

Unit Title: What's the Plan?: Multiplication Strategies
Grade Level: 3rd
Subject Area: Basic Math Facts
Duration/Length/Number of class periods: (5 (25 minute) class periods)
Description: Students will learn strategies for multiplication and develop a plan to solve basic multiplication facts by using relationship strategies.
Established Goals (National, State, Local): Benchmark: 3.1.2.3 Represent Multiplication Facts Represent multiplication facts by using a variety of approaches, such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line and skip counting. Recognize the relationship between addition and multiplication.

What Enduring Understandings are desired? Basic fact knowledge is not about memorization. It is about being able to derive an unknown fact from a known fact or using other thinking strategies. "All of the facts are conceptually related. You can figure out new or unknown facts from those you already know."
What Essential Questions will be considered? What are ways I can multiply? What the ways I can solve a multiplication problem? How can I find the answer to a multiplication problem? What are the properties of multiplication? What are multiplication patterns? What are the multiples of 10?
Students will know / be able to: <ul style="list-style-type: none"> Students will be able to use patterns and properties to solve multiplication and addition problems. Students will be able to see multiplication represented in a variety of ways: repeated addition, an array model, and a groups of model. Students will be able to find the answer to multiplication problems by using grouping, arrays, repeated addition, and number lines.

Description	Formative	Summative	Introductory Activity	Learning Activity	Student Technology Used	Teacher Technology Used	ISTE Standards
Day One (class, Zoom or Class Dojo) STAR Assessment							1b 2b

Number Talk – 6x4 How did you solve it? How close to 100 game https://bhi61nm2cr3mkdgk1dtaov18-wpengine.netdna-ssl.com/wp-content/uploads/2017/03/FluencyWithoutFear-2015-1.pdf Daily Badge activities (your choice - show your thinking): 1) 2 x 9 (1 point), 2) 3 x 6 (2 points) , 3) 4 x 8 (3 points) Exit slip 4x2 (1 point), 2) 4x4 (2 points) , 3) 6 x 7 (3 points)	X		X		X	X	5c
Day Two Number Talk with white board responses 5x7 Repeated Addition intro / game https://www.splashlearn.com/math-skills/third-grade/multiplication-facts/multiplication-as-repeated-addition (free) (Splaslearn.com) Exit slip 2x8 (1 point), 2) 7x3 (2 points) , 3) 9x4 (3 points)	X		X	X	X	X	1b 1c 2b 5c
Day Three Number Talk with white board responses 8x4 Doubles intro / card game https://thisreadingmama.com/card-game-multiplication-doubles/ Exit slip 3x9 (1 point), 2) 6x6 (2 points) , 3) 8x7 (3 points)	X		X	X			1b 2b 5c
Day Four Number Talk with white board responses 9x7 Partial products / game https://www.splashlearn.com/multiplication-games-for-4th-graders Exit slip 4x5 (1 point), 2) 8x6 (2 points) , 3) 9x7 (3 points)	X		X	X	X	X	1b 1c 2b 5c
Day Five Star Assessment Exit slip 1) Repeated Addition (1 point) 2) Doubles (2 points) 3) Partial Products (3 points)		X					1b 1c

1 Empowered Learner

Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.

See the Empowered Learner standards in action. [▶ WATCH PLAYLIST](#)

2 Digital Citizen

Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.

See the Digital Citizen standards in action. [▶ WATCH PLAYLIST](#)

3 Knowledge Constructor

Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.

See the Knowledge Constructor standards in action. [▶ WATCH PLAYLIST](#)

4 Innovative Designer

Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

See the Innovative Designer standards in action. [▶ WATCH PLAYLIST](#)

5 Computational Thinker

Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

See the Computational Thinker standards in action. [▶ WATCH PLAYLIST](#)

- Students may need support in further development of previously studied concepts and skills.
- Students need to see multiplication represented in a variety of ways: repeated addition, an array model, and a groups of model.
- Basic fact knowledge is not about memorization. It is about being able to derive an unknown fact from a known fact or using other thinking strategies. "All of the facts are conceptually related. You can figure out new or unknown facts from those you already know." (Van de Walle & Lovin, 2006, p.94)
- Students need strategies for deriving multiplication facts. Many of these strategies use the associative and distributive properties. Although facts do not need to be learned in any particular order, here are some strategies students use when deriving facts.
 - Relate multiplying by 2 to addition doubles.
 - Relate multiplying by 3 to doubling and adding one more set.
 - Ex. 3×8 is the same as $(2 \times 8) + 8$
 - Relate multiplying by 4 to doubling and doubling again.
 - Relate multiplying by 5 to skip counting by five.
 - Relate multiplying by 6 to multiplying by 3 and doubling the product.
 - Relate multiplying by 7 to using known facts.
 - Ex. 7×8 is the same as $(5 \times 8) + (2 \times 8)$.
 - Relate multiplying by 8 to multiplying by 4 and then doubling.
 - Relate multiplying by 9 to multiplying by 10 and subtracting one set.

- Ex. 9×8 is the same as $(10 \times 8) - 8$.
- Relate multiplying by 10 to place value knowledge of groups of ten.
- Student understanding and use of the commutative property reduces the number of multiplication facts from 100 to 55.
- Understanding the relationship between multiplication and division aids in learning basic facts. Teachers need to make this relationship visible as students develop basic fact knowledge. For example, 12 divided by 4 equals 3 because 4 times 3 equals 12. The array for 4 times 3 is the same as the array for 12 objects being put into 4 rows.
- Fact Triangles are tools used to help build mental arithmetic skills. Fact Triangles are effective for helping students memorize facts because of their emphasis on relationships in a fact family.

[Flipgrid](#)

[Readworks](#)

[5 Clue Challenge](#)

<https://mysterydoug.com/>

Design thinking- Here is just one resource- <https://www.makersempire.com/what-is-design-thinking-a-handy-guide-for-classroom-teachers/>

Description	Units must include at least one of each formative, summative, introductory activity and learning activity. Check the appropriate box; one per row.				Formative	Summative	Introductory Activity	Learning Activity	Student Technology Used	Teacher Technology Used	NETS-Standard
Day 1: Note card Ticket (What would you change if you weren't afraid?)			X								
Class discussion about dealing with change – what words/feelings come to mind – fact that change happens quickly/slowly – need to be prepared to deal with it (slides 1-5)			X							X	
Student reflection of options to deal with change (slides 6-8)				X						X	
Read children's book "Who Moved My Cheese" and fill in "How Characters Respond" (short version)			X								
Day 2: In small groups, students share responses on short worksheet and together complete "How Characters Respond" (long version) worksheet (slide 9)	X			X							
Day 3: Quote displayed: if you want...			X							X	
Class discussion – How Characters Respond long version (slides 10-18)				X							
Individual reading activity: Article "Choosing Strategies for Change" and complete "Is Your Cheese Moving" worksheet				X							
Day 4: Quote displayed: You must be...			X							X	
Students paired to create visual presentation of "4 Skills to Navigate Change" – worksheet provided to guide planning (Prezi, PowerPoint, Google site, Glogster, video, etc.)	X							X			1a, 1b, 2a, 2d 1b, 3d, 4c
Day 5: Individually read Student Paths Article "Being Adaptable Helps You Hit Life's Curveballs" and complete personal journal entry (Moodle)	X							X			
Final Thoughts – Cheese Experience		X									
Exit slip for students to reflect how learning about change ties into other units of course				X							