Wittenberg University

Education Department Adopted Lesson Plan

Educational Leaders for Constructive Social Change

Witt Student Name **Amanda Stevenson, Chelsee McFarland, James Smith**	Date
Course Name	Instructor
Clinical Faculty (CF) Name	CF Approval (Initial)
Grade Level Second	Subject Area(s) Math

LESSON TOPIC Tangrams and Shape Orientation

Type of Lesson ☐ Small Group X Whole Class

Confidential Information:

IEP Goals and 504 Plans addressed for identified students (first names only):

Materials & Resources:

Where did you get your lesson ideas? Provide APA citations for origin of lesson (e.g., original, textbook, internet URL, etc.)

Original lesson

Tompert, A. (1997). *Grandfather Tang's Story.* Dragonfly Books.

List and attach copies of handout(s), workbook pages(s), notes, etc. at end of plan

Tangrams; Tangram pieces printed on thick paper

What technology and how are students using it for this lesson?

N/A

The Big Idea / Enduring Understanding and Essential Question

Geometric shapes are characterized using specific criteria/The orientation of a shape does not change the shape itself

Do the defining attributes of triangles and quadrilaterals change when the orientation of the shape changes?

Ohio's New Learning Standards (ACS) / Common Core State Standards (CCSS):

Educational Standards *(for math and science include practice standards)*

2. Geometry. A. 1. Recognize and draw shapes having specific attributes given angles/faces and identify triangles, quadrilaterals, pentagons, hexagons and cubes.

1. Make sense of problems and persevere in solving them

Anticipated Prior Knowledge

Students are able to distinguish between defining attributes of geometric shapes such as number of sides, and non-defining attributes like color and orientation. Students are also able to build and draw shapes to possess defining attributes. Students are able to compose and decompose two dimensional shapes.

Lesson Objectives

3-part measurable objective	**Assessment Guidelines** (include scoring key, rubric, etc.)
Students should be able to recognize the defining attributes of a shape do not change when the orientation of a shape changes while solving a tangram and creating one of their own.	Students will contribute to a discussion including indicating agreement or disagreement to statements in an open strategy share and create an original tangram.

Instructional Procedures (identify steps in sequential order)

	Differentiation (including IEP goals being addressed)
A. Engage and Explore 1. Students should be called to the carpet with a view of the smartboard. Conduct a read aloud of *Grandfather Tang's Story* by Ann Tompert. After reading the book aloud, let students know they will be working with tangrams today. 2. Conduct a demonstration of a tangram on the document camera. Let students know they will be working tangrams during the lesson for the day. As the shapes are moved around to complete the tangram ask students to name the shapes of the pieces. This should indicate the class's prior knowledge of shape names triangle, square, and quadrilateral (parallelogram). When asking students to name the shape ask for volunteers to explain how they know what the shape is. This will provide information on whether or not the students can recognize the attributes of shapes including angles and sides.	Students who are spatially challenged may need assistance if they reach frustration level while completing the tangram.

2. Students should return to their seats. Pass out the tangram template and shape pieces to cut out. If students complete the tangram, have more puzzles for students to work on while others finish.	Students who do not have as developed fine or gross motor skills may need assistance in cutting out the shape pieces.
B. Explain and Discuss 1. When the class has completed the tangram have them return to the carpet. Have an Open Strategy discussion to elicit information about how the students completed the tangram and anything they noticed relating to the shapes, the angles of the shapes, the number of faces of the shapes and the orientation of the shapes. When a student makes a statement allow the class to agree with a thumbs up or disagree with a thumbs down. Disagreements should be acknowledged so students have an opportunity to modify or solidify their own ideas. 2. The mathematical ideas to highlight is that the orientation of a shape does not change its defining attributes.	
C. Closure 1. Students should return to their seats. Pass out a blank piece of paper to each student. Each student should write their name on the back of the paper. Instruct the class to create and name their own original tangram by creating a design with the tangram pieces and tracing around each shape. They should come up with a name describing their tangram. Creativity is to be encouraged.	

Homework & Home Connections:

Academic Language/Key Vocabulary: (Words and student-friendly definitions)

Tangram-a geometric puzzle consisting of a square cut into seven pieces (of multiple geometric shapes)

Interdisciplinary Connections:

Visual Art. 2. 1PR. Demonstrate increasing skill and craft in the use of art tools and materials with attention to their diverse qualities.

Visual Art. 2. 3PR. Create artworks based on imagination and observation of familiar objects and scenes.

As part of the lesson, students will be asked to create their own tangram which involves the use of art tools (scissors, paper, tracing utensil), and come up with an original idea for the tangram from their imagination or from observation of the world around them. This task involves creatively manipulating two dimensional shapes to create a picture depicting something else.

Lesson Reflections (Reflection to include supporting evidence)

Which instructional practice(s) work well in your teaching and why; which need to be changed and why?

Describe the performance of your class/group; reflect on how your students did on each learning objective and your next teaching steps.

Based on individual student performance, what are your next steps?

Appendix A: Planning Template for Open Strategy Sharing Discussion

Open Strategy Sharing		
Problem to pose		
Why I chose this problem		
Opening the lesson		
How might my students solve this problem?	**Who solved it this way?**	**Who should share today?**
Notes to myself about what I'm looking for		
Other strategies that emerged during the lesson		
Closing the lesson		