

## Shanyon Storey's Engaged Learning Project Draft

**Title of Project:** How Solid Is Your World? Or  
How Plane or How Solid Is Your Environment?

**Subject(s):** Math and Language Arts/ Writing (possibly Science)

**Grade Level(s):** Kindergarten, First, and Second Grade students with Learning Disabilities

**Abstract:**

*Kindergarten, First, and Second grade students will learn to distinguish between Solid (3-dimensional or 3-D) figures and Plane (2-dimensional or 2-D) shapes. Students will go on an expedition to identify solid and plane figures in their word/ environment after spending time manipulating solid blocks and plane shapes in the classroom and at home. Students will discover as many solid and plane shapes as they can during a staged expedition throughout the school building and playground. Students will take pictures of their discoveries using digital flip cameras from the school's media center. The teacher will enlist parent volunteers to record the students as they make their discoveries. Volunteers will use digital cameras from the media center as well. Students will write captions for the photos generated from the digital camera y using grade level conventions from the Language Arts Curriculum. Students will use a variety of technology to publish their writing. The final project will result in a class book, where each student will receive a copy.*

**Learner Description/Context:**

This project is geared towards students with learning disabilities in grades kindergarten, first and second.

The project will take place across several settings that include, but are not limited to: the classroom math period, the classroom language arts period, throughout the school building and school playground, and at home. It is the teacher's expectations that students will begin to recognize and distinguish solid figures and plane shapes in all environments including those outside of the school building, like on the way to and from school for example.

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Often, students with learning disabilities do not naturally express differences between a cube and a square, a triangle and a pyramid, or even a sphere and a circle. One idea is that during the kindergarten through second grade development, they will represent each of the aforementioned pairs by drawing the plane shape to represent both the solid figure and the plan shape. A circle is perfectly acceptable to represent a 3-dimensional ball when drawing. Even teachers use this same error in representation.

These concepts are important to teach, and it is easy to reinforce the school and home connection because students can recognize solid figures and plane shapes at school and at home. Parents are not required to spend any money to practice distinguishing these concepts. Parent and community volunteers do not require any special training to assist students in learning these concepts.

### **Time Frame:**

The projected time frame for this assignment is approximately 15 schools days.

Week 1: is the introduction and manipulation of solid figures and plane shapes phase. This phase will take place during the Math period only.

Week 2: is the extension phase where students will locate solid figures and plane shapes in the classroom during the Math period and at home by completing activities that promote family involvement. Additionally, Students will keep a daily log (like Scientist) in a writing journal where s/he will jot (write), or draw the solid figures and plane shapes recognized. Students will record her/his findings during the Language Arts period.

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Week 3: is where students will have a staged expedition or scavenger hunt to locate solid figures and plane shapes in the natural environment of the school building and school playground. The expedition will take place during one Math period. The writing and publishing will take place over the next 4-5 days during the Language Arts and Math periods. Since many students may not have the use of technology outside of class or school, the teacher will provide ample time for students to complete their projects that will span nine class periods (as needed). Students with disabilities may need additional time to manipulate technology.

### **Standards Assessed:**

#### **Kindergarten: Math**

**MCC.K.G.1:** Describe objects in the environment using names of shape, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.

**MCC.K.G.2:** Correctly name shapes regardless of their orientation or overall size.

**MCC.K.G.3** Identify shapes as two-dimensional lying in a plane, "flat") or three-dimensional ("solids").

#### **Language Arts/ Writing:**

**ELACCW2:** Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.

**ELACCKW6:** With guidance and support from adults, explore a variety of digital tools to produce and publish writing, including in collaboration with peers.

**ELACCKW8:** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

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### **First Grade:**

#### **Math**

**MCC1.G.1:** distinguish between attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size; build and draw shapes to possess defining attributes.

**MCC1.G.3:** Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prism, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

#### **Language Arts/ Writing:**

**ELACC1W2:** Write informative/ explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.

**ELACC1W5:** With guidance and support from adults, focus on a topic, respond to questions and suggestions from peers, and add details to strengthen writing as needed.

**ELACC1W6:** With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.

### **Second Grade:**

#### **Math**

**MCC.2.G.1:** Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangle, quadrilaterals, pentagons, and hexagons, and cubes.

#### **Language Arts**

**ELACCW2:** Write informative/ explanatory texts in which they introduce topic, use facts and definitions to develop points, and provide a concluding statement or section.

**ELACCW5:** With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing.

**ELACC2W6:** With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers

**Georgia NET-S Technology Standards.**

**1. Creativity and Innovation:**

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.

**3. Research and Information Fluency**

Students apply digital tools to gather, evaluate, and use information. Students:

**4. Critical Thinking, Problem Solving, and Decision Making**

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate tools and resources.

**5. Digital Citizenship**

Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

**6. Technology Operations and Concepts**

Students demonstrate a sound understanding of technology concepts, systems, and operations.

**Introduction: The Hook**

The teacher will read Harold and the Purple Crayon by Crockett Johnson. Students will discuss some images that Harold drew.

Teacher will continue the discussion to culminate with her asking students to draw a ball, which will most likely result in students drawing a circle. The teacher will ask students to draw a circle. Finally, the teacher will prompt students to distinguish between the ball (3-D) and the

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circle (2-D) that they drew. The teacher will introduce students to solid figures (3-D) and plane shapes (2-D).

**Lesson Sequence:**

Week 1:

Students will identify each solid figure and plane shape by:

- pointing to it (kindergarten),
- stating the name while pointing to it (first grade), or
- stating the name while pointing to it and by writing the correct name from a word bank (second grade).

Week 2:

- Students will record daily entries (like Scientist) in her/his Writing Journal.

Week 3:

- Students will take pictures of their discoveries of solid figures and plane shapes throughout the school build and school playground.
- Students will write captions for the photos generated from the digital camera by using a variety of technology.
- The students will turn in a student checklist that aligns with the teacher rubric (below)
- The teacher will use a rubric to grade the assignment  
The kindergarten rubric will have more pictures than words.  
The first grade rubric will have pictures and more words than the kindergarten rubric  
The second grade rubric will have more words than pictures
- The teacher will assess the writing (picture captions) by using grade level conventions from the Language Arts/ Writing Curriculum.

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### **Product:**

After students use technology to create captions for the digital images of the solid figures and plane shapes they found during the expedition/ scavenger hunt, and after each student writes a personal reflection of their experience, the teacher will print images with captions and arrange the pages to create a book.

The final project will result in a class book, where each student will receive a photocopy.

### **Which indicators of Engaged Learning will be high in this lesson and Why?**

Authentic/ Meaningful: Students will use real-world objects and relate them to the math standards. Students will naturally gravitate towards one or two concepts thus becoming the class expert in recognizing/ identifying, name or drawing specific solid figures and plane shapes.

Student as Explorer: The students' natural curiosity will start her/him on the path to locating solid figures and plane shapes, but her/his need for positive feedback and praise should engage her/him to find similarities and to notice differences. Students will begin to notice when the solids and figures are combined to make new creations (like the half sphere and the cone, like a cone with one scoop of ice cream on top, or a triangle on top of a square looks like the basic shape of a house). The students will transfer their knowledge to new areas of learning.

### **Which indicators would you like to strengthen?**

Challenging: I would love to see students with disabilities teach their peers without disabilities to distinguish these concepts.

Multi-disciplinary: Is there a way to relate this to science other than looking at these concepts as a scientist and recording data?

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Performance-Based: I would for students with disabilities to complete individual products with at least one technology component.

### **What LoTI level do you think this lesson would be and Why?**

The Instructional Model is a 3 at best, Authenticity is a 4 at best, Higher Order Thinking is pushing a 2, and Tech use is a 2 at best; therefore; I will have to rate this at a LoTi 2 although it most likely is a Loti 1.

### **What help would you like to receive from us?**

Sometimes working with students with disabilities keeps me from seeing other possibilities. I am open for suggestions, especially for increasing technology use and for making it more challenging. This isn't a difficult or challenging topic for students in general, but students with learning disabilities struggle with distinguishing solid figures from plane figures. How can I make this a LoTi 3?