Name: Leta Roberts

Grade Level/Subject: 2nd/ Mathematics

Topic: 3 dimensional shapes – Flat Stanley – Using Reading to help Teach Mathematics

State Competency (P.A.S.S.) – Grade 3, Standard 4.1.a – Describe and compare two- and three-dimensional shapes (e.g., count the edges and faces of a cube, combine or divide basic shapes to form new shapes)

Objectives: Students will be able to:
1. Determine the difference between two-dimensional and three-dimensional shapes.
2. Draw and name the following geometrical shapes: sphere, cone, cube, rectangular prism, pyramid, and cylinder.
3. List the number of faces, angles, edges, and vertices of each figure in a foldable.
4. Identify solid geometric figures in real world objects.
5. Write a summary of their work.

Time required: 3 days – 5 days/45 minutes each day

Materials and Resources:
- Flat Stanley by Jeff Brown
- Computer & SmartBoard for games and videos
- 3-dimensional solids
- Pattern blocks
- Geometric shape templates
- Newspapers and magazines
- Construction paper
- Nets of 3-dimensional shapes
- Scissors
- Glue

Vocabulary:
1. Three-dimensional – solids that have length, width, and height
2. Base – the face on which a solid stands
3. Vertex – the point where the rays of an angle meet
4. Face – the flat surface of a solid figure
5. Edge – where the faces of a solid figure meet
6. Net – a flat pattern that can be folded and glued to make a three-dimensional solid
7. Polyhedron – a three-dimensional shape with plane faces
8. Cube – a solid with 12 equal edges, 6 equal square faces, and 8 corners
9. Cylinder – a solid with 2 circular faces at right angles to a curved surface
10. Rectangular prism – a polyhedron whose base is a rectangle
11. Sphere – a solid with one curved surface and no corners or edges
12. Pyramid – a solid which has a polygon for a base and triangles for all the other faces
13. Cone – a solid which has a circular base and comes in to a point at the top
Introduction:
An enormous bulletin board falls on Stanley Lambchop and squashes him flat as a pancake. Stanley is now 4’ tall, about 1’ wide, and ½” thick. The story tells how Stanley’s life changes because of his new proportions and his adventures while his brother, Arthur, figures out how to return Stanley to his former proportions.

Instructional Process:
In small groups have the students construct a paper model of Stanley using the measurements given in the story.
1. Have the students determine other things that are ½” thick and list them on the board.
2. Discuss the idea of being only 1/2” thick and have students decide if Stanley could really stand by himself using the dimensions given in the book.
3. Discuss how Stanley changes throughout the book. Introduce the concepts of two and three dimensional shapes using numerous objects as manipulatives. Have students brainstorm lists of these two types.
4. Make a foldable for base, vertex, face, edge, and net.
5. Have the students count the number of faces, edges and vertices in each solid. Make a foldable to show these on a prism, cube, sphere, pyramid, cone and cylinder.
6. Make clay models of each solid.
7. Set up learning centers which include real world pictures of each shape; real items for each shape; nets of 3-dimensional shapes; Everyday Shapes from Learning Resources, Inc. and activity cards; worksheets from abc.teach.com; and web-based games.

Closure:
Use shapes and shape properties to describe selected objects in the classroom. Have students write a summary in their journal about solids and their properties. Learning centers set up around the room (examples included) will continue to reinforce concepts presented. I also showed a powerpoint (you can find these on the internet) of Flat Stanley visiting another country. It’s a great way to include social studies along with reading and math.

Technology: Web games -
- Game for sides and vertices.url
- Game for sides, vertices, edges and faces.url

Assessment: Pre-test, Post- test; Evaluate students’ foldables, their summary in their journal, and worksheets from learning centers.

Modifications/Accomodations – 1. Brainstorm on the SmartBoard, poster, or chalkboard to recall names of solids and their characteristics. This allows everyone in the classroom to contribute. 2. Work in small groups to decide what to write in journals. 3. Make a collage of pictures chosen from newspapers and magazines of real life objects. 4. Go on a geometric shape walk. Take the camera along with you and take pictures of real life objects. Upon returning to the classroom, print the pictures and make a booklet to show the solids. 5. Give more advanced students the opportunity to help any slower students with the 3-dimensional nets (sometimes 4 hands are needed to hold them together.)
**Reflection:**
My students enjoyed listening to the story and deciding if Stanley would actually be able to walk around and do the things it said he could in the book. I love it when reading a book sparks my students’ interest to learn about math. The students liked the hands-on clay modeling. Much more time could have been spent doing activities and foldables with my students, but I felt that this was a good introduction and will help the students when they reach third grade. The pre-test/post-test showed me that students need to review yearly what they were exposed to in previous grades. I know the previous teachers have spent time helping students learn 2-dimensional shapes yet many missed the simple ones on the pre-test. I was pleased with their post-test grades, but I realize that they won’t retain everything we discussed.