EDUC 323

Name: Isaiah Quigley

Date: 11/01/17

I. Grade Level: 3 rd Grade	
II. Topic: Polygons (Geometry)	
III. STANDARDS	
A. Virginia Standard of Learning:	
3.12.b. The student will identify and name polygons with 10 or fewer sides.	
B. National Standard of Learning:	
NCTW Geometry: Analyze characteristics and properties of two- and three-dimensional	
C COPE Compositions	
CCSS.MATH.CONTENT.2.G.A.1: Recognize and draw shapes having specified attribute such as a given number of angles or a given number of equal faces.1 Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.	es,
IV. TCA (Teacher Candidate Assessment) Competencies:	
A. TEACHING COMPETENCIES:	
1. General/professional knowledge:	
In my lesson plan I address the Virginia SOLs, National Standards, and Common Core Standards (1.A), facilitate students' use of higher level thinking through a variety of activities (1.B), link past and future conthroughout the lesson (1.C), show my knowledge of the subject matter as there are no factual inaccuracies lesson (1.D), and my differentiation of activities and the age-appropriateness of all my activities show my understanding of development of the age group (1.E).	ntent in the
2. Instructional Planning:	
All parts of the lesson should fit within a section of math show that time has been planned realistically (2. All materials have been gathered before the due date (2.C). 2.A, 2.D, and 2.E do not apply to a simulated as there is no student learning data to guide planning (2.A), no school curriculum to align the lesson with (and no way to develop long-range plans for students as there are no students (2.E).	B). lesson (2.D),
3. Instructional Delivery:	
Student learning is active as the lesson requires their interaction throughout (3.A). Instruction is differenti	ated

to engage all the students' multiple intelligences (3.B, 3.C). The PowerPoint and use of IXL incorporate instructional technology (3.D). The lesson is written professionally and coherently (3.E).

4. Assessment:

Students are formatively assessed during instruction through questioning and during both guided and independent practices, and they are summatively assessed through the evaluation (4.A-E).

5. Learning Environment:

Does not apply to a simulated lesson.

6. Professionalism:

No laws or policies were violated and professional writing standards are upheld (6.A, 6.D). 6.B and 6.C occur

outside the classroom and do not apply for a simulated lesson.

7. Student Academic Progress

Does not apply to a simulated lesson.

B. CONTENT COMPETENCY:

C1 MATHEMATICS – I am competent in the math concepts taught.

C2 MATHEMATICS – Students taught by this lesson will be consistently engaged by the variety of activities within the lesson.

V. Objective (measurable): Given a number of sides, students will be able to draw polygons corresponding to that number of sides and name those polygons getting 8/8 drawings and 6/8 names correct, for a total of 14/16 correct.

VI. Materials/Sources:

Polygons PowerPoint Magnetic Popsicle Sticks Manipulative Game Board Manipulative Guided Practice Worksheets Summative Assessment

Literature/References:

Aboff, M. (2009). *If You Were a Polygon (Math Fun)*. Bloomington: Picture Window Books.
Clements, D. H., Mallowy, C. E., Moseley, L. G., Orihuela, Y., & Silbey, R. R. (2004). *MacMillan/McGraw-Hill Math.* New York: MacMillan/McGraw-Hill.

Ranchetti, S. (2008). Shapes in Animals/Figuras en los animales. Pleasantville: Weekly Reader Books.

VII. Technology Connection:

The teacher will use a PowerPoint to teach the lesson The students will complete IXL lessons on their computers during Group Practice at Station 3. The 3rd grade IXL page may be found <u>here</u>.

VIII. Children's Literature:

Aboff, M. (2009). *If You Were a Polygon (Math Fun)*. Bloomington: Picture Window Books. Ranchetti, S. (2008). *Shapes in Animals/Figuras en los animales*. Pleasantville: Weekly Reader Books.

IX. Procedures:

a. Set:

The set will also serve as a review of the previous lesson(s) covering polygons. The teacher will review the qualities of a polygon by asking students what a polygon is. Questions may be open (i.e. What is a polygon?) or closed (i.e. Do polygons have straight lines or can the lines be curved?) After this, say that polygons can be made up of any number of lines. Ask a volunteer to come to the front. Roll a ten-sided die. Have the student make a polygon out of the magnetic popsicle sticks manipulative using only as many sticks as were rolled. If a one or a two is rolled, put the sticks on the board yourself and ask if the shape is a polygon (no, it is not closed). Repeat the activity calling on different volunteers to arrange the popsicle sticks. After finishing, tell the class that all of the polygons we made have special names and pull up the PowerPoint.

b. Developmental Activities: 1. Instruction: To teach this lesson, go through the attached polygons PowerPoint. Each polygon is associated with an object with the same prefix as the polygon (i.e. **<u>Tri</u>**angle and <u>**Tri**</u>cycle). While the students are listening to you explain each shape, have them make the shape with their toothpicks. Throughout the lesson, ask questions about the shapes as review for previous teaching on polygons. Questions include "Are these regular or irregular polygons?" For the triangle slide, the answer is that they are all irregular. For the quadrilaterals slide, two are regular. All the rest should be regular. At the end of each section, have students think up a real-world example of each polygon.

Word-for-word

I. Triangles

A triangle is a polygon with three sides. Think of a tricycle to remember the name. Tricycles have three wheels, just like a triangle has three sides. Look at the picture of the triangles on the left. Are any of these regular polygons? [No, none of the triangles have sides with the same measure].

Can anyone tell me something that's triangle shaped? [possible answers include a triangle (the instrument), the letter A, etc.].

II. Quadrilaterals

A quadrilateral is a polygon with four sides. What is this on the right side? [A four wheeler or a quad bike]. That's right, it's a [four-wheeler/quad bike]. Another name for it is a [quad bike/four-wheeler]. If you have trouble remembering this name, remember the four-wheeler. Which of the quadrilaterals on the left are regular? [top-right and bottom left. Expect students to not get the top-right one]. These quadrilaterals have special names of their own which we'll learn about later. Does anyone already know their names? [Top-left: rectangle, top-right: rhombus, bottom-left: square, bottom-right: diamond].

Can anyone tell me something that's quadrilateral shaped? [possible answers include a desk, a book, etc.].

III. Pentagons

A pentagon is a polygon with five sides. Does anyone know what the building on the right is called? [The Pentagon]. That's right! The pentagon! The pentagon is a building with five sides. Think about the building whenever you need to remember what this shape is called. Is the pentagon in the picture a regular polygon or an irregular one? [Regular]. Good, it's regular. Would someone like to come draw an irregular polygon on the board? [Have a student draw an irregular pentagon. So long as it has five sides and does not look like the picture in the PowerPoint, the drawing is correct].

IV. Hexagons

Hexagons have six sides. There are two ways to remember this one. Remember in science, we learned that honeycombs are hexagons. Both honeycomb and hexagon start with h-. Hexagon is also the only polygon word with the x sound in it, just like six is the only number with the x sound in it. Listen closely: [emphasize the bolded letters] Hexagon. Six.

V. Heptagons [another name for this shape is the septagton, but the VA SOL refers to them as heptagons, so please use this term].

Heptagons have seven sides. I don't have a special trick for this one, but I like to think of a nice can of 7-up for heptagon.

Can anyone tell me something that's heptagon shaped? [trick question, the heptagon is seldom used in real life]. Can't think of anything? Me neither. Heptagons are really tricky!

VI. Octagons

Octagons have eight sides. The way I remember this is by thinking of an octopus. Why does that help me? [An octopus has eight legs and octopus sounds like octagon]. Good!

Can anyone tell me something that's octagon shaped? Here's a hint, there's already something up on the board! [stop sign].

VII. Nonagons

Nonagons have nine sides. To help me remember that nonagons have nine sides, I think to myself, "Nonagon, Nine-agon." Say that with me. [Nonagon, nine-agon].

VIII. Decagons [another name for this shape is the hectagon, but the VA SOL refers to them as decagons, so please use this term].

This ten-sided shape is a decagon. Remember when we learned about the metric system? One of our prefixes sounds just like the first part of this word, even though it's not spelled the same. Can anyone tell me what that is? [Deka-]. Good. Deka- means ten, so a decagon is a polygon with ten sides.

2. Guided Practice:

The classroom will be divided into three stations: the instruction station, computer station, and board game station. The instruction station will be where the teacher works with each group of students to complete an activity. A teacher's aide or practicum student, if one is available, will monitor and assist the other two groups. Those on the computer station will work on their next IXL.

Order:

Group 1 – Game -> Instruction -> IXL Group 2 – Instruction -> IXL -> Game Group 3 – IXL -> Game -> Instruction

Station 1: Instruction/worksheet station (Manipulative).

Group 1: On grade level group

Activity:

Students will work in pairs to complete a work sheet. The work sheet is based off the set using the magnetic popsicle sticks. Students will take turns rolling a tensided die. Whatever the student rolls is how many popsicle sticks he has to use to make a shape. The student then needs to make the shape out of the popsicle sticks. Students will draw the shape on their worksheet and write the name of the shape. A word bank is available on the worksheet. When rolling a one or a two, the students will still assemble and draw the shape. Instead of putting the shape name, students will write in "not a polygon" in the blank.

Group 2: Remedial/Below grade level

Activity:

The activity is the same as above with the following exceptions. Students will work in a group instead of in pairs. Instead of a 10-sided die, the students will use a spinner with the numbers 3-10 on them, eliminating the 1-2 roll issue. The teacher should be with the group the entire time to provide any help needed and to reteach as needed.

This group will go first since they will likely need more time.

Group 3: Advanced/Above grade level

Activity:

The activity is the same as the on grade level activity with the following exceptions. For the 1-2 rolls, the students must label the shape (1: line, 2: angle) and state why these are not polygons [they do not form a closed shape]. This group will go last as they will likely need the least amount of time.

Station 2: Board Game (Manipulative) (Teacher's Aide/Practicum Student extremely beneficial).

Group 1:

This station is a board game. Players draw a card which has a polygon on it. If they can correctly name the polygon, they move that number of spaces forward. The first to the end wins.

Group 2:

Same as group 1, but the cards will have the polygon and the number on them. *Group 3:*

Same as group 1, but the cards will only have the number, students need to draw the polygon and name it.

Station 3: Computers

Students will continue their IXL work with CC.1. Those who finish early may work on other work or read silently. Different groups may be on different IXL levels. Groups 1 and 2 should work on CC.1. When they finish, they may go back to previous IXL levels which they had not completed yet. Group 3 should start on CC.1 unless they have already completed it. If they've already completed it, they should start either CC.3 or CC.4 before moving on to other work.

3. Independent Practice

Group 1:

Students will find three different polygons. This may be done during class after work is done at their stations or at home. Trace each onto paper (if possible) or draw a picture of it. I will plant some around the room beforehand for those who work on it in class. After drawing/tracing the polygon, students need to label it with its name and how many sides it has. Students should be prepared to share one with the class

Group 2:

Same as group 1 except: group 2 only needs to do two and will have a word bank to take home with them.

Group 3:

Same as group 1 except: group 3 needs to label whether or not the object is regular or irregular as well and if the shape is a quadrilateral, they will need to label specifically which kind. They may need help since this hasn't been covered yet.

c. Closure:

To close, read *If You Were a Polygon (Math Fun)* by Marcie Aboff (2009). Ask students which polygon they would be and what they would do.

X. Diversity / Differentiation for Exceptionalities:

• Learning Styles (modalities / multiple intelligences) –

Visual – The PowerPoint is full of pictures of both the polygons and the memory tricks. A lot of information given to students and received from students is visual since polygons are very visual in nature. Instructions are written out on assignments.

Auditory – The teacher teaches the lesson from the PowerPoint audibly and also reads all directions and the story out loud.

Kinesthetic – The stations provide movement as students move from station to station. The manipulatives (dice, popsicle sticks, game) also allow students to interact with polygons kinesthetically. *Interpersonal* – The guided practice allows for interpersonal learning.

Intrapersonal – The independent practice allows for intrapersonal learning.

- **Gifted** Those who are gifted (Group 3) are given modified worksheets and assignments and are encouraged to work at their own pace.
- ELL Bilingual literature is an option for English Language Learners (ELL). Shapes in

Animals/Figuras en los animales by Sebastian Ranchetti (2008) is an example of this, albeit a rather simple one geared toward a younger grade.

• LD, ED, ADHD –

LD – Those with learning disabilities (Group 2) are given extra help from the teacher and teacher aide (if available) throughout the practices. They are also given modified worksheets and assignments and are encouraged to work at their own pace.

ED – On its own the lesson does not provide modifications for those who are emotionally disturbed, but accommodations may be made as necessary. For example, those with social anxiety or who have antisocial tendencies may be permitted to work alone on some of the group assignments. *ADHD* – On its own the lesson does not provide modifications for those with ADHD, but accommodations can be made such as permitting those students to stand, giving them a chair which moves around a bit allowing them to wiggle, or giving them fidget toys such as fidget cubes or silly putty.

• **Multicultural Connections** – The LEP section above is one example of a multicultural connection (MC). Another example would be to compare traffic signs (i.e. the octagonal American stop sign vs. the stop signs in other countries). This could clarify confusion in some of the examples in the PowerPoint. The examples in the PowerPoint could also be modified to include objects from other countries.

XI. Evaluation/ Assessment:

The assessment for this lesson will be a quiz. Sample question: This shape has three sides. Students would need to draw a triangle and name it. A word bank will be provided. See attached quiz As stated in the objective students must get:

8/8 drawings correct and

6/8 names correct (allowing for the two tricky ones hepta- and nonagon).

For a total of 14/16 correct.

Manipulative (Include a picture of the created manipulative): Rough Sketch of Game Manipulative (Group Practice, Station 2):



Idea from a host teacher: Alyson West at Perrymont Elementary. This teacher used similar board games to help reinforce certain concepts.

