Exploring Shapes

Common Core State Standard: 2.G.A.1 - Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

A. GRADE LEVEL: 1st–2nd Grade
B. SUBJECT: MATH
C. DATE:
D. DURATION: 2 days (45 minutes per day)
E. LESSON FOCUS:

- Properties of 2D and 3D shapes
- Recognizing shapes in buildings, objects, and design

F. MATERIALS:

- Construction paper (various colors)
- Scissors
- Glue sticks
- 3D shape models (cubes, spheres, pyramids, etc.)
- Shape flashcards (2D and 3D shapes)
- Printed pictures of buildings, objects, and designs
- Shape sorting mats

G. LESSON OBJECTIVES:

- Students will identify and describe basic 2D and 3D shapes.
- Students will recognize and classify shapes in real-world objects, buildings, and designs.
- Students will demonstrate understanding by creating their own shape-based designs.

H. PROCEDURES:

1. **INTRODUCTION (Day 1):**
    - Begin the lesson by discussing shapes, asking students to name some basic shapes they already know (e.g., square, circle, triangle, cube, sphere).
    - Introduce 2D shapes (circle, square, triangle, rectangle) and 3D shapes (sphere, cube, pyramid, cylinder) using shape flashcards and models.
    - Show pictures of buildings and everyday objects, pointing out the shapes that make them up (e.g., windows as squares, a ball as a sphere).
    - Ask students to describe the shapes they see in these images.
2. **EXPERIMENT (Day 1):**
    - Divide students into small groups and give them materials to cut and glue 2D shapes from construction paper (circle, square, triangle, rectangle).
    - Ask students to create a simple design (e.g., a house, car, or robot) using only 2D shapes.
    - After finishing their designs, students will share and describe their shapes and how they used them in their artwork.
3. **OBSERVATION (Day 2):**
    - On the second day, introduce 3D shapes by showing students 3D models (cubes, spheres, pyramids).
    - Have students handle the 3D models and observe their properties (e.g., a cube has 6 square faces, a sphere is round with no edges).
    - Show real-world examples of 3D shapes in buildings and objects (e.g., a basketball as a sphere, a building as a rectangle).

- Ask students to find and name shapes in the classroom or in a picture book.

4. **GENERALIZATION:**
   - Guide students to generalize that shapes can be found in the world around them, from the 2D shapes used in artwork to the 3D shapes found in buildings and objects.
   - Emphasize that 2D shapes are flat and can be seen from one side, while 3D shapes have depth and can be viewed from different angles.
   - Discuss how recognizing shapes helps in understanding the world and how people use shapes in design and construction.
5. **ASSESSMENT:**
   - Have students complete a shape sorting activity where they categorize pictures of real-world objects into 2D and 3D shapes.
   - Ask students to explain their choices, demonstrating their understanding of the properties of each shape.
   - Evaluate students based on their participation in the design activity and their ability to correctly identify and describe shapes.

Note 1 (Safety):
Ensure that students handle scissors carefully when cutting the construction paper. Supervise students closely while using scissors to prevent accidents. Remind students to cut away from themselves and keep their fingers away from the blades. When using glue sticks, remind students to only apply glue to the edges of shapes to avoid creating a mess.

Note 2 (Accommodation for ELL, ESE, etc.):
For English Language Learners (ELLs), provide a visual dictionary with pictures of the shapes and their names in both English and their native language. Use simple, clear language and repeat key vocabulary words (e.g., "circle," "square," "sphere") as you teach. Pair ELL students with peers who can help explain in simpler terms. For Exceptional Student Education (ESE) students, provide extra time for the activities and offer one-on-one guidance as needed. Use tactile materials (e.g., 3D models of shapes) to reinforce understanding for students with different learning needs.