

1. Lesson Plan Information	
Subject/Course: Mathematics	Name: Adapted from Ms. Arnott
Grade Level: 3	Date: September 15-19
Topic: Geometry and Spatial Sense: 2D Geometry Triangles	Time and Length of Period: 1:15pm -2:00pm (45 min.)

2. Expectation(s) and Learning Skills
<p>The students will:</p> <ul style="list-style-type: none"> • Compare two-dimensional shapes and three-dimensional figures and sort them by their geometric properties. • Learning Skill: Students will learn to disagree in agreeable ways <p>Today, students will: Compare 2-D shapes (triangles, circles, squares) according to two or more attributes (e.g., closed, number of sides, angles, vertices)</p>

3. Pre-assessment								
<p>A. (i) Students</p> <ul style="list-style-type: none"> • Have already experienced 2D and 3D circle/sphere and square/cube • Have some experience working in groups but several students are having difficulty letting all members have a turn <p>(ii) Differentiation of content, process, and/or product (may be accommodations and/or modifications)</p> <ul style="list-style-type: none"> • Must pay attention to R. and H. who sometimes take over their respective groups. I will check in with their respective groups several times during the task to help them share the responsibility for the work. • S. and S. T. may need additional encouragement with the application task – will touch base with them at the beginning of the task 								
<p>B. Learning Environment</p> <ul style="list-style-type: none"> • Each task will be introduced in large group with the usual classroom layout but the students will quickly move into small groups to complete the tasks; ten minutes before the end of the lesson each day, the students will move back into a large group on the carpet area to take up that particular day's responses • The usual six clusters of tables will be used but the students have to move to their pre-assigned Math groups which are posted on a chart at the front of the room. Math groups differ from their usual seating groups. 								
<table border="1"> <thead> <tr> <th>Group 1</th> <th>Group 2</th> <th>Group 3</th> <th>Group 4</th> </tr> </thead> <tbody> <tr> <td>Susan Jennifer Michael Michelle Aja Joey</td> <td>Richard Barlow Cher Christine Jeffrey Haley</td> <td>Henry Ruben Christopher Hans Sharon Rose Marie</td> <td>Susan T Hayden Babac Devon Denver Sarah</td> </tr> </tbody> </table>	Group 1	Group 2	Group 3	Group 4	Susan Jennifer Michael Michelle Aja Joey	Richard Barlow Cher Christine Jeffrey Haley	Henry Ruben Christopher Hans Sharon Rose Marie	Susan T Hayden Babac Devon Denver Sarah
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C. Resources/Materials

- Blackboard and chalk (different colours) for introduction and closure
- Flipchart paper and markers
- Masking tape
- Math Learning Logs
- Special Challenge Task for students who complete their task early
- Task Cards

- **Task #1 (Red):**
 - large collection of various types and sizes of 2D triangles in a storage bin
 - a few 2D angles – open at one end
 - several circles and squares
 - a few random closed shapes
 - 1 clipboard at each task with worksheets (attached) for each group member
 - chart paper

- **Task #2 (Blue):**
 - 5 identical circles, 5 identical squares and 5 identical triangles in a storage bin

- **Task #3 (Green):**
 - large collection of various sizes and types of triangles in a storage bin

- **Task #4 (Yellow):**
 - large collection of magazines and catalogues (so that each group has some choice), glue sticks

4. Content (The What)

1. Identification of 2D triangles
2. Attributes of 2D triangles: 3 sides, 3 vertices, 3 angles, closed
3. Comparison of triangle with circle and square (sides, vertices, angles, closed)
4. Exploration of uses of triangles in our world
5. Development of the concept “a triangle is a triangle” if it has the required attributes
6. Definition of a triangle: “a closed figure with 3 sides, 3 angles and 3 vertices”

5. Teaching/Learning Strategies (The How)

Teacher Role

(i) Introduction of the Activity, Routines and Procedures

(45 min.)

Day 1: Introducing the activity

In the regular classroom setting briefly introduce the concept of triangle.

“By the end of this week we will discover one of the greatest ways to support mass, design a work of art and learn about one of the most functional shapes in the earth. Believe it or not what’s in this box (invisible) is the key to our succeeding to do these things. Any guesses?”

On the front blackboard list what they already know about triangles.

Direct students into their 4 pre-assigned math groups. “When I say Groups stand up and take your pencils to the place your Math group meets. Sit quietly in the group and listen for further instructions.”

Explain the four colour-coded activity locations around the room. For day 1, the Red area represents Group #1; the Blue – Group #2; the Green – Group #3 and the Yellow – Group #4. Explain the task at each location (refer to routines).

Inform the students that over the next four days each group member must complete all 4 tasks.

Routines

- A) Clarify the expectations while working at each Math location (cooperation, responsibility, tidying up the area when completed)
- B) Clearly outline the requirements at each of the Math locations. Refer to task cards (cards 1-4 attached)

Task #1 (Red)

1. Sort the shapes into triangles and not triangles
2. Use as many different sorting methods as you can
3. Record the sorting methods you used on the chart paper
4. Be prepared to explain your group’s methods of sorting

Task #2 (Blue)

1. Compare the shapes in your bin
2. Complete the chart on your worksheet [Number of Sides, Number of Angles, Number of Vertices (points), Open/Closed, Uses in the World]

Task #3 (Green)

1. Closely observe the triangles in your bin
2. Based on your observations and as a group write a definition for a triangle on the chart paper. Your definition should answer the question: “What is a triangle?”

Task #4 (Yellow)

1. Cut out as many different sized and shaped triangles as you can from the catalogues and magazines
 2. Glue the triangles to your group’s chart paper titled, “TRIANGLES”
 3. In your Math learning log record what you found out about triangles at this activity
- C) Inform the students that they must complete their own activity.
 - D) Explain that if a group completes a task early and has been checked for success that the group members can begin the special challenge task located at each location. If they begin the special challenge task they will need to pick up the special challenge worksheet, “Triangles Everywhere” from the front of the room. (Find 5 different triangles in the classroom and record your findings using words and diagrams.)
 - E) All signed worksheets for the different tasks should be placed in the “In Basket” at the completion of the activity time
 - F) When instructed, meet at the carpet for group discussions at the end of the activity time.

Procedures

- a. Introduce the tasks
- b. Circulate among the groups giving support, assistance and encouragement
- c. Ask key questions to encourage collaborative efforts and to elicit the attributes of a triangle e.g. How did you decide which shape was a triangle and which was not? (Task #1). What are the attributes of a triangle? (Tasks #1, #2, #3, #4). How are the square/circle and triangle the same and different? (Task #1, #2)
- d. Pay attention to R. and H. as they have agreed in their respective conference times to let others have a turn being leaders and have examples of how to disagree in agreeable ways.
- e. Ensure each student is participating in the task (watch for S. and S. T.)

ii) Lesson Conclusion (2 min.)

At the end of each day, the members of each group will be asked to share some of their findings about triangles: What attributes have they identified about triangles in their group? What is a triangle? Their responses will be summarized on the board.

6. Assessment (Collection of Data) / Evaluation (Interpretation of Data)

As the teacher moves around the classroom, observations will be recorded on the checklist. The students completed worksheets and Math learning log from the four tasks will demonstrate whether they can identify attributes that describe triangles (closed, 3 sided, 3 angles, 3 vertices). In addition, the closing discussion at the end of each day will also indicate the students' understanding of the various attributes.

7. Student Teachers' Reflections on the Lesson

A. (i) Evidence of Student Learning Related to Lesson Expectation(s)

Day 1: Most students were able to work with their group. R. and H. were cooperative and let others have a turn being leader. S. was participating in the task. However, S.T. wasted her time unless I was standing beside her. One group finished early. They began working on the special challenge.

During informal teacher observation all students were able compare 2-D shapes according to two or more attributes.

S. and S.T. were able to complete tasks with minimal assistance.

Many examples of positive efforts to disagree in agreeable ways were discussed after the activity.

Day 2: ...

(ii) Next Steps for Student Learning Related to Lesson Expectation(s)

Day 1: Tomorrow, start off class with some simple review questions.

Day 2: ...

B. (i) Evidence of the Effectiveness of the Student Teacher

Day 1: The task cards were clear. I should laminate them. I was able to get around to all of the groups to ensure that the students were able to complete the task. The timing was good. I forgot to use my checklist to record my observations.

I need to continue to monitor S.T. for the entire time to ensure that she is on task. I will conference with her at the beginning of the class to ensure that she understands the expectations. I will continue to check on S., R. and H. as well.

Day 2: ...

(ii) Next Steps Related to the Effectiveness of the Student Teacher

Day 1: I will be sure to keep my checklist with me as I move around the classroom. I will plan to observe those students in Groups 1 and 3 tomorrow. The next day I will observe students in Groups 2 and 4. This will ensure that I have observed all students during this activity.

Day 2: ...