS.912.G-CO.2.7</b>	Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent. <b>5-2</b>

3) Although not explicitly identified as the WIDA Social and Instructional Language Standard and the Language of Mathematics Standard, both of these language standards are represented in the materials. Oftentimes, the math problems are integrated with the social and instructional language of everyday activities, as seen in the example below:

**Example 6 Use Intercepts**

**PETS** Angelina bought a 15-pound bag of food for her dog. The bag contains about 60 cups of food, and she feeds her dog cups of food per day. The function represents the amount of food left in the bag  $y$  after  $x$  days. Graph the amount of dog food left in the bag as a function of time.

**Part A**

Find the  $x$ - and  $y$ -intercepts and interpret their meaning in the context of the situation.

To find the  $x$ -intercept, let \_\_\_\_\_.

\_\_\_\_\_ Original equation

\_\_\_\_\_ Replace  $y$  with 0.

\_\_\_\_\_ Simplify.

\_\_\_\_\_ Multiply each side by  $\frac{2}{5}$ .

The  $x$ -intercept is 24. This means that the graph intersects the  $x$ -axis at \_\_\_\_\_. So, after 24 days, there is no dog food left in the bag.

To find the  $y$ -intercept, let \_\_\_\_\_.

\_\_\_\_\_ Original equation

\_\_\_\_\_ Replace  $x$  with 0.

\_\_\_\_\_ Simplify.

The  $y$ -intercept is 60. This means that the graph intersects the  $y$ -axis at \_\_\_\_\_. So, after 0 days, there are 60 cups of food in the bag.

Algebra 1, Student Edition, page 213

There is also a strong language focus throughout the materials. This example, from the LDH for Algebra 2, page T14 demonstrates how the materials integrate the language of math and everyday social and instructional language by incorporating activities such as interviewing each other and playing limbo to support understanding of the minima and maxima algebraic concept:

### Vocabulary Support: Turn and Talk

Have students work in pairs to conduct an interview. Provide them with a series of relatable questions such as *How old are you? How tall are you? How many languages do you speak? What time do you usually wake up? How far is your home from school?* Then have students write sentences as a class using the minima and maxima from their results. For example, students may say things like \_\_\_\_\_ is the oldest in the group, and \_\_\_\_\_ lives the shortest distance from school.

### English Language Development Leveled Activities

Beginning Level	Intermediate Level	Advanced Level
<b>Act It Out</b> Demonstrate the concept of <i>minima</i> by having students play limbo. Have students repeat the phrase <b>How low can you go?</b> to reinforce the meaning.	<b>Anchor Chart</b> Have students create an anchor chart with common comparatives and superlatives associated with the words <i>minima</i> and <i>maxima</i> . Allow them to use the chart as a reference in writing systems of inequalities and their graphs. Suggested examples include: <i>best/worst, expensive/inexpensive, profit/loss, and most/least</i> .	<b>Share What You Know</b> Have advanced English language learners mentor beginning and intermediate level students in defining variables and writing systems of inequalities from word problems in this lesson. Provide necessary guided questions such as <i>What are the two variables?</i> and <i>Are we asked for a minimum or a maximum?</i>

## 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? **Yes** No
- 2) Are opportunities for engaging in higher order thinking systematically addressed 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 materials present an opportunity for language learners to engage in various cognitive functions and higher order thinking skills. The LDH provides guidance for facilitating classroom discussions and offers multiple strategies for each level of proficiency that is identified. Teachers are given sentence frames to use with students to, among other things, talk about their level of understanding, justify their reasoning, and agree or disagree with some else's reasoning. Page x of all three LDHs provide this guidance:



#### Talk about Level of Understanding

- ENTERING/EMERGING**
- I understand. / I got it.
  - I don't understand this word / sentence.
- DEVELOPING/EXPANDING**
- Could you tell me what \_\_\_\_ means?
  - \_\_\_\_ is another way of saying \_\_\_\_.
- BRIDGING**
- I think I understand most of it.
  - I'm not sure I understand this completely.



#### Justify Your Reasoning

- ENTERING/BEGINNING**
- I think \_\_\_\_.
- DEVELOPING/EXPANDING**
- My reasons are \_\_\_\_.
- BRIDGING/REACHING**
- I think \_\_\_\_ because \_\_\_\_.



#### Agreeing with Someone's Reasoning

- ENTERING/BEGINNING**
- I agree with your reasons or point.
- DEVELOPING/EXPANDING**
- I agree that \_\_\_\_.
- BRIDGING/REACHING**
- I have the same reasons as \_\_\_\_. I think that \_\_\_\_.



#### Disagreeing with Someone's Reasoning

- ENTERING/BEGINNING**
- I don't agree with your reasons.
- DEVELOPING/EXPANDING**
- I don't agree that \_\_\_\_.
- BRIDGING/REACHING**
- I can see your point. However, I think that \_\_\_\_.

x

2) Opportunities for engaging in higher order thinking skills are systematically addressed throughout the materials. In each lesson, there are multiple opportunities for students to engage with the material in different ways. Oftentimes, they will be asked to think further about an answer to how to apply it in another situation or to also talk about or justify their reasoning. The example below comes from page 209 of the Algebra 1 Student Edition:

Online Activity

**Today's Standards**

- MAFS.912.A-REI.4.10,
- MAFS.912.F-IF.3.7a,
- MAFS.K12.MP.1.1
- MAFS.K12.MP.5.1
- MP1, MP5

**Explore** Points on a Line

**INQUIRY** How is the graph of a linear equation related to its solutions?

**Learn** Graphing Linear Functions by Using Tables

A table of values can be used to graph a linear equation. Every ordered pair that makes the equation true represents a point on its graph. So, the graph of an equation represents all its solutions.

**Example 1** Graph by Making a Table

**Graph  $-2x - 3 = y$  by making a table.**

**Step 1** Choose any values of  $x$  from the domain and make a table.

**Step 2** Substitute each  $x$ -value into the equation to find the corresponding  $y$ -value. Then, write the  $x$ - and  $y$ -values as an ordered pair.

$x$	$-2x - 3$	$y$	$(x, y)$
-4			
-2			
0			
1			
3			

**Talk About It**

What values of  $x$  might be easiest to use when graphing a linear equation when the  $x$ -coefficient is a whole number? Justify your argument.

Some of the Practice areas, designed as homework for the students, will contain higher-order thinking problems, as seen here:

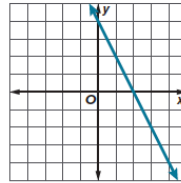


 Higher-Order Thinking Skills

37. a. **CREATE** Write a real-world situation that can be modeling by a linear function.
- b. **WRITE** Write an equation to model your real-world situation. Be sure to define variables. Then find the  $x$ - and  $y$ -intercepts. What does each intercept represent in your context?
- c. **ANALYZE** Graph your equation by making a table. Include a title for the graph as well as labels and titles for each axis. Explain how you labeled the  $x$ - and  $y$ -axes. State a reasonable domain for this situation. What does the domain represent?
38. **FIND THE ERROR** Charles claims that every line has both an  $x$ - and  $y$ -intercept. Is he correct? If so, why? If not, give a counterexample to disprove Charles.
39. **PERSEVERE** Sheila and Rajiv are also each climbing down a cliff. Sheila's height in feet  $y$  above the ground after  $x$  minutes is modeled by the equation  $y = -5x + 30$ . The table shows the relationship of Rajiv's height above the bottom of the cliff and the time that he has been climbing down. Graph the equation that represents Sheila's height by using intercepts. Graph the relationship of Rajiv's height by using the table. Of Keith, Sheila, and Rajiv, who starts from the greatest height? Who reaches the ground in the least amount of time? Explain how you can solve the problem by using intercepts.
40. **WHICH ONE DOESN'T BELONG?** Which equation does not belong with the other equations? Explain your reasoning.

$y = 2 - 3x$        $5x = y - 4$        $y = 2x + 5$        $y - 4 = 0$

41. **ANALYZE** Robert sketched a graph of a linear equation  $2x + y = 4$ . What are the  $x$ - and  $y$ -intercepts of the graph? Explain how Robert could have graphed this equation using the  $x$ - and  $y$ -intercepts.



42. **ANALYZE** Compare and contrast the graph of  $y = 2x + 1$  with the domain  $\{1, 2, 3, 4\}$  and  $y = 2x + 1$  with the domain all real numbers.

**CREATE** Give an example of a linear equation in the form  $Ax + By = C$  for each condition. Then describe the graph of the equation.

43.  $A = 0$       44.  $B = 0$       45.  $C = 0$

Algebra 1, Student Edition, Module 4, page 218

### 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      **Yes**    No

the next?

**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 materials provide scaffolding supports for students to advance within a proficiency level. The LDH is the primary resource for these supports, explaining detailed strategies and activities to use for each lesson and each proficiency level. Oftentimes vocabulary is the focus, as in the example below, where students use the word cards to define a vocabulary term in both English and Spanish, then write a sentence using the word:

## Lesson 1-5 Vocabulary

### Locating Points on a Number Line

Use the word cards to define each vocabulary term and give an example.

Word Card	
<b>directed line segment</b>	<b>segmento de línea dirigido</b>
<b>Definition</b> A line segment with an initial endpoint and a terminal endpoint.	<b>Definición</b> Un segmento de línea con un punto final inicial y un punto final terminal.
<b>Example Sentence</b> Directed line segments can be used to model real-world situations.	

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Word Card	
<b>fractional distance</b>	<b>distancia fraccionaria</b>
<b>Definition</b> An intermediary point some fraction of the length of a line segment.	<b>Definición</b> Un punto intermediario de alguna fracción de la longitud de un segmento de línea.
<b>Example Sentence</b> You can locate a point a fractional distance on a number line.	

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- 2) The materials provide scaffolding supports for students to progress from one proficiency level to the next. Each lesson in the LDH gives teachers a three column chart which have activities for each of the three identified language proficiency levels. When a students is ready to move to the next proficiency level,

this chart will provide helpful supports and resources for the teacher to use. See the example of the Geometry, Lesson 2-1 English Language Development Leveled Activities chart:

**English Language Development Leveled Activities**

<b>Beginning Level</b>	<b>Intermediate Level</b>	<b>Advanced Level</b>
<p><b>Memory Device</b></p> <p>Have students create a mnemonic device such as the letter <i>v</i> represents one angle and if two identical angles are glued together to make an <i>X</i>, opposite angles are congruent. Practice orally until students have mastered this concept and can apply its meaning to problems.</p>	<p><b>Tiered Questions</b></p> <p>Have students demonstrate their knowledge verbally by responding to a series of questions guiding them to the concept of <i>perpendicular</i>. Ask: <i>What are vertical angles? Are vertical angles adjacent? Are vertical angles congruent? Can vertical angles be right angles?</i></p>	<p><b>Round the Table</b></p> <p>Place students in groups of 3-4, and have each student take a turn stating aloud and writing one key idea about vertical angles onto a small poster. Repeat in reverse order for the concept of linear pair. Ensure that all students contribute ideas, but allow students to ask a friend for help if necessary.</p>

3) Scaffolding supports are presented systematically throughout the materials. On page xi of the LDH, there is a section called “How to Use the Teacher Edition.” This section explains that “the suggested strategies, activities, and tips provide additional language and concept support to accelerate English learners’ acquisition of academic English.” The categories of support are listed here:

**English Learner Instructional Strategy**

Each lesson, Inquiry Lab, and Problem-Solving Investigation references an English Learner Instructional Strategy that can be utilized before or during regular class instruction.

Categories of the scaffolded support are:

- Vocabulary Support
- Language Structure Support
- Sensory Support
- Graphic Support
- Collaborative Support

The goal of the scaffolding strategies is to make each individual lesson more comprehensible for ELLs by providing visual, contextual and linguistic support to foster students’ understanding of basic communication in an academic context.

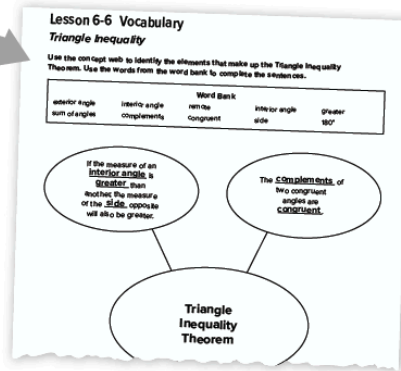
In addition to peer and teacher support, other scaffolding supports include word

cards, vocabulary squares, three-column charts, definition maps, concept webs and Cornell notes. An example and description of the last two can be found on page xv of the LDH:

## How to Use the Student Edition *continued*

### Concept Web

Concept webs are designed to show relationships between concepts and to make connections. Encourage students to find examples or words they can use in the web.



### Cornell Notes

Cornell notes provide students with a method to take notes thereby helping them with language structure. Scaffolded sentence frames are provided for students to fill in important math vocabulary by identifying the correct word or phrase according to context.

**Lesson 6-2 Note-Taking**  
**Angle Bisectors**

Complete the notes. Then write a summary of the relationship between the circumcenter and the incenter.

<b>Questions</b>	<b>Notes</b>
1. How many angle bisectors are there in a triangle?	There are <u>three</u> angle bisectors because all triangles have <u>three</u> angles.
2. How are angle bisectors different from perpendicular bisectors?	An angle bisector divides an angle into two <u>congruent</u> angles. A perpendicular bisector passes through the <u>midpoint</u> of a segment and is <u>perpendicular</u> to that segment.

## 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) Linguistically and developmentally appropriate grade-level content is present in the materials. The lessons all identify the MAFS grade level appropriate content standards. There is a nice self-assessment at the beginning of each lesson that allows the students to see the topics that will be covered and assess whether they know it, have heard of it, or don't know it:

Module 12

Trigonometric Identities and Equations

**e Essential Question**  
How are trigonometric identities similar to and different from other equations?

MAFS.912.F-TF.3.8; MAFS.912.F-TF.3.9  
Mathematical Practices: MP1, MP2, MP3, MP4, MP5, MP6, MP7, MP8

**What will you learn?**  
Place a checkmark (✓) in each row that corresponds with how much you already know about each topic **before** starting this module.

	Before			After		
find trigonometric values using trigonometric identities						
simplify trigonometric expressions using trigonometric identities						
verify trigonometric identities by transforming equations						
find trigonometric values using sum and difference identities						
verify identities using sum and difference identities						
find values of sine and cosine using double-angle and half-angle identities						
solve equations and determine extraneous solutions using trigonometric identities						

Algebra 2, Student Edition, page 589

Linguistically, there are a variety of differentiated/leveled activities provided in the LDH to help students comprehend the language they are using in the lesson. This

language is appropriate for the grade level content being taught. Students are also given a list of vocabulary words they will learn in the lesson and again, asked to identify what they already know:

### What Vocabulary Will You Learn?

Check the box next to each vocabulary term that you may already know.

- |   |   |
|---|---|
| <input type="checkbox"/> cofunction identities  | <input type="checkbox"/> trigonometric equation |
| <input type="checkbox"/> Pythagorean identities | <input type="checkbox"/> trigonometric identity |

Algebra 2, Student Edition, page 590

2) Grade level content is accessible for the targeted levels of language proficiency.

The LDH provides ways for teachers to help students access the content by using strategies and supports appropriate for their language proficiency level. The main resource is the English Language Development Leveled Activities chart found at the beginning of each Lesson in the LDH, such as this one from Algebra1, Lesson 1-6, page T6:

### English Language Development Leveled Activities

Beginning Level	Intermediate Level	Advanced Level
<p><b>Listen and identify</b> Ask students to state the best unit of measurement from each system to measure the following.</p> <ul style="list-style-type: none"> <li>● distance between two cities [feet, miles]</li> <li>● amount of milk for a bowl of cereal [teaspoons, gallons]</li> <li>● length of a paperclip [millimeters, centimeters]</li> <li>● weight of an automobile [grams, tons]</li> </ul>	<p><b>Sentence Frames</b> Have students decide whether the accuracy is altered by rounding or estimating in each situation.</p> <ol style="list-style-type: none"> <li>1) a \$4.45 bill paid with \$5.00</li> <li>2) a recipe requires 3.5 cups flour; buy 4 cups of flour</li> <li>3) 8 tables of 10 seats for 72 people</li> </ol> <p>Have students record answers using the sentence frame: <b>In example _____, accuracy _____ altered because _____.</b></p>	<p><b>Turn and Talk</b> Companies use metrics to determine whether a product or process is successful.</p> <p>Ask students to turn to the person next to them and discuss what metrics restaurants might use to determine whether a new menu item is successful. Have students write a list of important factors and discuss them as a class.</p>

Students have multiple opportunities within each lesson to engage with the content in a variety of ways. They can talk about the problems, pause and reflect on their work, think about different ways to solve a problem and go online to find extra examples for further support.

3) Grade level content is systematically presented throughout the materials. Both the Teacher and Student Editions contain the Florida Math Standards that will be addressed in each lesson. The Teacher Edition also has a “Focus” section that outlines the Domain (topic), Major Cluster(s), Standards for Mathematical Content, and Standards for Mathematical Practice. An example of this is seen here, from Algebra 1, Module 1, page 1a:

### Focus

Domain: Algebra

#### Standards for Mathematical Content:

**MAFS.912.A-SSE.1.1** Interpret expressions that represent a quantity in terms of its context.

**MAFS.912.A-SSE.1.2** Use the structure of an expression to identify ways to rewrite it.

Also addresses *MAFS.912.N-RN.3*, *MAFS.912.N-Q.1.2* and *MAFS.912.N-Q.1.3*

#### Standards for Mathematical Practice:

All Standards for Mathematical Practice will be addressed in this module.

## E. Strands of Model Performance Indicators

- |   |            |    |
|---|------------|----|
| 1) Do materials include a range of language functions?                            | <u>Yes</u> | No |
| 2) Are the language functions incorporated into a communicative goal or activity? | <u>Yes</u> | No |
| 3) Do the language functions support the progression of language development?     | <u>Yes</u> | 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 include a range of language functions within each Lesson. Oftentimes the language functions are embedded into the content area standards (MAFS). An example, seen below, will have the students interpreting, modeling



and reasoning:

### Focus

**Domain:** Algebra

**Standards for Mathematical Content:**

**MAFS.912.A-SSE.1.1** Interpret expressions that represent a quantity in terms of its context.

**MAFS.912.A-SSE.1.2** Use the structure of an expression to identify ways to rewrite it.

**Standards for Mathematical Practice:**

**2** Reason abstractly and quantitatively.

**4** Model with mathematics.

**7** Look for and make use of structure.

Algebra 1, Volume 1, Teacher Edition, page 13a

Additionally, there is a Collaborative Conversations chart on page viii of the LDH that provides a framework for students to engage in these conversations during each lesson. The “Core Skills” column are language functions the students can use, along with supporting prompt and response frames:

## Collaborative Conversations

Students engage in whole-class, small-group, and partner discussions during every lesson. The chart below provides prompt frames and response frames that will help students at different language proficiency levels interact with each other in meaningful ways.

You may wish to post these frames in the classroom for student reference.

Core Skills	Prompt Frames	Response Frames
<b>Elaborate and Ask Questions</b>	Can you tell me more about it? Can you give me some details? Can you be more specific? What do you mean by...? How or why is it important?	I think it means that... In other words... It's important because... It's similar to when...
<b>Support Ideas with Evidence</b>	Can you give any examples from the text? What are some examples from other texts? What evidence do you see for that? How can you justify that idea? Can you show me where the text says that?	The text says that... An example from another text is... According to... Some evidence that supports that is...
<b>Build On or Challenge Partner's Ideas</b>	What do you think of the idea that...? Can we add to this idea? Do you agree? What are other ideas/ points of view? What else do we need to think about? How does that connect to the idea...?	I would add that... I want to follow up on your idea... Another way to look at it is... What you said made me think of...
<b>Paraphrase</b>	What do we know so far? To recap, I think that... I'm not sure that was clear. How can we relate what I said to the topic/ question?	So, you are saying that... Let me see if I understand you... Do you mean that...? In other words... It sounds like you are saying that...
<b>Determine the Main Idea and Key Details</b>	What have we discussed so far? How can we summarize what we have talked about? What can we agree upon? What are main points or ideas we can share? What relevant details support the main points or ideas? What key ideas can we take away?	We can say that... The main idea seems to be... As a result of this conversation, we think that we should... The evidence suggests that...

viii

- 2) The language functions are incorporated into a communicative goal and/or activity throughout each lesson. As stated above, the students will be engaged in whole-class, small-group, and partner discussions for each lesson. The chart above provides support for all students to participate in these conversations as they are linguistically able. Although this is a math curriculum and many times the students

will be writing and solving problems, the materials incorporate communicative activities throughout so students can build their language skills and utilize various language functions. An example is below, from Algebra 1, Lesson 4-1, page 209 where the students must justify an argument they make, thus reinforcing the mathematical concept and building language proficiency at the same time:

 **Talk About It**

What values of  $x$  might be easiest to use when graphing a linear equation when the  $x$ -coefficient is a whole number? Justify your argument.

- 3)** The language functions support the progression of language development. There is an emphasis not only on math comprehension, but also language development as it relates to math. In the LDH there are two pages of resources under the heading “Strategies for Classroom Discussion.” These pages provide some overarching language functions (justify, elaborate, ask) along with strategies and leveled sentence frames/prompts for the teacher to use. This framework allows for the progression of language development as the teacher can move from one level to the next seamlessly as s/he recognized the student is ready. These two pages, ix and x, are shown below:

## Strategies for Classroom Discussion

Providing multiple opportunities to speak in the classroom and welcoming all levels of participation will motivate English learners to take part in class discussions and build oral proficiency. These basic teaching strategies will encourage whole class and small group discussions for all language proficiency levels of English learners.

### ✓ Wait time/Different Response

- Be sure to give students enough time to answer the question. They may need more time to process their ideas.
- Let them know that they can respond in different ways depending on their levels of proficiency. Students can:
  - Answer in their native language; then you can rephrase in English
  - Ask a more proficient ELL speaker to repeat the answer in English
  - Answer with nonverbal cues.

### ✓ Elaborate

- If students give a one-word answer or a nonverbal clue, elaborate on the answer to model fluent speaking and grammatical patterns.
- Provide more examples or repeat the answer using proper academic language.

### ✓ Elicit

- Prompt students to give a more comprehensive response by asking additional questions or guiding them to get an answer, such as can you tell me more?
- This strategy is very effective when students are asked to justify or explain their reasoning.

### ✓ Asking about Meaning

- Repeating an answer offers an opportunity to clarify the meaning of a response.
- Repeating an answer allows you to model the proper form for a response. You can model how to answer in full sentences and use academic language.
- When you repeat the answer, correct any grammar or pronunciation errors.

#### ENTERING/EMERGING

- What is \_\_\_\_\_?
- What does \_\_\_\_\_ mean?
- \_\_\_\_\_ is \_\_\_\_\_.
- \_\_\_\_\_ means \_\_\_\_\_.

#### DEVELOPING/EXPANDING

- Could you tell me what \_\_\_\_\_ means?
- \_\_\_\_\_ is similar to \_\_\_\_\_.
- \_\_\_\_\_ is another way of saying \_\_\_\_\_.

#### BRIDGING

- Could you give me a definition of \_\_\_\_\_?
- Can you point to the evidence from the text?
- What is the best answer? Why?



### Talk about Level of Understanding

- ENTERING/EMERGING**
- I understand. / I got it.
  - I don't understand this word / sentence.
- DEVELOPING/EXPANDING**
- Could you tell me what \_\_\_\_ means?
  - \_\_\_\_ is another way of saying \_\_\_\_.
- BRIDGING**
- I think I understand most of it.
  - I'm not sure I understand this completely.



### Justify Your Reasoning

- ENTERING/BEGINNING**
- I think \_\_\_\_.
- DEVELOPING/EXPANDING**
- My reasons are \_\_\_\_.
- BRIDGING/REACHING**
- I think \_\_\_\_ because \_\_\_\_.



### Agreeing with Someone's Reasoning

- ENTERING/BEGINNING**
- I agree with your reasons or point.
- DEVELOPING/EXPANDING**
- I agree that \_\_\_\_.
- BRIDGING/REACHING**
- I have the same reasons as \_\_\_\_. I think that \_\_\_\_.



### Disagreeing with Someone's Reasoning

- ENTERING/BEGINNING**
- I don't agree with your reasons.
- DEVELOPING/EXPANDING**
- I don't agree that \_\_\_\_.
- BRIDGING/REACHING**
- I can see your point. However, I think that \_\_\_\_.

x