

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 Triangles	Time and Length of Period: 1:15pm -2:00pm (45 minutes)

2. Expectation(s) and Learning Skills
The students will:
<ul style="list-style-type: none"> Compare two-dimensional shapes and three-dimensional figures and sort them by their geometric properties. Learning Skill: Assist group members when they ask for help and support to learn to take turns
Today students will...
<ul style="list-style-type: none"> Compare 2-D shapes (triangles, circles, squares) according to two or more attributes i.e., closed, number of sides, angles, vertices

3. Pre-assessment																												
A. (i) Students																												
<ul style="list-style-type: none"> Have already experienced 2D and 3D circle/sphere and square/cube Have some experience working in groups but are having difficulty letting all members have a turn 																												
(ii) Differentiation of content, process, and/or product (may be accommodations and/or modifications)																												
<ul style="list-style-type: none"> Must pay attention to R. and H. who sometimes take over their respective groups – check during application task S. and S. T. may need additional encouragement and examples with the application task – will touch base with them at the beginning of the task 																												
B. Learning Environment																												
<ul style="list-style-type: none"> Begin the lesson in large group with the usual classroom layout but will be moving into small groups for the application components of the lesson 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 board. This will require a transition from their usual seating groups. I will use the blackboard, overhead and screen at front of room during the lesson 																												
<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</td> <td>Richard</td> <td>Henry</td> <td>Susan T</td> </tr> <tr> <td>Jennifer</td> <td>Barlow</td> <td>Ruben</td> <td>Hayden</td> </tr> <tr> <td>Michael</td> <td>Cher</td> <td>Christopher</td> <td>Babac</td> </tr> <tr> <td>Michelle</td> <td>Christine</td> <td>Hans</td> <td>Devon</td> </tr> <tr> <td>Aja</td> <td>Jeffrey</td> <td>Sharon</td> <td>Denver</td> </tr> <tr> <td>Joey</td> <td>Haley</td> <td>Rose Marie</td> <td>Sarah</td> </tr> </tbody> </table>	Group 1	Group 2	Group 3	Group 4	Susan	Richard	Henry	Susan T	Jennifer	Barlow	Ruben	Hayden	Michael	Cher	Christopher	Babac	Michelle	Christine	Hans	Devon	Aja	Jeffrey	Sharon	Denver	Joey	Haley	Rose Marie	Sarah
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C. Resources/Materials																												
<ul style="list-style-type: none"> Overhead projector and screen Blackboard and chalk (different colours) Flipchart paper and markers 																												

- Masking tape
- Cardboard shapes for use with overhead
 - 10 triangles – various types and shapes
 - 2 angles (open at one end), 1 circle, 1 square and 5 random closed shapes
 - pictures of different triangles and shapes
 - 4 catalogues or magazines per group
 - 6 clipboards with worksheets (attached) for each group
- Comparison of shapes chart previously completed

4. Content (The What)

Teaching/Learning Strategies (The How)

A. Introduction (motivational steps/hook/activation of students' prior knowledge)

(2-3 min.)

Best Guesses re: mystery item
(Triangle in the box)

Use a pantomime to have the students predict the mystery item (triangle).

“By the end of this class we will have discovered one of the greatest ways to support mass, designed a work of art using a single shape and learned about one of the most functional shapes on earth. Believe it or not, what’s in this box (invisible) is the key to succeeding in doing these things. What might be in this box?”

Take their preliminary guesses but let them know you will come back to their responses at the end of the class.

B. Content for New Learning

1) Identification of 2D triangles

2) Attributes of a triangle:

- 3 sides
- 3 angles
- 3 vertices
- closed shape

B. Teaching/Learning Strategies for New Learning

(25 min.)

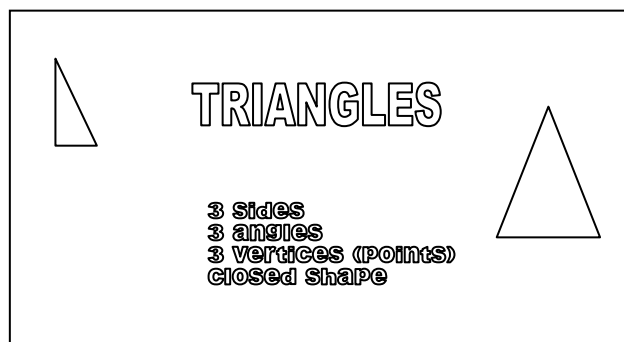
1) Place three 2D shapes, two of which are triangles, on the overhead.

Ask: “Which shape does not belong? Why not?”

Repeat three times with different groups of shapes on the overhead. Repeat questions: Which shape does not belong? Why?

2) Ask: “How did we know which shapes were triangles?”

Establish the attributes three sides, three angles and three vertices. Develop flip chart on the attributes as identified by the students.



- closed figures

3) Identification of different types of triangles

- a) different sizes
- b) different types

Concept: A triangle is triangle if it has the four attributes.

4) Comparison of triangle with other known shapes (2D circle and square):

- a) similarities
- b) differences
- c) its uses in our world

Use overhead with examples of 2D triangles and angles. Decide which are triangles and why by asking questions: "Which of these shapes are triangles? Why?"




Repeat if necessary with other examples until the concept of "closed" develops. Establish the notion of an "open" figure and "closed" figure. Add the word, "closed" to the chart.

3) Use prepared flipchart pages (already posted at front of room but folded up) with different sizes and shapes of triangles. Fold down one at a time to develop the idea that a triangle is still a triangle if it has the above attributes.

"Is this a triangle?" Why?"

I will not teach the names of the triangles but if a student comes up with a name we will acknowledge it. Show pictures of bridges using triangles for support.

4) Refer to yesterday's chart developed with Mr. T. and review the attributes of the circle and square. Add the triangle and compare its attributes to the other figures. Elicit similarities and differences and its uses in our world. Discuss every day things they know about triangles i.e., Bermuda Triangle.

2D Figures					
Shape	# of Sides	# of Angles	# of Vertices	Open/ Closed	Uses
Circle 	1	0	0	closed	Wheel
Square 	4	4	4	closed	
Triangle 	3	3	3	closed	

5. Consolidation/Recapitulation Questions (Check for understanding / scaffolded practice)

(4-5 min.)

Elicit from the students their perception of the definition of a triangle. Write on flip chart #1 Attributes Chart.

“What is a triangle?” (Definition of a 2D triangle: “A closed figure with 3 angles, 3 vertices and 3 sides.)

Go back to invisible mystery box and identify the mystery shape.

“What do you think is in our mystery box? Why?”

Show 3 figures on the overhead – a circle, a shape and a triangle. Ask: Which is the triangle and why?

6. Application (Moving from guided, scaffolded practice to increasingly independent practice and understanding / gradual release of responsibility)

(10-12 min.)

Pick a different student to provide each of the four attributes developed in the lesson. Repeat overhead display using 2 triangles and one angle. Have the students identify the triangles. Pick a different student to provide each of the four attributes developed in the lesson.

In just one minute when I say, “Groups,” stand up, take your pencils, highlighters and scissors and move quickly and safely to the place your math group meets. Review the members in each group from the chart on the front board and the designated space for each group. Sit in your designated group quietly and listen for further instructions. “Groups.” Explain that they are to do the following: (Have the major points recorded on front board):

1. Each group is to complete one worksheet.
2. Write names and date on the top of the worksheet.
3. Identify six triangle shapes in the classroom surroundings and record their findings on the front of the worksheet.
4. Make a triangle collage on the back of the worksheet. Go through the catalogues and magazines cutting out different triangles. Be creative! Use your highlighter to highlight one of the attributes on each triangle. Print the attribute on that triangle (i.e., closed, 3 sided, 3 vertices, 3 angles).
5. The students have approximately 10 minutes to complete the two tasks. Completed sheets are to be put in the in-box on the front table. If any group finishes early, they may take an activity from the extra challenge box.

While the students are working in their groups they may ask others in the group for help. I will circulate to encourage S. and S. T. to engage in the task and if necessary re-focus R. and H. on the need to cooperate.

Teacher will collect the completed worksheets.

7. Lesson Conclusion

(2 min.)

The teacher asks “What did we learn today about comparing 2-D shapes according to two or more attributes?”

8. Assessment (collection of data) / Evaluation (interpretation of data)

Informal observations of students completing the comparison chart will demonstrate their understanding of square, circle and triangles.

The students’ completed worksheets will demonstrate whether they can identify attributes that describe 2D triangles (closed, 3 sided, 3 angles, 3 vertices).

The recording device will be a checklist.

9. Student Teachers’ Reflections on the Lesson

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

Most students were able to identify and describe the attributes of a triangle. S. and S.T. will need some additional reinforcement. During informal teacher observation all students were able to identify circles, squares and triangles in their environment. During observation, S and S. T. had difficulty identifying and describing attributes of a triangle. Students did well with taking turns during group work.

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

I need to spend some time with S. and S. T. to review triangles so that language to identify the attributes of triangles is familiar and easily recalled.

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

Generally the lesson went well. Including some pre-planned questions was valuable. I noticed that when I did not pre-plan them, I fumbled to find the right words. Timing was good. The data gathered on the checklist, indicated that all students were able to meet the stated expectations for the lesson.

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

I will be sure to pre-plan all my questions for further lessons.