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How to Use This Addenda

Make sure you're ready to teach by noting the **Necessary Materials and Pre-Lesson Prep** you will need to gather or complete prior to the lesson

Find high-leverage instructional moves in the **Lesson Look Fors**. This is what leaders should see when observing your instruction

Note how your lesson objective ties to your state **Standards**

Note exemplar pacing in the **Lesson Agenda**

Use the **Mathematical Goal of the Lesson** to keep you focused on the appropriate student outcome

Plan purposeful questioning and responses using **Opportunities to CFU**

Plan to stress **Important Vocabulary** in the lesson. New vocab for the unit is indicated in bold

Plan instruction around what students need to Know & Do to be successful on the Exit Ticket using the identified **Student Criteria for Success**

Find recommended lesson modifications, content knowledge boosters, and/or high-leverage instructional moves that may not be in your Teacher Edition located in **Other Notes to Inform Your Planning**

UNIT SYNOPSIS
This unit relies heavily on the proportional reasoning students built in 6th and 7th grade Pre-Algebra; additionally, it builds upon the previous unit on triangle congruency and extends to similar figures and similar triangles. The unit begins with exploring the relationship between dilations and similarity. Then, students identify and apply triangle similarity shortcuts before working with area and perimeter of similar figures. In a future unit they will extend this understanding to volume as well.

CONTENT STANDARDS

Below are the standards addressed in this unit.

Readiness Standards	Supporting Standards
G.10(B) determine and describe how changes in the linear dimensions of a shape affect its perimeter, area, surface area, or volume, including proportional ~~and non-proportional~~ dimensional change G.7(B) apply the angle-angle criterion to verify similar triangles and apply the proportionality of the corresponding sides to solve problems	G.8(A) prove theorems about similar triangles, including the Triangle Proportionality Theorem, and apply these theorems to solve problems G.7(A) apply the definition of similarity in terms of a dilation to identify similar figures and their **proportional** sides and the congruent corresponding angles.

Focus on Disciplinary Literacy	Mathematical Process Standard (F) – analyze mathematical relationships to connect and communicate mathematical ideas
	Mathematical Process Standard (G) – display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

LEARNING SUPPORTS BY LESSON

There is a checkmark for the math support if the lesson	Lessons → Math Supports	L1	L2	L3	L4	L5	L6	L7
makes a connection to prior content or from a previous unit or academic year	Access Prior Knowledge	✓	✓	✓	✓		✓	✓
uses familiar contexts or experiences to make the learning relevant to students	Real-World Connections	✓				✓		
makes use of graphic organizers	Graphic Organizers					✓		
includes tools like rulers, protractors, patty paper, algebra tiles, etc.	Tools or Manipulatives	✓			✓		✓	
incorporates tables, reference charts, displays, pictures, models, or color-coding	Visual Aids	✓	✓	✓	✓	✓	✓	✓
includes definitions, examples vs. nonexamples, cognates, etc.	Vocabulary Supports	✓	✓	✓	✓		✓	
includes strategies that support language development	Language Supports							
asks students to discuss with their partner to prepare for whole class discussion	- Turn and Talk	✓	✓	✓	✓	✓	✓	✓
teacher facilitates a whole class discussion to debrief key learnings	- Guided Discussion	✓	✓	✓	✓	✓	✓	✓
asks students to think independently, test their idea with a partner, and share whole group	- Think, Pair, Share							
includes sentence stems to support students with explanations	- Sentence Stems							
provides opportunities for students to work with a partner or a group	Peer Collaboration	✓	✓	✓	✓	✓	✓	✓
uses mnemonics such as SohCahToa	Mnemonics							
includes websites or equipment that enhances the lesson	Technological Support							
content can be presented in different forms	Different Modalities							
uses hands-on tools or manipulatives to represent the math	- Concrete				✓			
uses drawings to represent the math	- Pictorial	✓	✓	✓	✓	✓	✓	✓
uses numbers and number sentences to represent the math	- Abstract	✓	✓	✓	✓	✓	✓	✓

ROADMAP

AT A GLANCE: Unit 6 – Similarity			
Day	Date	Lesson	Lesson Title
There are 2 flexible Success Days that you can use anywhere in the unit. • Consider using 1 day to review before the Unit 6 Exam (see provided Cumulative Review). • If you don't need to use the other Success Day, you can/should save it for later.			
1		1	Dilations, Scale Factor, and Similarity
2		2	Coordinate Connection: Dilations
3		3	Proving Similar Figures
4		4	Triangle Similarity Shortcuts
5		5	Proportional Segments Between Parallel Lines
6		6	Area and Perimeter of Similar Figures
7		CR	Cumulative Review	Success Day
8			Unit 6 Exam
9			Success Day

Lesson 1: Dilations, Scale Factor, and Similarity		Date: _____
Standard(s)	**Notes for Intellectual Preparation & Lesson Planning**	**Lesson Look Fors**

Standard(s)

◆ **G.7(A)** apply the definition of similarity in terms of a dilation to identify similar figures and their **proportional** sides and the congruent corresponding angles.

Notes for Intellectual Preparation & Lesson Planning

<u>Necessary Materials and Pre-Lesson Prep</u>
- Unit 6.1 Student Edition
- Class set of red pens
- Class set of rulers and protractors

Lesson Structure:
- 🟥 Do Now (7 min)
- 🟦 INM (20 min)
- 🟩 Debrief (2 min)
- 🟪 Student Practice (16 min)
- 🟪 Exit Ticket (10 min)

<u>Mathematical Goal of this Lesson</u>
By the end of this lesson, students should be able to use proportional reasoning to solve for missing sides of similar figures and determine the scale factor given two similar figures. Most big ideas of this unit surface in this first lesson, but they are more deeply explored as the unit progresses.

<u>Opportunities to CFU</u>
- ✓ INM: 3, 5, 12
- ✓ Student Practice: 1, 2, 3

<u>Other Notes to Inform Your Planning</u>

For the ENTIRE INM: The measurements given in the TE exemplar may vary due to printing. For example, even though LeBron's height in the image is supposed to be 12.5 cm, the actual printed version that you receive from Office Depot may not be exactly that size. When internalizing this lesson, **please** measure carefully using the **STUDENT WORKBOOK** to ensure that you know EXACTLY what measurements you expect students to get. Note that if these are different from what is published in the TE, the scale factor will also be different, and you will need to determine what that is.

For **INM 4 & 5**: Students need to understand what the ratios in #s 4 and 5 represent. It is important that students don't just set up a number over a number, but that they really GET what it means. Ensure students get the chance to explain the meaning of these ratios with their partner and that you discuss it before moving on. (You can see an example in the student exemplar in INM #4.)

Focus on Disciplinary Literacy
INM 4 & 5

Important Vocabulary
- corresponding angles
- corresponding sides
- dilation
- scale factor
- similar figures

Lesson Look Fors

<u>Look for teachers to...</u>
- ❑ reveal LeBron's true height when getting to INM Q#5.
- ❑ while debriefing #7, stamp that for similar figures, sides are scaled by a factor, but angles stay congruent.
- ❑ clearly stamp that scale factor is the ratio of the corresponding side lengths of the NEW figure to the ORIGINAL ($SF = \frac{new}{original}$)

<u>Look for students to...</u>
- ❑ use their rulers and protractors to measure accurately.
- ❑ Explain the meaning of the ratios they write in #s 4 & 5
- ❑ explain the relationship between corresponding sides in similar figures AND corresponding angles.

Student Know/Do Chart

- **Do** 🎯 Students can identify the scale factor used to enlarge a sketch of a door to an actual door and apply that scale factor to find the actual height of an object on the sketched door.
- **Know** 🎓 You only need one set of corresponding side lengths from a pair of similar figures to identify the scale factor.

Lesson 2: Coordinate Connection: Dilations		Date: _____
Standard(s)	**Notes for Intellectual Preparation & Lesson Planning**	**Lesson Look Fors**

Standard(s)

◆ **G.7(A)** apply the definition of similarity in terms of a dilation to identify similar figures and their **proportional** sides and the congruent corresponding angles.

Important Vocabulary
- dilation
- **enlargement**
- image
- preimage
- **reduction**
- scale factor

Notes for Intellectual Preparation & Lesson Planning

<u>Necessary Materials and Pre-Lesson Prep</u>
- Unit 6.2 Student Edition
- Class set of red pens

Lesson Structure:
- 🟥 Do Now (7 min)
- 🟦 INM (16 min)
- 🟩 Debrief (3 min)
- 🟪 Student Practice (19 min)
- 🟪 Exit Ticket (10 min)

<u>Mathematical Goal of this Lesson</u>
By the end of this lesson, students should be able to identify properties of dilations (congruent angles, proportional sides) and apply this understanding to determine scale factor and/or the location or dimensions of an image or preimage. Students should also be able to explain the difference between dilations and rigid transformations (from Unit 3).

<u>Opportunities to CFU</u>
✓ INM: 4, 7   ✓ Student Practice: 1, 2

<u>Other Notes to Inform Your Planning</u>

For the **Do Now:** The Do Now is spiraled review from Unit 3 on rigid transformations. It provides context for dilations as another type of transformation; however, it is not married to the INM and can be skipped or replaced if necessary.

For **INM**: This lesson naturally spirals in slope and distance. During INM #4, ensure students justify how they identified the scale factor. In INM #3, the student work shows an example of students recalling the Pythagorean Theorem to find the missing side lengths. This is one way; other students might use the Distance Formula.

Focus on Disciplinary Literacy
INM #4

Lesson Look Fors

<u>Look for teachers to…</u>
- ❑ use color to show how lines in preimage are taken to parallel lines in image (see orange, purple, and green lines in figure on TE p21)
- ❑ stamp that dilations are another type of transformation, but that they are considered "non-rigid" because they produce similar, not congruent, figures.

<u>Look for students to…</u>
- ❑ notice that the slopes of corresponding side lengths are identical.
- ❑ notice that the scale factor is the same for each set of corresponding side lengths.
- ❑ generalize that in a dilation, angles and ratios stay the same, corresponding sides are parallel, and the center of dilation is the only point that doesn't move.

Student Know/Do Chart

- 🎯**Do** Students can determine whether a dilation is a reduction or an enlargement.
- 🎯**Do** Students can determine the scale factor by which a preimage is dilated to form an image.
- 🎓**Know** An enlargement is a dilation in which the image is larger than the preimage; SF > 1. A reduction is a dilation in which the image is smaller than the preimage; SF < 1.
- 🎓**Know** The scale factor is the ratio of the corresponding side lengths of the NEW figure to the ORIGINAL ($SF = \frac{new}{original}$)

Lesson 3: Proving Similar Figures		Date: _____
Standard(s)	Notes for Intellectual Preparation & Lesson Planning	Lesson Look Fors

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◆ **G.7(A)** apply the definition of similarity in terms of a dilation to identify similar figures and their **proportional** sides and the congruent corresponding angles.

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Necessary Materials and Pre-Lesson Prep
- Unit 6.3 Student Edition
- Class set of red pens

Lesson Structure:
- 🟥 Do Now (7 min)
- 🟦 INM (17 min)
- 🟩 Debrief (3 min)
- 🟪 Student Practice (18 min)
- 🟪 Exit Ticket (10 min)

Mathematical Goal of this Lesson
By the end of this lesson, students should be able to determine if two figures are similar by describing the sequence of similarity transformations that carry the first figure to the second, OR by verifying that all corresponding angles are congruent and all corresponding sides are proportional. In today's activity, students apply what they've learned in the previous two lessons to determine whether two figures are similar. This reverses the thought process of previous lessons where students created or were given similar figures and explored their properties.

Opportunities to CFU
✓ INM: 3, 5   ✓ Student Practice: 1, 2, 3

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Look for teachers to...
- ❑ circulate as student work on #s 1-2 and identify students' varying solution paths. When debriefing #2, ensure teachers show different ways to get from preimage to image.
- ❑ emphasize that there are two ways to prove similarity (see QuickNotes)

Look for students to...
- ❑ apply their prior knowledge from the previous two lessons to help them with INM #3
- ❑ apply their prior knowledge of isosceles triangles to help them with INM #5.

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Important Vocabulary
- dilation

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Other Notes to Inform Your Planning

For the **Do Now:** The Do Now spirals in ways to prove triangles congruent. This Do Now is not required for success on the INM and can be skipped or replaced if necessary.

For the **INM**: This INM gives students the chance to experience TWO ways to prove figures are similar. #s 1-3 show them that if a figure is a transformation of another figure, then they're guaranteed to be similar. #s 4-5 shows that you can use angle measurements and side lengths to prove two figures are similar.

Focus on Disciplinary Literacy
INM #2

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Student Know/Do Chart

- 🎯 Students can determine whether two figures on a grid are similar.
- 🎯 Students can justify whether or not two figures on a grid are similar by identifying a sequence of transformations OR by showing that corresponding sides are or are not proportional.
- 🎓 For two figures to be similar, every set of corresponding side lengths must share the same scale factor.

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Lesson 4: Triangle Similarity Shortcuts		Date: _____
Standard(s)	Notes for Intellectual Preparation & Lesson Planning	Lesson Look Fors
◆ **G.7(B)** apply the angle-angle criterion to verify similar triangles and apply the proportionality of the corresponding sides to solve problems	**Necessary Materials and Pre-Lesson Prep** ▪ Unit 6.4 Student Edition ▪ Class set of red pens (and possibly scissors) ▪ Printed copies of shape handout Lesson Structure: 🟥 Do Now (7 min) 🟦 INM (22 min) 🟩 Debrief (3 min) 🟪 Student Practice (13 min) 🟪 Exit Ticket (10 min) **Mathematical Goal of this Lesson** By the end of this lesson, students should be able to determine if two triangles are similar by AA, SSS, or SAS similarity criteria. **Opportunities to CFU** ✓ INM: 1, 4, 7 ✓ Student Practice: 1, 2, 3 **Other Notes to Inform Your Planning** For the **Do Now:** This Do Now is not required for success on the INM and can be skipped or replaced if necessary. For the **INM**: This lesson has students consider what is essential for proving triangles are similar. Students will need the handout linked above (it's not in the SW). They will match up triangles that are similar by writing the letters of their shapes in the same row of the table. Note that while students don't formally know yet which shortcuts are allowed, we have found that they are still able to determine which triangles follow the patterns found in similarity. Later, they reflect on what information they used to establish this pattern. Some triangles that do not have a match, either because not enough information is given or because the sides are actually not in the same ratio.	**Look for teachers to...** ❑ provide students with enough time to identify similar triangles from the shape handout. Know that some students might benefit from cutting out and rearranging the triangles. ❑ avoid the temptation to give students the definitions of AA~, SAS~, and SSS~ at the beginning of the lesson. Students must have the opportunity to make meaning for themselves. **Look for students to...** ❑ engage in productive struggle and persevere despite not getting things right the first time. ❑ cut out the shapes and rearrange them on their desk if they prefer (it might be easier to identify pairs that way) **Student Know/Do Chart**
Important Vocabulary ▪ AA similarity ▪ SAS similarity ▪ similar triangles ▪ SSS similarity		**Do** Students can determine whether two triangles are similar and by what criteria. **Know** Two triangles are similar if two pairs of corresponding sides are proportional and the included angles are congruent, OR if three pairs of corresponding sides are proportional, OR if two corresponding angles are congruent.

Focus on Disciplinary Literacy

INM #3

Lesson 5: Proportional Segments Between Parallel Lines	Date: _____

Standard(s)	Notes for Intellectual Preparation & Lesson Planning	Lesson Look Fors
◆ **G.8(A)** prove theorems about similar triangles, including the Triangle Proportionality Theorem, and apply these theorems to solve problems	**Necessary Materials and Pre-Lesson Prep** ▪ Unit 6.5 Student Edition ▪ Class set of red pens ▪ 3 different colored pencils or highlighters **Lesson Structure:** 🟥 Do Now (7 min) 🟦 INM (17 min) 🟩 Debrief (5 min) 🟪 Student Practice (16 min) 🟪 Exit Ticket (10 min) **Mathematical Goal of this Lesson** By the end of this lesson, students should be able to identify and solve for proportional segments between parallel lines. **Opportunities to CFU** ✓ INM: 4, 5, 6 ✓ Student Practice: 1, 2, 3 **Other Notes to Inform Your Planning** For the **Do Now:** This Do Now **CANNOT** be skipped or replaced; it sets up the INM. After the Do Now, it is important to debrief #3 (the red AA~ note). Illustrate this by showing the different triangles (see the highlights made in the TE). All this should happen before moving onto the INM. For the **INM:** Some student groups may automatically apply what they've learned to solve #4. For other groups, it will take more time. That is okay – giving students time to struggle is important. As you circulate, if students are REALLY stuck and veering into unproductive territory, refer them to the diagram in the Do Now. Ask, "What do we know from the diagram? What did we learn before? How can we use this to answer #s 4 and 5?" **Focus on Disciplinary Literacy** Debrief	**Look for teachers to...** ❑ circulate and actively monitor as students engage in the INM. If/When students get stuck with #s 4/5, refer them to the diagram from the Do Now, ask, "What do we know about similar triangles?" and walk away, allowing students to engage in productive struggle. ❑ (when going over QuickNotes) use cross-multiplication to show how $\frac{a}{a+c} = \frac{b}{b+d}$ leads to $\frac{a}{b} = \frac{c}{d}$, because even though the latter is easier and students will believe you when you say it works, the idea is not intuitive and may seem like it comes out of nowhere. **Look for students to...** ❑ apply their understanding that corresponding parts of similar triangles are similar to complete the table in #5. **Student Know/Do Chart** **Do** Students can identify corresponding sides of similar triangles in a set of "nested" triangles and use these sides to set up and solve a proportion. **Know** When parallel lines or line segments run through a triangle, similar overlapping triangles are created, and their corresponding parts are proportional.

Important Vocabulary
- parallel lines
- **nested triangles** proportional parts

Lesson 6: Area and Perimeter of Similar Figures		Date: _____
Standard(s)	Notes for Intellectual Preparation & Lesson Planning	Lesson Look Fors
◆ **G.10(B)** determine and describe how changes in the linear dimensions of a shape affect its perimeter, area, surface area, or volume, including proportional ~~and non-proportional~~ dimensional change	**Necessary Materials and Pre-Lesson Prep** ▪ Unit 6.6 Student Edition ▪ Class set of red pens ▪ Class set of colored pencils (2 diff colors per student) **Lesson Structure:** 🟥 Do Now (7 min) 🟦 INM (20 min) 🟩 Debrief (3 min) 🟪 Student Practice (15 min) 🟪 Exit Ticket (10 min) **Mathematical Goal of this Lesson** By the end of this lesson, students should be able to solve for missing dimensions, perimeter, and areas of similar figures by using the relationship between the ratio of similar figures' dimensions and the ratio of their areas. This lesson plants seeds for what students will learn in Unit 9 about the volumes of similar figures.	Look for teachers to... ❑ allow students to do the thinking, intervening as little as possible. ❑ when debriefing, emphasize that the ratio of sides or perimeters of two similar figures is NOT equal to the ratio of the areas of the figures, but that the ratio of areas is the SQUARE of the ratios of the side lengths, regardless of what the shape of the figure is, since area requires using TWO dimensions which have each been dilated by a scale factor. Look for students to... ❑ explain WHY, for a pair of similar figures, the ratio of areas must be the square of the ratio of side lengths
	Opportunities to CFU ✓ INM: 1d, 2c, 2e, 3 ✓ Student Practice: 1, 2, 3, 4	**Student Know/Do Chart**
Important Vocabulary ▪ scale factor	**Other Notes to Inform Your Planning** For the **Do Now:** This Do Now is not required for success on the INM and can be skipped or replaced if necessary. For the **INM:** After yesterday's INM, today's may feel like a breeze! Students are visually proving to themselves that the ratio of areas of two similar figures is the square of the ratio of the sides/perimeters of two similar figures. Allow students to work through the INM with their partner – they should need very minimal (if any) support as they read and respond to the questions. INM #3 brings the lesson together in a very real way – as a teacher, you should definitely get students to share their thoughts/ideas for #3 aloud.	**Do 🎯** Students can identify the scale factor by which one figure was dilated to form another. **Do 🎯** Students can set up and solve a proportion. **Know 🎓** The ratio of the areas of two similar figures is the square of the ratio of their corresponding side lengths.

Focus on Disciplinary Literacy

INM #3

Cumulative Review	Success Day	Date: _____
Standard(s)	Notes for Intellectual Preparation & Lesson Planning	Lesson Look Fors

Standard(s)

◆ **G.10(B)** determine and describe how changes in the linear dimensions of a shape affect its perimeter, area, surface area, or volume, including proportional ~~and non-proportional~~ dimensional change

◆ **G.7(B)** apply the angle-angle criterion to verify similar triangles and apply the proportionality of the corresponding sides to solve problems

◆ **G.8(A)** prove theorems about similar triangles, including the Triangle Proportionality Theorem, and apply these theorems to solve problems

◆ **G.7(A)** apply the definition of similarity in terms of a dilation to identify similar figures and their **proportional** sides and the congruent corresponding angles.

Notes for Intellectual Preparation & Lesson Planning

<u>Necessary Materials and Pre-Lesson Prep</u>
- Review students' Unit 6 exit ticket data to determine what to prioritize during review
- Internalize Review Lesson 6.7 if you choose to use it

Lesson Structure:
- 🟥 Do Now (7 min)
- 🟦 INM (0 min)
- 🟩 Debrief (0 min)
- 🟪 Student Practice (48 min)
- 🟪 Exit Ticket (0 min)

<u>Mathematical Goal of this Lesson</u>
By the end of this class period, students should get the opportunity to review major concepts from Unit 6.

<u>Other Notes to Inform Your Planning</u>
You should use this Success Day to review however you see fit. An optional review activity has been provided in the Teacher Edition called "Sum 'Em Up" (Review Lesson 6.7). In this activity, students work in groups of four on whiteboards to solve four distinct, but related problems. After each group member has completed their problem, all four answers will be summed and the final answer presented to the teacher. If the sum is incorrect, group members must work collaboratively to find each others' errors.

To prepare for this activity, we suggest printing each of the six problem sets on different colored cardstock. You may wish to make multiple copies of each problem set as groups will finish at various times and will need a new problem to work on. Arrange students in groups of four. Have students assign each group member a letter A-D which they will stick with for the whole activity.

(See TE p63 for complete detailed instructions.)

Lesson Look Fors

Look for teachers to...
- ❑ facilitate a review session that prioritizes what students need based on previous exit ticket and/or quiz data.

Look for students to...
- ❑ review Unit 6 topics in preparation for the Unit 6 exam.

Student Know/Do Chart

🎯 Students can prepare for the Unit 6 Exam by reviewing Unit 6 content.

For more practice with Dilations, Scale Factor, and Similarity (Lessons 1-3), try...
- 22-23 MCR Lesson 4.2: Similar Polygons: SW | TE
- Kahoot: Similarity of Polygons
- Kahoot: Dilations of Polygons
- Illustrative Mathematics: Effects of Dilations on Length, Area, and Angles

For more practice with Triangle Similarity Shortcuts and Proportional Segments (Lessons 4-5), try...
- 22-23 MCR Lesson 4.3: Triangle Similarity: SW | TE
- 22-23 MCR Lesson 4.4: Applications of Triangle Similarity: SW | TE
- 22-23 MCR Lesson 4.5: Triangle Proportionality Theorem: SW | TE
- Kahoot: Triangle Similarity – Part 1
- Kahoot: Triangle Similarity – Part 2
- Illustrative Mathematics: Are They Similar?
- Khan Academy: Use Similar Triangles Practice
- Kuta Software: Similar Triangles
- MathBits: Proving Similar Triangles

For more practice with area and perimeter of similar figures (Lesson 7), try...
- 22-23 MCR Lesson 9.5: Area of Similar Polygons SW | TE
- Texas Gateway: Effects of Proportional Change on Area
- Quizzizz: Perimeters and Areas of Similar Figures
- Math Worksheets 4 Kids: Ratio of Perimeters and Areas

Unit 6 Exam	Date: _____
Standard(s)	Notes for Intellectual Preparation & Lesson Planning
◆ **G.10(B)** determine and describe how changes in the linear dimensions of a shape affect its perimeter, area, surface area, or volume, including proportional ~~and non-proportional~~ dimensional change ◆ **G.7(B)** apply the angle-angle criterion to verify similar triangles and apply the proportionality of the corresponding sides to solve problems ◆ **G.8(A)** prove theorems about similar triangles, including the Triangle Proportionality Theorem, and apply these theorems to solve problems ◆ **G.7(A)** apply the definition of similarity in terms of a dilation to identify similar figures and their **proportional** sides and the congruent corresponding angles.	<u>Necessary Materials and Pre-Lesson Prep</u> ▪ Ensure you can access UE6 on EdCite. <u>Notes to Inform Your Planning</u> Review the Unit 6 Exam on Curriculum Corner. Internalize and create an exemplar for the assessment prior to teaching the unit as part of unpacking the unit. Use your exemplar to spar with the solutions provided in the Assessment Companion on Curriculum Corner. The scanning deadline for the Unit 6 Exam is **January 29, 2026**. Consider administering the exam 1-3 school days BEFORE January 29th to allow sufficient time for grading the FRQ. Refer to the scoring guide to score the FRQ.

UNPACKED STANDARDS
Focus standards for this unit.

Standards Clarification		
Standards	Specificity	Notes/Explanations/Examples
G.7B apply the angle-angle criterion to verify similar triangles and apply the proportionality of the corresponding sides to solve problems	Content: • AA, SSS, and SAS similarity • Reflexive Property of Similarity: $\Delta ABC \sim \Delta ABC$ • Symmetric Property of Similarity: If $\Delta ABC \sim \Delta DEF$, then $\Delta DEF \sim \Delta ABC$ • Transitive Property of Similarity: If $\Delta ABC \sim \Delta DEF$, and $\Delta DEF \sim \Delta XYZ$, then $\Delta ABC \sim \Delta XYZ$. Including but not limited to: • Using AA, SSS, and SAS similarity to determine whether two figures are similar • Using AA, SSS, and SAS to find missing sides or angles • Completing similarity statements • Finding scale factors • Justify why two figures are similar	24. The lengths of the corresponding sides of 2 similar right triangles are in the ratio of 2:5. If the hypotenuse of the smaller triangle is 5 inches long, how many inches long is the hypotenuse of the larger triangle? F. 2 G. 2.5 H. 7 J. 10 K. 12.5 3. Are these triangles similar? If they are, write a similarity statement and give the scale factor. If they are not similar, say so. Not drawn to scale. A. $\Delta RST \sim \Delta WUV; \frac{5}{6}$ C. $\Delta RST \sim \Delta VWU; \frac{6}{5}$ B. $\Delta RST \sim \Delta UVW; \frac{5}{6}$ D. The triangles are not similar.
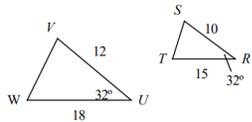
Standards Clarification

Standards	Specificity	Notes/Explanations/Examples
G.10B determine and describe how changes in the linear dimensions of a shape affect its perimeter, area, surface area, or volume, including proportional and nonproportional dimensional change	Content: • Dimensions • Perimeter • Area • Surface area • Volume • Proportional and nonproportional dimensional change Including but not limited to: • Finding area of similar figures given a scale factor • Determining whether or not figures can be proven to be congruent • Finding volume of similar figures given scale factor. • Determining whether a change in a dimension affects a shape's volume or area	**From released Geometry STAAR** 20 The volume of a rectangular prism is 960 cubic inches. If the dimensions of the base are doubled and the height remains the same to create a new prism, what will be the volume of the new rectangular prism in cubic inches? Record your answer and fill in the bubbles on your answer document.
G.8A prove theorems about similar triangles, including the Triangle Proportionality Theorem, and apply these theorems to solve problems	Content: • Angle-Angle Similarity • Side-Side-Side Similarity • Side-Angle-Side Similarity • Triangle Proportionality Theorem • Including but not limited to: • Using AA, SSS, and/or SAS similarity to prove triangles are similar • Solve problems involving AA, SSS, SAS similarity, and/or the Triangle Proportionality Theorem	**ACT** 27. In right triangle $\triangle ACE$ below, $\overline{BD}$ is parallel to $\overline{AE}$, and $\overline{BD}$ is perpendicular to $\overline{EC}$ at D. The length of $\overline{AC}$ is 20 feet, the length of $\overline{BD}$ is 3 feet, and the length of $\overline{CD}$ is 4 feet. What is the length, in feet, of $\overline{AE}$? A. 10 B. 12 C. 15 D. 16 E. 17
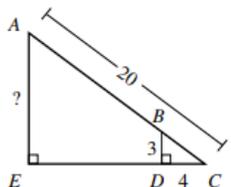
VERTICAL STANDARDS

This section details the **progression** of key student expectations/standards** in the courses **before** and **after** this course. This will help you understand what **prior knowledge skills to build upon** and guide you in knowing what **skills you are preparing your students** for in the subsequent course.

7th Grade	Geometry	Algebra II
7.5A Generalize the critical attributes of similarity, including ratios within and between similar shapes. **7.5C** Solve mathematical and real-world problems involving similar shape and scale drawings. **7.11C** Write and solve equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships.	**G.7(A)** apply the definition of similarity in terms of a dilation to identify similar figures and their proportional sides and the congruent corresponding angles. **G.7B** apply the angle-angle criterion to verify similar triangles and apply the proportionality of the corresponding sides to solve problems.	**2A.6L** Formulate and solve equations involving inverse variation.

Algebra I		Pre-Calculus
A.2D Write and solve equations involving direct variation. **A.3B** Calculate the rate of change of a linear function represented tabularly, graphically, or algebraically in context of mathematical and real-world problems. **A.5A** Solve linear equations in one variable, including those for which the application of the distributive property is necessary and for which variables are included on both sides.	**G.8A** prove theorems about similar triangles, including the Triangle Proportionality theorem, and apply these theorems to solve problems. **G.10B** determine and describe how changes in the linear dimensions of a shape affect its perimeter, area, surface area, or volume, including proportional and non-proportional dimensional change.	**P.2P** Determine the values of the trigonometric functions at the special angles and relate them in mathematical and real-world problems. **P.4A** Determine the relationship between the unit circle and the definition of a periodic function to evaluate trigonometric functions in mathematical and real-world problems. **P.4C** Represent angles in radians or degrees based on the concept of rotation and find the measure of reference angles and angles in standard position. **P.4F** Use trigonometry in mathematical and real-world problems, including directional bearing.