Lesson Plan Format

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Grade Level 3 Subject Math Supervisor Dr. Place

PRELIMINARY PLANNING

PA Standards: 2.9.3 Geometry
B. Build geometric shapes using concrete objects.

Pre-assessment:

In the previous class, we learned about triangles and exactly about their shape, such as they have three sides and three angles. I assessed the students in that lesson and at the beginning of this lesson I will ask questions to review the information from the previous lesson.

Objectives:

Students will be able to discover that it is not possible to construct some triangles from given lengths, discover a rule that states whether or not it is possible to construct triangles from given lengths, and learn about the perimeter of a triangle by designing paper triangles of different lengths until consensus is reached on the relation of leg lengths and triangle shape.

Individual Modifications:

For students who have difficulty with problem solving and math reasoning, I am using manipulatives to help students understand and we will have demonstrations and discussions out loud. For my advanced learners, at the end of the lesson, I will group them together when they are using the spinners. Then I will give perimeters to the students to see if they can figure out the length of the sides to make equilateral, isosceles, and scalene triangles.

Materials:

- What's Important about Triangles? Activity Sheet
- Tape
- Scissors
- Spinner with numbers 1 through 6

LEARNING SEQUENCE

INTO

1. To review, display various triangular shapes and **ask how do you know that these shapes are triangular?** The following properties of triangles should emerge from this discussion: three sides, three corners and angles, straight rather than curved sides. *
2. Then ask the question- **Can any three lengths be the sides of a triangle? Why or why not?** Ask students to record their predictions in their math journal.

THROUGH

1. Distribute the What's Important about Triangles? Activity sheet to each student. Students should measure, fold and tape each strip to make a triangle, if possible.
2. Have a class discussion, after the class is done cutting triangles. **Ask students to tell what happened when they made the triangles.***
   - **Which measurements were possible?**
   - **What discoveries were made about the lengths of the sides of the triangles?**
3. Guide students into seeing that the two smaller sides must have a sum that is greater than the largest side. On the activity sheet, figures C, E, and F will not form triangles. Explain why by example (C= 4+5=9 and the longest side is 9, E=4+4=8 and the longest side is 8, F= 4+2=6 and 7 is the longest side- it needs to be larger).
4. Triangles A and H are equilateral triangles. **Ask the students what they think an equilateral triangle is?** (It is a triangle where all the sides are equal measure).
5. Triangles D and G are isosceles triangles. **Ask the students what they think an isosceles triangle is?** (It is a triangle in which 2 sides are the same measure).
6. Triangle B is a scalene triangle. **Ask students what they think a scalene triangle is?** (Triangle with 3 different measured sides but the two smaller sides need to add up to a number larger than the longest side).
7. Put students into groups of three. Give each group a spinner. Have each student spin for three numbers, then state whether or not these numbers will form a triangle. If it does, what kind- equilateral, isosceles, and scalene.*

BEYOND

1. End class with a review of triangles*. Ask questions such as:
   - **What is a triangle?**
   - **How can we classify triangles based on their sides?**
   - **How can we classify triangles based on their angles?**
2. Then ask the class again: **Can any three lengths be the sides of a triangle? Why or why not?**
3. **What patterns did you notice for the lengths of the sides of the triangle?** (Students should see that the 2 smaller sides must have a sum that is greater than the largest side).
4. In the student's journal have them record the answer for the following question*: **how many isosceles triangles you can form from a perimeter of 24 cm if each side must be in whole numbers?** (5 triangles- the sides of the triangle will be 11,11,2; 10,10,4; 9,9,6; 8,8,8; 7,7,10)

POST INSTRUCTIONAL PLANNING

1. What levels of thinking (Bloom) did your lesson incorporate?
   Knowledge is used because I am asking students to recall information from past lessons and from class work. Comprehension is used because I am asking students questions about what they realized about the lengths of legs in relation to the triangles. Also, I am giving them a perimeter and having them create a triangle with the right leg lengths. Analysis is also demonstrated because the

students are deciding leg lengths for the triangles from its perimeter and they can create different ways to form a triangle.

2. How did you evaluate your students' performance?

To evaluate the students' performance, I will walk around to observe what the students are doing in their group work and while they are individually making triangles. Furthermore, I will ask the students questions throughout the lesson. At the beginning of the lesson, I will review what we learned in the previous lesson about triangles. At the end of the lesson, we will review what we went over in class.

3. In what ways have you included safeguards that all children will learn including second language learners and special needs students?

There is a bulletin board for my second language learners with all the vocabulary from this section. Furthermore, the students who have difficulty problem solving will have an easier time with this lesson because they are able to use a concrete materials to form their own triangles and we will have discussions about what they observe.

4. Total Participation Techniques: How did you make sure all students were engaged in your lesson? Mark high-engagement strategies with an asterisk.

All the students are involved because I am asking the whole class questions and also they are all participating in making triangles with paper so they can see that the legs of a triangle can only have certain lengths. In addition, the students will work in groups with the spinners to work to see if the lengths will form a triangle.

5. Describe the instructional modes that you used in each of your activities (VAKT). Vary these in each lesson.

Visual- This is used because there are squares to count out the squares for the triangle lengths. The students are able to see how many squares are in each which may help them in seeing the relation between triangles and lengths of the legs.
Auditory- This will be used because the students need to listen to me ask questions and we will have class discussions as well as individual discussions.
Kinesthetic- This will be used when the students are forming their triangles and they will be able to move into groups to work with the spinners.
Tactile- In this lesson, I am using paper so they can make their own triangles of different sizes.

6. Describe the changes you would make if you taught this lesson again.

Works Cited

"What Does it Take to Construct a Triangle?" Illuminations. <http://illuminations.nctm.org/LessonDetail.aspx?ID=L795>.