UNIT: CREATIVE CALCULATIONS–MULTIPLICATION AND DIVISION
MULTIPLICATION WITH MEDIEVAL TIMES
Grade Band: 4
Content Focus: Theatre & Math

LEARNING DESCRIPTION

Students will engage in the sport of fencing working in tandem to embody the process for multiplying two two-digit numbers.

LEARNING TARGETS

Essential Questions	"I Can" Statements
How do we multiply two two-digit numbers together? How can we dramatize the process of multiplying numbers together?	I can break down pairs of two-digit numbers to multiply them together. I can play a role within a group to enact a math process.

GEORGIA STANDARDS

Curriculum Standards	Arts Standards
4.NR.2.3 Solve relevant problems involving multiplication of a number with up to four digits by a 1-digit whole number or involving multiplication of two two-digit numbers using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. 4.NR.2.5 Solve multi-step problems using addition, subtraction, multiplication, and division involving whole numbers. Use mental computation and estimation strategies to justify the reasonableness of solutions.	TA4.PR.1 Act by communicating and sustaining roles in formal and informal environments.

SOUTH CAROLINA STANDARDS

Curriculum Standards	Arts Standards
4.NSBT.5 Multiply up to a four-digit number by a one-digit number and multiply a two-digit number by a two-digit number using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using rectangular arrays, area models and/or equations. 4.NSBT.6 Divide up to a four-digit dividend by a one-digit divisor using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.	**Anchor Standard 3:** I can act in improvised scenes and written scripts.

KEY VOCABULARY

Content Vocabulary	Arts Vocabulary
• Equation - A mathematical sentence that has two equal sides separated by an equal sign • Array - A way of arranging objects or images in rows and columns	• Role - A part or character in a scene, play, or movie • Stage combat - The process of creating the illusion of fighting through safe, choreographed performance.

• Multiplication - Repeated addition of numbers of the same size • Factors - The integers that divide that number without leaving a remainder • Product - The result of multiplying two or more numbers together • Division - Repeated subtraction of numbers of the same size • Factor - A number that can be used to evenly divide into another number	• Props - Items that actors use in a performance to depict real-life objects. Props can also be used to help students brainstorm for their writing or character study.

MATERIALS

- Class set of fencing props made of paper towel rolls, rolled-up newspaper, or rolled-up craft paper
- Name tags, stickers, or other method of assigning a single digit (1-9) to each student
- Dry erase boards or paper and pencils
- Examples of fencing:
  - Basics of fencing from the US Olympic Team
  - Mt. Lebanon High School fencing team demonstration video
  - Basics of sword-fighting instructional video, from Shakespeare in Detroit: https://www.youtube.com/watch?v=8L4bvsNywjQ

INSTRUCTIONAL DESIGN

Opening/Activating Strategy

Word Passing:

- Have the class stand in a circle. Have one actor turn to their right and say the word "multiply" to the next person. Have each person then turn and say it to the person to their right in sequence.
- Once the class is comfortable smoothly passing the word, add a gesture, such as the forearms crossed to make an 'X', Pass the word with the gesture.
- Repeat the process for the words "fence" and "fencing match" coming up with a gesture for each.
- Option: Try to pass two or all three of the words at once, starting them at equally-distanced points in the circle. Work as a class to try and keep all the words moving.
- Explain to the students that these words are part of the day's drama integrated activity.

Work Session

Multiplication review:

- Review multiplication and the process for multiplying two two-digit numbers. Model the process on the board or screen, showing how each digit is used as a factor in a series of products that are added to arrive at the final product.

Medieval Times:

- Ask the students what they know about medieval times. Gather prior knowledge, which might come from literature, movies, or even eponymously named dinner theatre experiences.
- Discuss Knights, who were warriors that served kings, and Squires, who were younger men who served or were in training with knights.
- Knights and Squires were called by the honorifics 'Sir' and 'Master' respectively.
- Tell students that there were female knights who were called Dames; there is no set word for a younger woman who served or was in training with a Dame, so for the purposes of the lesson such a person will be called a Lady.
- Explain that the class will be enacting multiplication problems taking on the roles of knights, squires, dames, and ladies through fencing matches.
- Show students an example of fencing (see Materials).
- Establish the wordplay between multiplication and the word 'times' in "medieval times".
- Explain that in each two-digit number, the digit in the tens place will be the Knight or Dame, and the digit in the ones place will be the Squire or Lady. They will be called by the honorific and the digit they bear and the value it represents, for example, Sir 7, Master 3, Dame 4, Lady 6.
- Invite four volunteers to the front. Assign them each a role with a numerical name tag. (For the example here, name tags needed are 7, 3, 4, and 6. Have them stand in pairs side by side, with the pairs facing each other. In each pair, the actor to the left (as viewed by the audience) is the Knight or Dame, and the actor to the right is the Squire or Lady.
- Have each team state their identities/values, encouraging them to speak in the style of medieval characters. E.g.:

  "I am Sir 70." "I am Master 3." "Together we are 73."
  "I am Sir 40." "I am Master 6." "Together we are 46."

- Distribute fencing props to the four actors, who represent factors. Explain to students that they are props, to be used to enact the scenes. Explain that this activity is a form of stage combat, in which actors work together to simulate a scene of physical conflict. Remind them about safety rules in the classroom.
- Direct the actors/factors to enact the four duels that comprise the 'Multiplication with Medieval Times':
  - 73 says, "46, we challenge you."
  - 46 says: "73, we challenge you."
  - All say, "We shall battle to the bitter end – the product! Let us Multiply with the Medieval Times!".
  - Master 3 says: "Master 6 I challenge you." Master 6 replies, "Master 3, I challenge you!"
  - Both say, "En garde!" and they bring their fencing props together to form an X.
  - Then they alternate fencing taps to count out the groupings represented in their multiplication: 6 groups of 3 feints, equaling 18! Write 18 on a dry erase board or paper.

- The process is repeated for the other three combinations, remaining mindful of which digits represent ones and which represent tens.
    - Master 3 says, “Sir 40, I challenge you.’ Sir 40 says, “Master 3, I challenge you.” Both say, “En garde!”.
    - They enact 3 groups of 4 feints, multiplied by ten, equals 120.
    - Sir 70 says, “Master 6, I challenge you.” Master 6 says, “Sir 70, I challenge you!” Both say, “En garde!”.
    - They enact 7 groups of 6 feints, multiplied by 10, equals 420.
    - Sir 70 says, “Sir 40, I challenge you!” Sir 40 says, “Sir 70, I challenge you!” Both say, “En garde!”.
    - They enact 7 groups of 4 feints, multiplied by 100, equals 2800.
- The partners add up the products recorded: 18, 120, 420 and 2800. Together they say, “The sum of our individual products is our grand total product – 3,358.”
- Model with several groups with different numbers.
- Variations: Depending on class behavior and teacher comfort, restrict the lesson to a series of iterations until every student has had a chance to participate; or, after ample modeling, distribute name tags and fencing props and have student work in groups of four. If the groups are uneven, assign a fifth student to record the products and help guide the duels.

Closing/Reflection

- Ask students: What did you like or learn in this lesson? What was interesting or fun?
- Ask students: How did the medieval-style stage combat help to reinforce the process for multiplying two two-digit numbers?
- Ask students: How did you use your voices and bodies to become medieval characters?

ASSESSMENTS

Formative

- Students are able to work their way through the sequence of four multiplication ‘duels’ to arrive at a product.
- Students enact their roles with energy and clarity.
- Students work together with their partners and teams safely and efficiently.

Summative

- Students arrive at accurate products for their assigned numbers.
- Students explain the process for multiplying two two-digit numbers.

DIFFERENTIATION

Acceleration:

- Give students the opportunity to multiply other combinations of numbers from one- to four-digits.

Remediation:

- Rather than having groups do independent practice, limit the lesson to guided practice with groups in front of the class.
- Start with problems that multiply a single-digit number by a two-digit number.

ADDITIONAL RESOURCES

CREDITS

U.S. Department of Education- STEM + the Art of Integrated Learning
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**This integrated lesson provides differentiated ideas and activities for educators that are aligned to a sampling of standards. Standards referenced at the time of publishing may differ based on each state's adoption of new standards.*