Try This Triangle Out For Size

Summary

Three different activities reinforce the student's understanding of triangles.

Main Core Tie

Mathematics Grade 4

Strand: GEOMETRY (4.G.) Standard 4.G.2

Additional Core Ties

Mathematics Grade 4

Strand: GEOMETRY (4.G.) Standard 4.G.1

Group Size

Large Groups

Materials

Invitation to Learn
- Chenille stems
- Bubbles

Which Triangle Is It?
- Drinking Straws
- Scissors
- Ruler
- Paper Clips
- *Which Triangle Is It?*

Dribble, Shoot, Score
- *Dribble, Shoot, and Score*
- Basketball and Hoop
- Measuring tape
- Yarn
- Glue
- Scissors

Trianglo
- *Trianglo*
- Bingo chips

Additional Resources

Books

Triangles, by Esther Sarfatti; ISBN 978-1-60044-669-6

A Triangle For Adaora, by Ifeoma Onyefulu; ISBN 978-1-84507-738-9

Triangles, Seeing Triangles All Around Us, by Sarah L. Schuette; ISBN 0-7368-5063-5

Triangles around Town, by Nathan Olson; ISBN 978-0-7368-6373-5

Background for Teachers

Students need to understand that polygons are closed plane figures made up of line segments. The attributes of polygons vary according to the number of sides and types of angles they contain. Students need to learn that prefixes indicate the number of sides of a polygons. Those prefixes

include the following: tri -- three, quad -- four, pent -- five, hex -- six, and oct -- eight.

Intended Learning Outcomes

4. Communicate mathematical ideas and arguments coherently to peers, teachers, and others using the precise language and notation of mathematics.
5. Connect mathematical ideas within mathematics, to other disciplines, and to everyday experiences.

Instructional Procedures

Invitation to Learn

Students need to make a right, equilateral, and isosceles triangle by using three pieces of chenille stems. Once the shapes are made, they will be used as bubble wands. Predict which triangle will make bigger bubbles. Place each wand into a soapy bubble solution and blow bubbles out. Discuss which triangle worked out better for students.

Instructional Procedures

Which Triangle Is It?

- Cut the 9 plastic straws into the following segments: 1 straw -- 4 inches, 5 straws -- 6 inches, 2 straws -- 7 inches, and keep one at full length.
- All of the paper clips (9) need to be opened up.
- To make a right triangle, insert one bent end of each paper clip into the following straw segments: 2 -- 7 inch straws and the full length straw.
- To make an equilateral triangle, insert one bent end of each paper clip into the following straw segments: 3 -- 6 inch straws.
- To make an isosceles triangle, insert one bent end of each paper clip into the following straw segments: 2 -- 6 inch straws and 1 -- 4 inch straw.
- Students then will trace each triangle into their math journals. They need to indicate the length of each side and type of angles it has. Finally, students need to write the name of the triangle below the tracing. These triangles need to be placed in a pocket that students have created inside of their math journals.
- Students will use the information now recorded in their math journals to create a bar graph found on Which Triangle Is It? They will indicate how many sides, equal sides, and types of angles each triangle has. Use the color code for each bar found on this worksheet.

Dribble, Shoot, Score

- Place several miniature basketball hoops around the classroom.
- Divide students into groups and assign them an area around one of the miniature basketball hoops.
- The basketball hoop will serve as one point of the triangle. Two other students will represent the other two points of a triangle. Groups will use a measuring tape to place these students at the appropriate places to create a right, equilateral, and isosceles triangle.
- After each triangle is created, students will connect yarn between the basketball hoop and the two people. This will help them visualize what these triangles look like.
- Students will cut out the basketball hoops found on *Dribble, Shoot, and Score* page.
- Using the basketball hoop as a triangle point, students will create their own right, equilateral, and isosceles triangles in their math journals.

Trianglo

- Students are given a *Trianglo* card and 25 bingo chips.
- Teachers will show students a picture of a real world item that contains some type of triangle in it. These triangles can either be classified as right, isosceles, or equilateral.
- Students will determine which triangle it is and then place a bingo chip on a square that contains that triangle's name.

The student that has bingo chips placed in five squares straight across, down, or diagonally calls out "trianglo".

Extensions

Curriculum Extensions/Adaptations/ Integration

Buy a disposable camera for the class. Instruct students that they will receive the camera for one night. On the night that it is their turn students will take the camera home and photograph a picture of a triangle in the real world. After each student has had a turn then get the film developed. Using the pictures they took, students will create a classroom book about classifying triangles.

Family Connections

Have students write an article on how to make a sandwich. Students need to include how to cut the sandwich into one of the triangles they have learned about. After they write the article have students go home and actually do it. Students' parents must report back to the teacher on how it went.

Assessment Plan

Give students a sheet of drawn triangles. Have students cut these shapes out. Once students cut the shapes have them classify each triangle as either being right, isosceles, or equilateral. Using a Zoome Tool Kit students need to create objects made up of all triangles. Once their object is finished they must classify the triangles found within it.

Bibliography

Research Basis

Boaler, J. (1998). "Open and Closed Mathematics: Student Experiences and Understandings." *Journal For Research in Mathematics Education*. 29(1) 41-62.

It is difficult for students to transfer classroom-learned math to situations in the real world. Teachers could help students overcome this by using different teaching methods to conquer math concepts. Math will become more exciting for students as they are given practical and investigative assignments. Students are challenged as they learn how to use their math knowledge in real world experiences.

Moyer, P. S. (2001). "Are We Having Fun Yet? How Teachers Use Manipulatives To Teach Mathematics." *Educational Studies in Mathematics*. 47(2) 175-197.

It has been proven that math manipulatives benefit students. Manipulatives need to be consistently and effectively used in the classroom. They show representations of abstract math concepts to our students. With the help of manipulatives, teachers also can make connections between a student's newly acquired math knowledge to those concepts once learned. It is up to the teacher to consistently learn new ways to implement the manipulatives into daily math instruction.

Authors

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