Essential Elements of an Effective Lesson Design
ACPS Classrooms in Focus- Student Engagement

Stage One: Desired Results

- **Mastery Objective(s):** By the end of the lesson students will be able to calculate the area of triangles. Students will be able to apply a formula and calculate the area of a triangle.
- **Essential Question(s):**

How can we use our understanding of geometry to represent and make sense or the world?

Stage Two: Assessment Evidence

- **Pre-assessment/diagnostic strategies:**

The perimeter of a rectangle is 69 feet. The width is 12 feet. What is the length and area of the rectangle?

- **Formative assessment tasks:**

Math Worksheet and Exit Slip

- **Summative assessment task:**

Weekly quiz to follow

Spiral Review: →

Spiral Review

1) Circle the prime numbers 9, 41, 57, 97

2) $0.4977 \div 3 =$

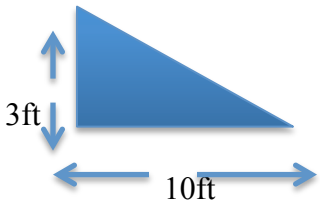
Stage Three: Learning Plan

- **Sequence of your assessment, teaching, and learning tasks:**
  1. Math Message Group activity: Use the items at your desk to assist you with answering the question. Kevin bought the following items: 2 packages of dry erase markers at $6.90 each, 3 boxes of mechanical pencils at $7.50 each and 2 books for $8.00 each. He gave the cashier a $100 bill how much change did he receive? Answer: Kevin would receive $ 47.70 in change Bonus: If Kevin wanted to divide his change equally among 3 people, is this possible? How would you know without doing the calculation? Answer: add the sum of the digits.
  2. Discussion of Math Message
  3. Students read the objective aloud en mass then point out the "Itinerary" written on the board. **Auditory and Visual Learners**
  4. Today boys and girls we are going to continue with are lesson on area, but now we will begin to find the area of triangles. Finding the area of triangle is very similar to that of a rectangle, but we have to include one extra step. That step is dividing in half.
  5. First of all I want to teach you a chant that will help you to remember how to find the area of triangle. Say "$\frac{1}{2} * b * h$" clap twice Say "divided by 2."
  6. We will begin by practicing drawing some triangles using our grid paper, and

then finding the area. Then we will use 1-inch tiles to cover the area. But first I would like for you to follow along with me as I demonstrate how we calculate the area of a triangle. Since this is a new skill we will probably not break into smaller guided math groups today. However, depending on the time we will also have an opportunity to practice this skill using IXL on the Ipads. Finally, we will return to or seats and demonstrate our learning today by completing an exit ticket. Great! Let's begin.

7. Using the smartboard draw a figure of a square with a side of 10 inches. Ask the students what would be the area of the square. Next, bisect the square diagonally to create two congruent right triangles. Now ask what would be the area of one half of the square. Write the formula for the area of a triangle $A = \frac{1}{2} b * h$.

8. Next, distribute 1-inch grid paper and the 1-inch tiles.
9. Then assign 6 inches for the base of a rectangle and 4 inches for the height.
10. Now have the students to multiply 4 inches x 6 inches and ask what is the product?
11. Have the students to carefully draw a diagonal line separating the rectangle into 2 congruent triangles. Have the students to cover the rectangle with 24 of the 1-inch squares.
12. Once students discover that the entire rectangle is covered ask students to use their mental math and $24 \div 2 = 12$. Students can now remove 12 of the squares and see that one triangle can still be covered.
13. Once the students understand that half the area is covered demonstrate how to use the formula $\frac{1}{2} * \frac{4}{1} * \frac{6}{1}$ to get the end result of 12inches squared. (Repeat the chant they just learned)
14. Next, draw a 5-inch base with a 2-inch height. Have the students to repeat this same concept but change the units to feet, centimeter, or meters. For testing purposes students will need to see questions and answers expressed with different units.
15. Once this activity has been completed students can practice identifying base and height of different triangles in order to find the area using an activity sheet.
16. Refer to worksheet number 332 in the Math Master teacher's edition. Students should practice identifying the base and the height of triangles then calculate the area.
17. Conclude the lesson with an exit slip that asks the following:



Mr. Minor had a space for a triangular shape garden in his back yard. What is the area of his garden? Explain your thinking in written form.

- **Strategies for differentiation and flexible grouping:**

Auditory, Kinesthetic , Tactile and Visual Learners
Students will practice finding the area of triangles using IXL B-17 skills builder.

- **Academic vocabulary**

Area
Perimeter
Volume
Cube
Formula
Squared

Auditory, Kinesthetic, Tactile and Visual Learners

- **Extending learning beyond the lesson and classroom:**

Homework: (worksheet) Students will practice using the rectangular method for finding the area of triangles.