Shapes Galore

Summary

The activities in this plan help students recognize geometric shapes and classify them according to the number of sides, angles or faces, edges, and vertices.

Main Core Tie

Mathematics Grade 2

Strand: GEOMETRY (2.G) Standard 2.G.1

Materials

Invitation to Learn
- Object from home
- Word Cards
- Sticky notes
- Table

Compare/Contrast Shapes
- *Venn Diagram*
- *Word strips*
  - Label for shapes
  - Picture of shapes

Shape Concentration
- *Shape Definition Cards*
- *Shape Word Cards*
- *Shape Picture Cards*

Shape Bingo
- *Bingo Cards*
  - Bingo Chips
- *Shape Word Cards*
- *Shape Definition Cards*

Shape Walk
- *Shape Walk*
  - Clipboard

Pattern Block Picture
- Pattern blocks
- Paper
- Glue

Journal Activities
- *Picture Dictionary*
- *Venn Diagram*
- *Mathematical Term*

Centers Full of Shapes
1. Geoboards
   - Geoboards
   - Geobands
   - Geometric shape cards
2. Sorting Shapes

Geometric shape photos

3. Shape Cover-Up
   - *Triangle Cover-up*
   - *Hexagon Cover-up*
   Pattern blocks
4. Shape Detective
   - Clue Cards
   Geometric shape chart
   - Shape Detectives
5. Shape Rubbings
   Die cut shapes
   Glue
   Paper
   Crayons
6. Tangram Letters and Numbers
   Tangram shapes
   - *Tangram Chart*
7. Last Block
   - *Shape Definition Cards*
   - *Shape Word Cards*
   - *Shape Picture Cards*
   Pattern blocks
   - *Last Block…*
8. Pattern Block Game Board
   - Blank game board
   Shape stamps
   Gamepad markers
   Pattern block dice

Additional Resources

Books

Shapes and Patterns, by Jerry Pallotta; ISBN 9780545002400
The Greedy Triangle, by Marilyn Burns; ISBN 0590480017
Bear in a Square, by Stella Blackstone; ISBN 1846860555
Circles, Triangles and Squares, by Tana Hoban; ISBN 0027448304
Circus Shapes, by Stuart J. Murphy; ISBN 0064467139
Round Is A Mooncake: A Book of Shapes, by Roseanne Thong; ISBN 978-0439318327
Cubes, Cones, Cylinders, & Spheres, by Tana Hoban; ISBN 978-0688153250
Captain Invincible and the Space Shapes, by Stuart Murphy; ISBN 978-0064467315

Background for Teachers

Students will be able to recognize the characteristics of the various geometric shapes. They will be given many opportunities to classify shapes according to the number of sides, angles or faces, edges, and vertices. Students should be given opportunities to find shapes in their environment. They will be able to communicate the attributes of the different shapes.

Intended Learning Outcomes

1. Demonstrate a positive learning attitude.

5. Understand and use basic concepts and skills.

Instructional Procedures

Invitation to Learn

Students will bring an object from home. (The object needs to be a geometric shape: square, circle, triangle, rectangle, trapezoid, rhombus, parallelogram, pentagon, hexagon, cube, sphere, cone.)
Write the name of the object on a sticky note and place it on the graph.
Discuss the findings of the graph.
Place the objects in a shape museum. This can be any place in your classroom that the students can go and visit and look at the different shapes.

Instructional Procedures

Compare/Contrast Shapes

Select 2 shapes such as a square and triangle or a trapezoid and rectangle.
Divide the class into 2 groups. Have one set of students write an attribute on a word strip for one of the shapes and the next set of students write an attribute on a word strip for the other shape.
Place the word strips on the Venn Diagram Pocket Chart under the correct shape. Review the attributes to make sure they are correct. Discuss the attributes with the students.
Review the attributes. If there are any word strips that are the same on both sides, place them in the middle of the Venn Diagram. Discuss how some shapes have attributes that are the same and others that are unique to that shape.

Shape Concentration

Play concentration with 2 of the sets of Shape Cards. Place the cards in a 3 x 3 array. Place the rest of the cards in a draw pile. Children take turns turning over 2 cards at a time. If the cards match the name with the definition or the picture, it is a match and the child keeps the cards. The empty spaces are filled with 2 cards from the draw pile. Play continues until all the cards have been matched.

Shape Bingo

Each child has a Bingo Card. As a shape or definition is read the student places a bingo chip on that space. After a row is complete, the students calls out Shape Bingo. Students need to name the shapes in their winning row and/or an attribute of each shape. Do the activity several times.

Shape Walk

Students will go on a Shape Walk around the classroom, school, or neighborhood.
As students locate a shape they can write or draw it on their recording sheet.
As the students are on their Shape Walk they can sing the Shape Hunt Chant.
Shape Hunt Chant
(Adapted from the traditional children's song Going on a Bear Hunt)
Going on a shape hunt,
Leaving right away.
If it doesn't rain,
We'll stay all day.
Teacher: *Do you see a circle?*
Students: Yes, we see a circle.
Going on a shape hunt,
Here we go.
After the Shape Walk, discuss the different shapes that they observed. Which shape was the most common shape found? Which was the shape most difficult to find?

Pattern Block Picture

The students will create a picture or design using the various pattern blocks shapes.

Journal Activities

Picture Dictionary - Draw a picture of the shape and write 1 or 2 attributes for each shape.

Venn Diagram - Choose 2 geometric shapes. Write 3 or 4 attributes for each shape. If they have any of the same attributes place them in the center of the Venn Diagram.
Mathematical Term - Worksheet is divided into 4 squares. In the first square they write the word of the shape. In the second square they write the definition. In the third square they draw a picture of their shape, and in the last square they draw an example of that shape.
Centers Full of Shapes

1. Geoboards
   Students will use the geometric shape cards to create the various shapes on their geoboards.
2. Sorting Shapes
   Students will sort photographs of geometric shapes found in their environment.
3. Shape Cover-Up
   Use the pattern blocks to cover the large triangle or hexagon. Fill in the chart to show how many of each shape you used. Cover the shape again using a different combination of shapes. Complete the graph on your worksheet.
4. Shape Detective
   Choose a card and read the clues. Looking at the shape chart find which one fits the clues. Record your answer next to the matching card number on the recording sheet.
5. Shape Rubbings
   Choose 4-6 shapes. Glue them onto your paper making sure that they overlap on one side or corner.
   Place a piece of paper over your shape design. Choose 3 or 4 different colors of crayons, then rub them over the paper.
6. Tangram Letters and Numbers
   While looking at the chart or pictures, create the various numbers and letters using the tangram shapes.
7. Shape Concentration
   Play concentration with 2 sets of shape cards. Place the cards in a 3 x 3 array. Children take turns turning over 2 cards at a time. If the cards match the name with the definition or the picture it is a match and the child keeps the cards. The empty spaces are filled with 2 cards from the draw pile. Play continues until all the cards have been matched.
8. Last Block
   The object of the game is to be the last person to place a pattern block on the game board. Students play in groups of two. The student's name that comes first in the alphabet places the first block on the game board. They then take turns placing a pattern block on the game board. The last person to place the last block on their game board is the winner.
9. Pattern Block Game board
   Create a game board (use a file folder, game board, stickers or stamps). Two children play on a game board. The first child rolls the dice and moves to that space on their game board. It is then the next child's turn. The first child to reach the end of the game board is the winner.

Extensions

Curriculum Extensions/Adaptations/ Integration

List the attributes for a geometric shape.
Work with tangrams.
Write poems about the different shapes.

Family Connections

Go on a shape walk around your home or neighborhood.
Tell your family the different attributes for the various geometric shapes.

Create something using geometric shapes.

Assessment Plan

Have students draw the different geometric shapes for pre or post assessment.
Have students create a Venn Diagram using two different shapes.
Journal Activities.
Observe how the students participate in the various activities.

Bibliography

Research Basis

Van Hiele, P.M. (l999). Developing geometric thinking through activities that begin with play. *Teaching Children Mathematics*, February 1999, p. 310-316.

Van Hiele developed three stages of geometric thinking. The first level of thinking is called the visual level where figures are judged only by their appearance. Next, is the descriptive level where children are able to identify figures because of certain properties. Finally, there is the informal deduction level where students use knowledge about one figure to deduce information about another. In order for children to progress through these three stages, instruction should begin with inquiry or play.

Fennell, R. (1990) Implementing the standards. *Arithmetic Teacher*, p.18-22.

Francis Fennell emphasizes that classroom activities should involve physical material and provide opportunities for questioning, problem solving, and discussion.

Authors

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