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# Triple Threat: A Creative Mission with the 3s Times Table

## Lesson Details

- **Subject:** Math (Multiplication)
- **Student:** Kendall (10 years old, homeschool)
- **Topic:** Mastering the 3 Times Table Through Creative Application
- **Time Allotment:** 45-60 minutes

## Materials Needed

- Paper (plain and graph paper)
- Pencils, colored pencils, and markers
- About 40 small, identical items for counting (e.g., Legos, dried beans, buttons, small blocks)
- A deck of playing cards (Number cards 1-10, Jack=11, Queen=12. Or just use 1-10).
- A timer (phone timer is perfect)
- Scissors (optional, for the extension activity)

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## 1. Learning Objectives

By the end of this lesson, Kendall will be able to:

- Visually represent any 3s multiplication fact (up to  $3 \times 12$ ) as an array.
- Apply the 3 times table creatively to design and label a map.
- Recall 3s multiplication facts with increasing speed and confidence.
- Discover and explain the "sum of digits" pattern for multiples of 3.

## 2. Alignment with Standards

This lesson aligns with foundational mathematical concepts, similar to those in the Common Core State Standards (CCSS):

- **CCSS.MATH.CONTENT.3.OA.A.1:** Interpret products of whole numbers (e.g., interpret  $3 \times 5$  as 3 groups of 5 objects each).
- **CCSS.MATH.CONTENT.3.OA.A.3:** Use multiplication within 100 to solve word problems in situations involving arrays and measurement quantities.
- **CCSS.MATH.CONTENT.3.OA.C.7:** Fluently multiply within 100. By the end of Grade 3, know from memory all products of two one-digit numbers.

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## Lesson Activities & Instructional Strategies

## Part 1: The Secret Code of Threes (5-7 minutes - Engagement)

**Goal:** To spark curiosity and show a cool, memorable pattern.

1. **Teacher:** "Kendall, did you know that all the answers in the 3 times table have a secret code? Let's be detectives and find it."
2. Write down a few answers from the 3s table: 12, 15, 21, 27.
3. **Teacher:** "Look at the number 12. What happens if you add its digits together? ( $1 + 2 = 3$ ). What about 15? ( $1 + 5 = 6$ ). And 21? ( $2 + 1 = 3$ ). And 27? ( $2 + 7 = 9$ )."
4. **Discussion:** Ask Kendall what she notices about the sums (3, 6, 3, 9). Guide her to see that the sum of the digits is ALWAYS a number that can be divided by 3.
5. **Test it!** Ask her to test the rule on a bigger number, like  $3 \times 11 = 33$  ( $3+3=6$ ) or  $3 \times 12 = 36$  ( $3+6=9$ ). This "trick" makes the 3s feel special and easy to check.

## Part 2: Building with Threes (10 minutes - Instructional Strategy)

**Goal:** To connect the abstract numbers to a concrete, visual representation.

1. **Teacher:** "Now, let's see what these numbers actually \*look\* like. We're going to use our Legos (or beans/blocks) to build them."
2. Take out the small counting items. Ask Kendall to show you "3 times 4." Guide her to make 3 rows of 4 blocks each. This is an **array**. Count the total together (12).
3. Have Kendall build arrays for at least three other facts, like  $3 \times 2$ ,  $3 \times 6$ , and  $3 \times 8$ . This hands-on method caters to kinesthetic and visual learners.
4. **Teacher:** "See? Every time you multiply by 3, you are just making 3 equal rows of the other number."

## Part 3: Design Your "Tri-City"! (15-20 minutes - Creative Application)

**Goal:** To apply knowledge of the 3s times table in a creative, problem-solving context.

1. **Teacher:** "You are now the official architect of a brand new city called 'Tri-City,' where everything is based on the number 3! Your job is to design it on this graph paper."
2. **The Rules of Tri-City:**
  - Every building, park, or feature must have one side that is **3 squares long**.
  - You must draw at least 5 different features in your city.
  - You must label each feature with its name and its area, written as a multiplication sentence. For example:
    - Draw a rectangle that is 3 squares by 7 squares.
    - Label it: "Library:  $3 \times 7 = 21$  square units."
3. Give Kendall the graph paper and colored pencils and let her design her city. Encourage creativity! Maybe there's a  $3 \times 3$  town square, a  $3 \times 10$  swimming pool, or a  $3 \times 5$  apartment building.
4. This activity serves as the primary assessment. Her ability to correctly draw and label the areas shows she understands the concept of arrays and the 3s facts.

## Part 4: Triple Speed Challenge (5-10 minutes - Engagement & Assessment)

**Goal:** To build fluency and speed in a fun, game-based format.

1. Shuffle the number cards (1-12) and place them face down in a pile.
2. **Teacher:** "Let's see how fast your brain is working! I'm going to set a timer for one minute. When I say go, flip over a card and tell me the answer when you multiply it by 3 as fast as you can!"

3. Set the timer for 1 minute. Kendall flips cards and shouts the answers (e.g., flips an 8, says "24!"). Place correct answers in one pile and any she struggles with in another.
4. When the timer is up, count how many she got right. Celebrate the score! Briefly review the cards in the "struggle" pile using the Lego arrays if needed.
5. Play a second round and encourage her to beat her previous score.

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## Differentiation and Inclusivity

- **To Provide More Support:**
  - In Part 3 (Tri-City), focus only on facts from 3x1 to 3x5.
  - Keep the Lego arrays on the table during the Tri-City design for her to reference.
  - In the card game, remove the higher numbers (7-12) for the first round.
- **To Provide an Extra Challenge:**
  - In Part 3 (Tri-City), give Kendall a total area (e.g., "Design a building with an area of 30 square units") and have her figure out the dimensions (3x10).
  - Introduce the inverse: "If a park is 24 square units and one side is 3, what is the other side?" ( $24 \div 3 = 8$ ).
  - After the lesson, Kendall could cut out her Tri-City buildings and arrange them into a 3D paper city.

## Assessment Methods

- **Formative (during the lesson):**
  - Observe Kendall's accuracy when building the Lego arrays.
  - Listen to her explanation of the "secret code" of threes.
  - Check her card answers during the "Triple Speed Challenge" game.
- **Summative (end of lesson):**
  - The completed "Tri-City" map is the main assessment piece. It creatively demonstrates her understanding of 3s multiplication facts as arrays and area. The labels show her ability to recall the products.
  - A quick verbal recap: "Okay, last challenge! Tell me all the 3s times tables you can remember, starting with 3x1."

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