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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**

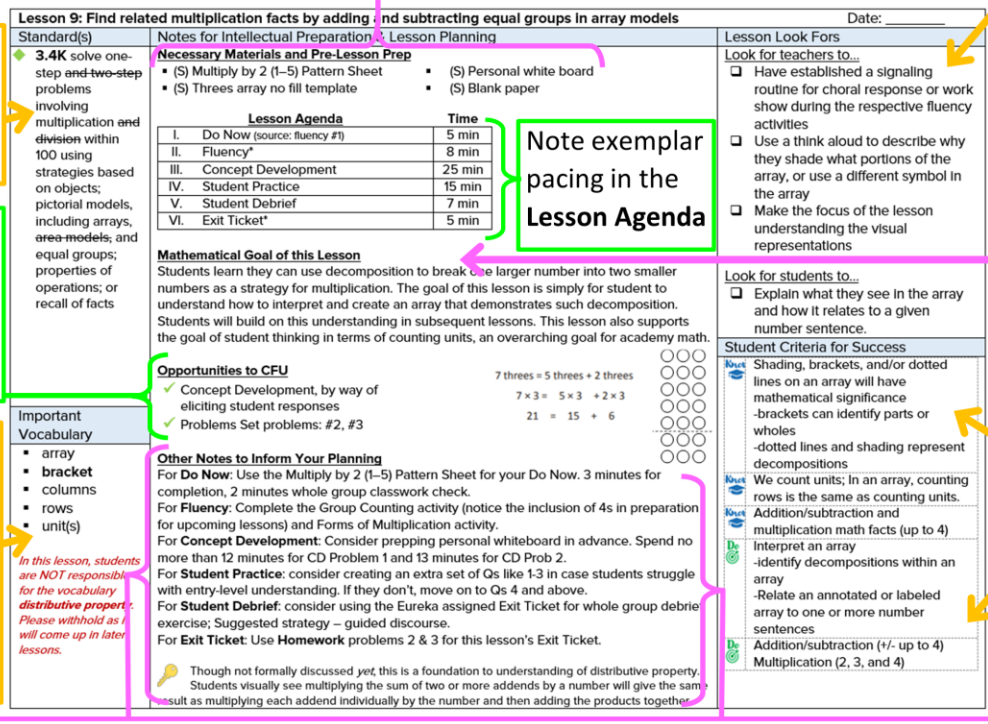
Note exemplar pacing in the **Lesson Agenda**

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

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



Lesson 9: Find related multiplication facts by adding and subtracting equal groups in array models Date: _____

Standard(s)
- **3.4K** solve one-step ~~and two-step~~ problems involving multiplication ~~and division~~ within 100 using strategies based on objects; pictorial models, including arrays, ~~area models~~, and equal groups; properties of operations; or recall of facts

Notes for Intellectual Preparation & Lesson Planning

Necessary Materials and Pre-Lesson Prep
- (S) Multiply by 2 (1–5) Pattern Sheet
- (S) Threes array no fill template
- (S) Personal white board
- (S) Blank paper

Lesson Agenda		Time
I.	Do Now (source: fluency #1)	5 min
II.	Fluency*	8 min
III.	Concept Development	25 min
IV.	Student Practice	15 min
V.	Student Debrief	7 min
VI.	Exit Ticket*	5 min

Mathematical Goal of this Lesson
Students learn they can use decomposition to break the larger number into two smaller numbers as a strategy for multiplication. The goal of this lesson is simply for student to understand how to interpret and create an array that demonstrates such decomposition. Students will build on this understanding in subsequent lessons. This lesson also supports the goal of student thinking in terms of counting units, an overarching goal for academy math.

Opportunities to CFU
- ✓ Concept Development, by way of eliciting student responses
- ✓ Problems Set problems: #2, #3

7 threes = 5 threes + 2 threes
7 × 3 = 5 × 3 + 2 × 3
21 = 15 + 6

Important Vocabulary
- array
- **bracket**
- columns
- rows
- unit(s)

*In this lesson, students are NOT responsible for the vocabulary **distributive property**. Please withhold as it will come up in later lessons.*

Other Notes to Inform Your Planning
For **Do Now**: Use the Multiply by 2 (1–5) Pattern Sheet for your Do Now. 3 minutes for completion, 2 minutes whole group classwork check.
For **Fluency**: Complete the Group Counting activity (notice the inclusion of 4s in preparation for upcoming lessons) and Forms of Multiplication activity.
For **Concept Development**: Consider prepping personal whiteboard in advance. Spend no more than 12 minutes for CD Problem 1 and 13 minutes for CD Prob 2.
For **Student Practice**: consider creating an extra set of Qs like 1-3 in case students struggle with entry-level understanding. If they don't, move on to Qs 4 and above.
For **Student Debrief**: consider using the Eureka assigned Exit Ticket for whole group debrief exercise; Suggested strategy – guided discourse.
For **Exit Ticket**: Use **Homework** problems 2 & 3 for this lesson's Exit Ticket.

Though not formally discussed *yet*, this is a foundation to understanding of distributive property. Students visually see multiplying the sum of two or more addends by a number will give the same result as multiplying each addend individually by the number and then adding the products together.

Lesson Look Fors

Look for teachers to...
- ❑ Have established a signaling routine for choral response or work show during the respective fluency activities
- ❑ Use a think aloud to describe why they shade what portions of the array, or use a different symbol in the array
- ❑ Make the focus of the lesson understanding the visual representations

Look for students to...
- ❑ Explain what they see in the array and how it relates to a given number sentence.

Student Criteria for Success
- Know: Shading, brackets, and/or dotted lines on an array will have mathematical significance
  -brackets can identify parts or wholes
  -dotted lines and shading represent decompositions
- Know: We count units; In an array, counting rows is the same as counting units.
- Know: Addition/subtraction and multiplication math facts (up to 4)
- Do: Interpret an array
  -identify decompositions within an array
  -Relate an annotated or labeled array to one or more number sentences
- Do: Addition/subtraction (+/- up to 4) Multiplication (2, 3, and 4)

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

In this unit, students build foundational understanding of algebraic representations by connecting tables, equations, graphs, and real-world situations. The work begins with independent and dependent variables (Lesson 1), where students recognize input-output relationships and connect cause and effect in mathematical contexts. This early introduction gives students a framework for seeing how one-variable drives changes in another, a concept that threads through the remainder of the unit.

Next, students move into equations to represent tables (Lesson 2). Here they transition from noticing additive or multiplicative patterns in tables to writing one-step equations in the form $y = x + b$ or $y = kx$. This step builds on earlier exposure to patterns in elementary grades and supports students in distinguishing between additive and multiplicative relationships.
In Lesson 3, the focus shifts to translating between equations, tables, and graphs. Students strengthen their fluency by learning to generate ordered pairs from tables or graphs and use those pairs to derive rules and equations. The key strategy here is to consistently move between representations—an essential mathematical practice that deepens understanding and prepares students for multi-step equations in later grades.

Lesson 4 extends this work to real-world situations, where students parse contexts, identify variables, and translate key words into operations. Students must then represent the situation with equations, tables, and graphs. This lesson emphasizes breaking down scenarios into parts that align with algebraic thinking.

Finally, in Lesson 5, students tie everything together in a matching activity. They match situations, tables, graphs, and equations, reinforcing that each representation tells the same story in a different way. This culminating activity emphasizes that fluency means being able to move fluidly across representations, a skill critical to success in Pre-Algebra and beyond.

Throughout the unit, strategies and models include:

- **Input-output tables** as an anchor model to show how equations generate values.
- **Ordered pairs** and graphing to visualize patterns and relationships.
- **Cause-and-effect** language to strengthen understanding of independent and dependent variables.
- **Real-world contexts** (wages, age differences, costs, distances) to make algebra meaningful and relatable.
- **Keyword translation charts** to scaffold converting verbal phrases into equations.
- **Partner and group tasks** (turn-and-talk, matching activities) to encourage discourse and deepen reasoning.

The unit is intentionally sequenced so that students first learn to recognize and name the components of algebraic relationships, then practice moving between symbolic and numeric representations, and finally integrate all forms—tables, graphs, equations, and contexts—into a unified understanding. This progression ensures that by the end of Unit 8, students are prepared to tackle more complex linear relationships in 7th grade and Algebra I.
This unit features 3 topic(s).

Topic A Overview – *Independent and Dependent Variables*

Lesson 1 introduces students to independent and dependent variables, something they may have already encountered in their 6th grade science course. Students begin by thinking of independent and dependent variables that they can related to in order to internalize the meaning of "independent" and "dependent." Then, students learn that independent variables are represented by the *x*-value in a table, graph, ordered pair, or equation, and that dependent variables are represented by the *y*-value.

Lesson 1

Dependent variable: the OUTPUT, represented on the y-axis, depends on the independent variable

Independent variable: the INPUT, represented on the x-axis, controls what happens to the dependent variable

④ The graph below shows the distance a person on a ski left travels in a given number of seconds.

ⓐ What is the independent variable in this situation? List the independent values given in the graph.

Time: 0, 1, 2, 3, 4, 5, 6

ⓑ What is the dependent variable in this situation? List the dependent values given in the graph.

Distance: 0, 2, 4, 6, 8, 10, 12

Time (x)	Distance (y)
1	2
2	4
3	6
4	8
5	10
6	12

ⓒ Use the data in the graph to complete the table.

Topic B Overview – *Equations, Tables, and Graphs*

In Lesson 2, students explore patterns in input/output tables, and then find missing values using those patterns. They also learn to write equations that fit the table (and generate tables that fit an equation) and determine if relationship is additive or multiplicative. By the end of lesson 2, students should be able to fluently jump between equations and tables. In Lesson 3, students learn how to fluently go between tables, equations, and graphs.

Lesson 2

Input (x)	Output (y)
0 +5 =	5
2 +5 =	7
5 +5 =	10
9 +5 =	14

⑧ additive

⑧ $y = x + 5$

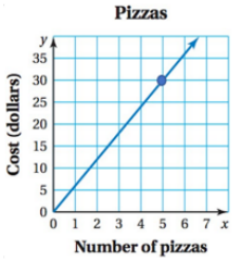
Input (x)	Output (y)
0 ×(-2)	0
3 ×(-2)	-6
6 ×(-2)	-12
9 × (-2)	-18

⑨ multiplicative

⑨ $y = -2x$

Lesson 3

① The graph below shows the cost of ordering different numbers of pizzas.



ⓐ Use the graph to complete the table.

# of Pizzas (x)	Cost (y)
0	0
1	6
5	30
6	36
10	60
15	90

x · 6 = y

ⓑ Identify the independent and dependent variables in this situation.

IV: # of pizzas DV: Cost

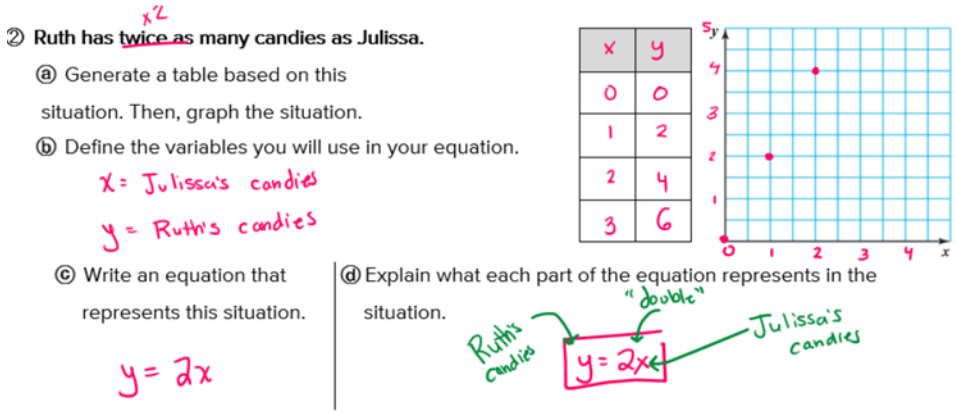
ⓒ Write an equation to represent the cost of the pizzas given the number of pizzas ordered.

$y = 6x$

Topic C Overview – Representing Real-World Situations

In Lesson 4, students generate equations from real-world situations by parsing the vocabulary of the situation. By reading and thinking about the situation, students are about to determine if it is additive or multiplicative and from an equation from that understanding. In Lesson 5, students get the opportunity to blend what they have learned from Lessons 2-4 into a card sort in which they must match 8 real-life situations, tables, graphs, and equations.

Lesson 4



② Ruth has twice as many candies as Julissa.

ⓐ Generate a table based on this situation. Then, graph the situation.

x	y
0	0
1	2
2	4
3	6

ⓑ Define the variables you will use in your equation.

x = Julissa's candies

y = Ruth's candies

ⓒ Write an equation that represents this situation.

$y = 2x$

ⓓ Explain what each part of the equation represents in the situation.

Ruth's candies = "double" Julissa's candies

CONTENT STANDARDS

Below are the standards addressed in this unit.

Readiness Standards	Supporting Standards
6.6(C) represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$	**6.6(A)** identify independent and dependent quantities from tables and graphs **6.6(B)** write an equation that represents the relationship between independent and dependent quantities from a table **6.4(A)** Compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships

ROADMAP

AT A GLANCE: Unit 8 -Algebraic Representations				
Topic	Day	Date	Lesson	Lesson Title
Topic A Independent and Dependent Variables	1		1	Independent and Dependent Variables
Topic B Equations, Tables, and Graphs	2		2	Equations to Represent Tables
	3		3	Equations, Tables, and Graphs
Topic C Represent Real World Situations	4		4	Representations of Real-World Situations
	5		5	Equations, Tables, Graphs, and Situations
	6			Review Day
	7			Unit Exam 8

Lesson 1: Independent and Dependent Variables Date: _____

Standard(s)

- **6.6(A)** identify independent and dependent quantities from tables and graphs

Important Vocabulary

- Dependent Variable
- Independent Variable
- Input
- Output
- X-value
- Y-Value

Notes for Intellectual Preparation & Lesson Planning

Necessary Materials and Pre-Lesson Prep

- Document Camera
- Projector
- Unit 8 Student Workbook
- Debrief Slide

Lesson Agenda

		Time
I.	Do Now	5 min
II.	INM/Concept Development	25 min
III.	Student Practice	15 min
IV.	Student Debrief	5 min
V.	Exit Ticket	10 min

Mathematical Goal of this Lesson

The primary goal of this lesson is for students to identify and explain the meaning of independent and dependent variables in different situations. Students will explore independent and dependent variable in real-life linear relationships.

Opportunities to CFU

- ✓ INM: #2a-d
- ✓ Student Practice: #1c, #2c-e, #5b

Other Notes to Inform Your Planning

For **Do Now:** The Do Now is a Must Do as it prepares students to engage in the day's lesson. They will use real-world situations to start making connections between independent and dependent variables.

Focus on Disciplinary Literacy

INM: #1-5
Student Practice: #1, 4, 5c

For **INM**: The beginning of the INM starts with modeling by filling in a table then graph. Students may not naturally generate the meaning of 'ordered pair'. Plan to share the definition so support their understanding. It will also be important to remind and model for students how to plot points on the graph ('*x* before *y*'). A common misconception when graphing is that students tend to start on the '*y*' axis first. For those students that need note-taking assistance provide them with a copy of the definition for independent and dependent variables. Consider creating an anchor chart that models and defines these terms for all students to be able to use as they work through Student Practice.

Lesson Look Fors

Look for teachers to…

- ❑ STAMP that the dependent variable is represented by the y-axis on the coordinate plane and the y-value in an ordered pair
- ❑ STAMP that when asked to list independent and dependent values, students must use the coordinates of the ordered pair and NOT just read the numbers on the axes.

Look for students to…

- ❑ Write complete sentences explaining the relationship between independent and dependent variables
- ❑ Explain how they chose the values they did when asked for independent or dependent values

Student Know/Do Chart

Know — An independent variable causes a change in the dependent variable

Know — The dependent variable changes because of the independent variable

Do — Write a statement explaining the relationship between independent and dependent variables in a given situation or graph.

Do — Identify and list the independent and dependent variable in a situation.

Lesson 2: Equations to Represent Tables Date: _____

Standard(s)

- **6.6(A)** identify independent and dependent quantities from tables and graphs
- **6.4(A)** compare two rules verbally, numerically, graphically, and symbolically in the form of y = ax or y = x + a in order to differentiate between additive and multiplicative relationships

Important Vocabulary

- Additive Relationship
- Dependent Variable
- Independent Variable
- Input
- Multiplicative Relationship
- Output

Notes for Intellectual Preparation & Lesson Planning

Necessary Materials and Pre-Lesson Prep

- Document Camera
- Projector
- Unit 8 Student Workbook
- Debrief Slide

Lesson Agenda

		Time
I.	Do Now	5 min
II.	INM/Concept Development	30 min
III.	Student Practice	10 min
IV.	Student Debrief	5 min
V.	Exit Ticket	10 min

Mathematical Goal of this Lesson

The primary goal of this lesson is for students to write an equation to represent a multiplicative or additive relationship from a table. Students will explore patterns in input/output tables, they find missing inputs and outputs using those patterns then they write a one-step equation using the pattern that they discover.

Opportunities to CFU

- ✓ INM: Part II #6, 7; Part IV #11, 12; Part V #15 c-d
- ✓ Student Practice: #5 and #6

Other Notes to Inform Your Planning

For **INM**: Ensure students who need it have access to a 12x12 and/or number line with positive and negative integers. Stamp for students that division is multiplicative because multiplication and division are inverse operation; similarly, subtraction is additive because addition and subtraction are inverse operations.

For **Student Exit Ticket:** Choose one of the two questions to assign and assess. Students should get the equation correct and use it to answer the remaining parts correctly.

Focus on Disciplinary Literacy

INM: #15
Student Practice: #5,6

Lesson Look Fors

Look for teachers to…

- ❑ Stamp that although students might see a pattern going along the x-column or along the y-column, we are looking to see the pattern happening from *x* to *y*.
- ❑ Remind students that expressions like "2*x*" mean "two times *x*," not just "2 times."

Look for students to…

- ❑ Correctly generate an equation from a table
- ❑ Explain whether a table and/or an equation displays an additive or multiplicative relationships

Student Know/Do Chart

- Know: Additive means a value is being added to the input to get the output
- Know: Multiplicative means that something is being multiplied by the input to get the output
- Do: Explain whether a table or equation shows an additive or multiplicative relationship
- Do: Generate an equation from a table

Lesson 3: Equations, Tables, and Graphs | Date: _____

Standard(s)

- **6.4(A)** Compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships
- **6.6(C)** represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$

Important Vocabulary

- Additive Relationship
- Dependent Variable
- Independent Variable
- Input
- Multiplicative Relationship
- Output

Notes for Intellectual Preparation & Lesson Planning

Necessary Materials and Pre-Lesson Prep

- Document Camera
- Projector
- Unit 8 Student Workbook
- Debrief Slide

Lesson Agenda

		Time
I.	Do Now	5 min
II.	INM/Concept Development	20 min
III.	Student Practice	20 min
IV.	Student Debrief	5 min
V.	Exit Ticket	10 min

Mathematical Goal of this Lesson

The primary goal of this lesson is for students to write an equation to represent a multiplicative or additive relationship from a graph. Students will translate data from graphs to tables and tables to graphs. They will then write an algebraic one-step equation that represents that data.

Opportunities to CFU

✓ INM: #1(table), #2, #3, #4
Student Practice: #3

Other Notes to Inform Your Planning

For **INM/Student Practice**: Provide students who need it with a 12x12 so they can easily find the rule in multiplicative relationships. It will be important to model this for students under the document camera, specifically the graph so that students are able to visualize the representations from table ➔ graph and graph ➔ table.

For the Student Practice, consider pulling a small group of students who struggled during the INM. Offer students who will work independently access to an answer key after first 7 minutes of the INM. It will be important to use a timer to assist with pacing. Consider creating an anchor chart that models table ➔graph and graph ➔table for students who are working independently to reference. Students may struggle with #1c in the student practice. It may be necessary, whole group, to model how to do at least the first ordered pair in Helicopter A and Helicopter B. ***Mistake on Helicopter B***. See here for the updated annotation.

Focus on Disciplinary Literacy

INM: #1-4
Student Practice: #1b, 3f

Lesson Look Fors

Look for teachers to…

- ❑ Review and model plotting points.
- ❑ Stamp that all equations have tables that can be graphed.
- ❑ Stamp that tables contain ordered pairs to graph. For example, in INM2, the table gives the ordered pair (-5, -2)

Look for students to…

- ❑ Explain how to use an equation to get a table and/or a graph
- ❑ Generate a table from a graph

Student Know/Do Chart

Know: To generate an equation from a graph, it helps to make a table of ordered pairs from the graph first.

Do: Determine whether a relationship is additive or multiplicative when given a table, equation, or graph.

Do: Generate a table and equation from a graph

Lesson 4: Representations of Real-World Situations Date: _____

Standard(s)

- **6.6(C)** represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$

Important Vocabulary

- Additive Relationship
- Dependent Variable
- Independent Variable
- Input
- Multiplicative Relationship
- Output

Notes for Intellectual Preparation & Lesson Planning

Necessary Materials and Pre-Lesson Prep

- Document Camera
- Projector
- Unit 8 Student Workbook
- Debrief Slide

Lesson Agenda

		Time
I.	Do Now	5 min
II.	INM/Concept Development	20 min
III.	Student Practice	20 min
IV.	Student Debrief	5 min
V.	Exit Ticket	10 min

Mathematical Goal of this Lesson

The primary goal of this lesson is for students to represent a real-world situation in a table, a graph, or as an equation. In this lesson, students generate equations from real-world situations by parsing the vocabulary of the situation. For every situation, students will generate a table and a graph.

Opportunities to CFU

- ✓ INM:#1c-d, #2b-d, #3
- ✓ Student Practice: #2, 3, 6

Other Notes to Inform Your Planning

For **INM**: Students may need support in labeling the x and y values on the graph. Stamp for students that the numbering should make sense given the equation and the number lines for each axis do not have to have the same scale; for example, the x-axis could count by 1's while the y-axis counts by 10's.****Mistake*** Two number 2's in the TE and SE

Focus on Disciplinary Literacy

INM: #1-4
Student Practice: #1-8

For **Student Practice**: Provide struggling students with a cheat sheet which could be a foldable, graphic organizer, index card or you may even decide to support by creating an anchor chart with common terms that represent each operation in a given situation.

Lesson Look Fors

Look for teachers to…

- ❑ Call on students to do the bulk of the work for INM #1a-c, but use a think-a-loud to model part d (the NEW part) for students.
- ❑ Label each part of the equation to emphasize that each part of an equation represents part of a situation.

Look for students to…

- ❑ Define the variables before writing an equation
- ❑ Label each part of the equation

Student Know/Do Chart

Know — Understand what every part of an equation represents and how it connects to a verbal description.

Do — Generate a table, graph, and equation from a verbal description.

Do — Define variables and write an equation that represents a given situation

Do — Explain what each part of an equation represents

Lesson 5: Equations, Tables, Graphs, and Situations Date: _____

Standard(s)

- **6.4(A)** Compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships
- **6.6(C)** represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$

Important Vocabulary

- Additive Relationships
- Dependent Variable
- Independent Variable
- Input
- Multiplicative Relationships
- Output

Notes for Intellectual Preparation & Lesson Planning

Necessary Materials and Pre-Lesson Prep

- Document Camera
- Projector
- Unit 8 Student Workbook

Lesson Agenda

		Time
I.	Do Now	5 min
II.	INM/Concept Development	1 min
III.	Student Practice	39 min
IV.	Student Debrief	5 min
V.	Exit Ticket	10 min

Mathematical Goal of this Lesson

The primary goal of this lesson is for students to match graphs, tables, equations, and real-world situations. This lesson ties together the first three lessons of the unit. Students will work in partners or triads to complete a matching activity and reflection.

Opportunities to CFU

- ✓ Student Practice: Situations A, B, C, H
- ✓ Student Debrief: Reflection questions

Other Notes to Inform Your Planning

For **INM**: This is a great activity, but pacing will be important so that students are able to engage in the activity for the entire 39 minutes, consider having pre-cut set of matching cards to support students who may struggle with cutting. It will be important to share clear directions and expectations for handling material. Use a PowerPoint to note directions and expectations for material handling and engagement with the day's activity. Keep the expectations projected so that students are able to reference it.

Focus on Disciplinary Literacy

Student Debrief: Reflection Questions,

Lesson Look Fors

Look for teachers to…

- ❑ Set clear expectations from the beginning of class on how to participate in the assignment (for example, cutting carefully, putting paper in the trash, "just a dot not a lot" for glue) and explain that students are matching tables, equations, graphs, and situations.
- ❑ Tell students NOT to glue down their cards until they're 100% sure they're correct.

Look for students to…

- ❑ Correctly match their cards.
- ❑ Justify how they know their final answer is correct

Student Know/Do Chart

Know — Understand what every part of an equation represents and how it connects to a verbal description.

Know — Generate a table, graph, and equation from a verbal description.

Do — Define variables and write an equation that represents a given situation

Do — Explain what each part of an equation represents

Recommended Success Day Materials and Resources

6.6A and 6.6C
Algebraic Representations

Independent and Dependent Quantities Practice
- Representing a Verbal Situation with Tables/Graphs Practice
- Tech-enhanced Practice 6.6A and 6.6C

Notes to Inform Your Planning

These resources can be used for either small-group or whole-group reteach.

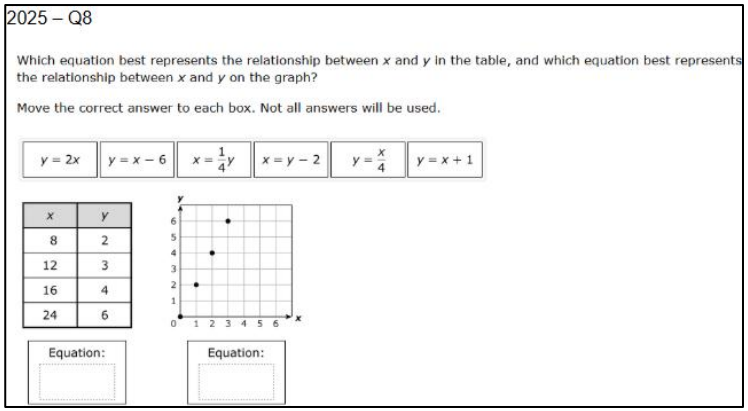
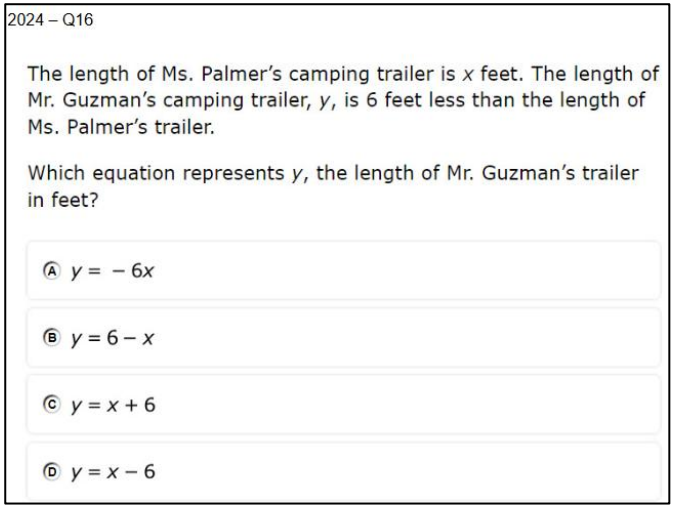
If student data indicates a pause point is not necessary, you can opt to move forward and reserve a Success Day to use at a later date.

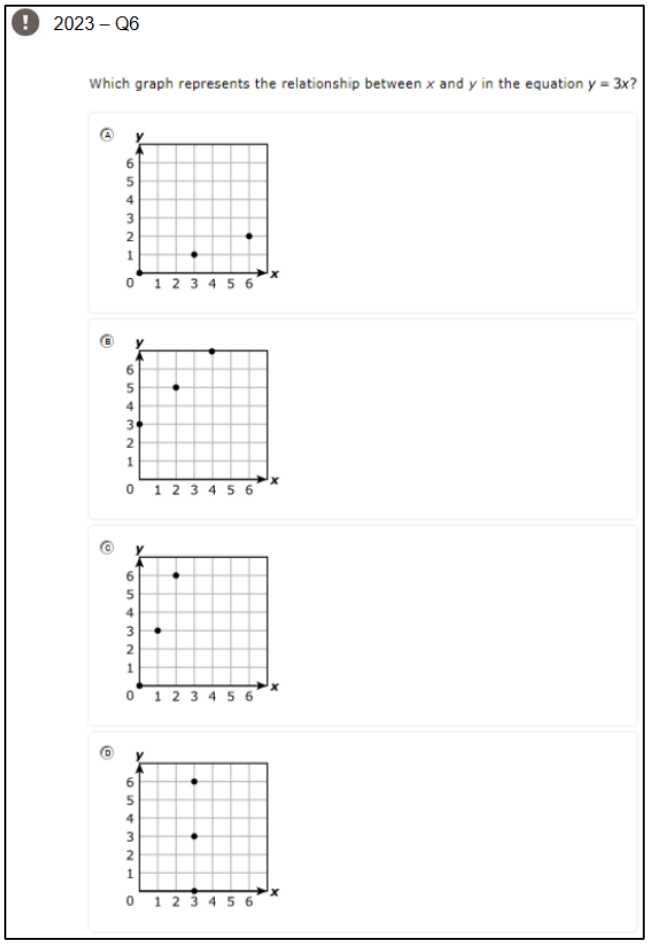
Using exit ticket data can help you prioritize what to review. For example, if you remember that students did poorly on Lesson 4, pull problems from lesson 4, especially if they are problems students did not do before (for example, SP or INM problems you skipped during class). You can also take questions from the resources linked above.

All unit exams should be given online to prepare students for STAAR online.

UNPACKED STANDARDS

Focus standards for this unit.

Standards Breakdown		
Standards	**Specificity**	**Notes/Explanations/Examples**
6.6(C) represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$	**Concepts:** • Verbal descriptions • Tables • Graphs • Equations **Skill:** • represent **Including but not limited to:** • generating a verbal description, table, graph, and/or equation when given either a verbal description, table, graph, and/or equation. • Determining whether a situation matches an equation • Matching a situation to a table **Vertical Alignment:** In previous grades, students learned how to graph positive rational numbers in the first quadrant of the coordinate plane; however, most of this TEKS is new to 6th graders. This TEKS lays the foundation for a significant amount of learning that occurs in 8th grade, Algebra I, and most of high school math. In later grades, students must be able to write linear equations in different forms when given various pieces of information. Among other things, they must be able to generate equations for parallel and perpendicular lines and work with systems of equations.	**2025 6G STAAR Q8**  **2024 6G STAAR Q16** 

Standards Breakdown		
Standards	**Specificity**	**Notes/Explanations/Examples**
		2023 6G STAAR Q6 

6.4(A) compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships

Concepts:

- Additive vs multiplicative
- Equations

Skills:

- compare

Including but not limited to:

- describing the relationship between x and y in a data set or equation

Vertical Alignment:

In 5th grade, students learned how to recognize the difference between additive and multiplicative patterns numerically. They also learned how to write a rule in the form $y = ax$ or $y = x + a$. In later grades, students will need to find the constant of proportionality and write and solve equations involving direct variation.

2025 6G STAAR Q27

2025 – Q27

Which statements describe the relationships between x and y in these two equations?

$$y = 7x$$
$$y = x + 7$$

Select **TWO** correct answers.

- ☐ When x is a negative number, both values of y will be negative.
- ☐ The value of y in $y = 7x$ is 7 times the value of x, and the value of y in $y = x + 7$ is 7 more than the value of x.
- ☐ The value of y in both $y = 7x$ and $y = x + 7$ is 7 times the value of x.
- ☐ The value of y in $y = 7x$ is 7 more than the value of x, and the value of y in $y = x + 7$ is 7 times x.
- ☐ When x is a positive number, both values of y will be positive.

2024 6G STAAR Q18

2024 – Q18

Which statement describes the relationship between x and y in these two equations?

$$y = 3x$$
$$y = x + 3$$

- Ⓐ In $y = 3x$ and $y = x + 3$, the value of y is 3 more than the value of x.
- Ⓑ In $y = 3x$ and $y = x + 3$, the value of y is 3 times the value of x.
- Ⓒ In $y = 3x$ the value of y is 3 times the value of x, and in $y = x + 3$ the value of y is 3 more than the value of x.
- Ⓓ In $y = 3x$ the value of y is 3 more than the value of x, and in $y = x + 3$ the value of y is 3 times the value of x.

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.

5th grade	6th grade Mathematics	7th grade Pre-Algebra / 8th grade Algebra I
	6.6(C) represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$	**8.5(F)** distinguish between proportional and non-proportional situations using tables, graphs, and equations in the form $y = kx$ or $y = mx + b$, where $b \neq 0$. **A.2(E)** write the equation of a line that contains a given point and is parallel to a given line. **A.2(F)** write the equation of a line that contains a given point and is perpendicular to a given line. **A.2(G)** write an equation of a line that is parallel or perpendicular to the X or Y axis and determine whether the slope of the line is zero or undefined. **A.2(I)** write systems of two linear equations given a table of values, a graph, and a verbal description.
5.4(C) generate a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph **5.4(D)** recognize the difference between additive and multiplicative numerical patterns given in a table or graph.	**6.4(A)** compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships	**7.4(A)** represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$. **7.4(C)** determine the constant of proportionality ($k = y/x$) within mathematical and real-world problems. **A.2(D)** write and solve equations involving direct variation.

	6.6(A) identify independent and dependent quantities from tables and graphs	**7.7(A)** represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form y = mx + b. **A.2(B)** write linear equations in two variables in various forms, including $y = mx + b$, $Ax + By = C$, and $y - y_1 = m(x - x_1)$, given one point and the slope and given two points.
	6.6(B) write an equation that represents the relationship between independent and dependent quantities from a table	**8.5(I)** write an equation in the form $y = mx + b$ to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations. **A.2(C)** write linear equations in two variables given a table of values, a graph, and a verbal description.