

Literacy in Geometry

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Connection to the Common Core State Standards

- Kindergarten: Geometry
 - > Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).
 - > Analyze, compare, create, and compose shapes.
- Grade 1: Geometry
 - > Reason with shapes and their attributes.
- Grade 2: Geometry
 - > Reason with shapes and their attributes.
- Grade 3: Geometry & Geometric Measurement
 - > Reason with shapes and their attributes.
 - > Recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
- Grade 4: Geometry
 - > Draw and identify lines and angles, and classify shapes by properties of their lines and angles.
- Grade 5: Geometric measurement
 - > Convert like measurement units within a given measurement system.
 - > Understand concepts of volume and relate volume to multiplication and to addition.
- Grade 6: Geometry
 - > Solve real-world and mathematical problems involving area, surface area, and volume.
- Grade 7: Geometry
 - > Draw, construct, and describe geometrical figures and describe the relationships between them.
 - > Solve real-life and mathematical problems involving angle measures, area, surface area, and volume.

Connection to Mathematical Practices

- MP4: Model with mathematics
 - > “Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace.”

Eye Spy Shapes by Debbie MacKinnon

- Have students identify objects in the classroom
- Bring something from home or picture of object that is one of the shapes discussed
- Kindergarten level

Cubes, Cones, Cylinders, and Spheres by Tana Hoban

- Like Eye Spy Shapes
- Have students build shapes from materials like paper, blocks, newspaper rods
- K-1 grade level

The Greedy Triangle by Marilyn Burns

- Use popsicle sticks, pipe cleaners, cardboard/cardstock rectangles to show shapes as you are reading the story
- Have a student help with adding sides to the shape
- Extension: vocabulary for the students
- 1-3 grade level

The Secret Birthday Message by Eric Carle

- Have students write realistic messages to friends or family using shapes appropriate for words
- Have students make a shape book
- K-3 grade level

Secret Message for audience

- you enter through a rotating cylinder
- proceed straight
- climbing the stacked prisms
- thru large rectangle shaped moving panels
- sitting down in a chair around a circular shape

Sir Cumference and the First Round Table by Cindy Neuschwander

- Different ways to make tables with pattern blocks, patty paper, or grid paper
- Great play on words in the book
- 2-4 grade level

Spaghetti and Meatballs for All – A Mathematical Story by Marilyn Burns

- How to arrange tables in different settings
- Use building cubes to illustrate different arrangements
- Talk about similar shapes, perimeter
- Have worksheet to guide students through story stopping at different places to talk about table arrangements
- 3-4 grade level

Read and Follow along

- After Mr. & Mrs. Comfort called everyone, they found they were having 32 people attend dinner. With four chairs at each table, how many tables will Mrs. Comfort need to rent?
- Draw a diagram to show four chairs and the appropriate number of tables.

Continue reading until the end of the page where the daughter arrives.

- How are the tables arranged now? Draw a diagram based upon arrangement. How many people are able to be seated with this arrangement?

Read the next page.

- How are the tables arranged now? Draw a diagram based upon arrangement. How many people are able to be seated with this arrangement?

Read until “Everyone was too busy.”

- What is the arrangement after they kept adding two more tables until there were no more to be added? Draw a diagram based upon arrangement. How many people are able to be seated with this arrangement?

Read until the tables were in two groups of four tables.

- How many people can be seated with this arrangement?
- Read until the tables were in one long line.
- Draw a diagram based upon arrangement. How many people are able to be seated with this arrangement?

Read until the long line is split in two.

- Draw a diagram based upon arrangement. How many people are able to be seated with this arrangement?

Read until the tables are split into four pairs.

- Draw a diagram based upon arrangement. How many people are able to be seated with this arrangement?

Finish reading the book.

- Now, let's think outside of the original four chairs each at eight tables. If the number of tables was not a factor, what are some rectangular arrangements to have seating for 32 people.

Bridges are to Cross by Philemon Sturges

- From what shapes are bridges made?
- Make own bridge from newspaper dowels in class
- Activity extension for students:
 - > connect to STEM and history of bridges
 - > Have students make own bridge from popsicles sticks or pasta
- 4-5 grade level

New Biloxi-Ocean Springs Bridge



Boston



Golden Gate Bridge



Golden Gate Bridge



Nashville



Nashville



Charleston, SC



Monster Movers by George Ancona

- Connections to STEM and bridges
- Finding size of ships, front loaders, buckets for cranes based on volume able to hold
- Using various measurements for load time
- 4-7 grade level

Page 12: Walking Dragline

- The giant bucket on the walking dragline can scoop 85 cubic yards. In yards, what are some possible dimensions for the bucket?
- Extension: What is 85 cubic yards in cubic feet?

Page 26: Self-Unloader

- If the conveyor system can unload 58,000 tons of pellets in eight hours, how many tons can be unloaded in one hour?
- Extension: How much can be unloaded in one minute?

Page 31: Rail Loader

- If it takes three hours to load the 110-car train with 11,000 tons of ore, how long does it take to load each car?
- If it takes four hours to load the 110-car train with 11,000 tons of ore, how long does it take to load each car?
- Extension: How many minutes for each car? How many 600-ton bins are needed to load the 11,000 tons of ore on the train?

Page 45: Crawler-Transporter

- Extension: Research Cape Canaveral and find out how far the transporter has to travel unloaded. Find the weight of the space shuttle and how are the transporter travels with the shuttle. See if there is any information about the speed before being loaded and after being loaded.

Shuttle mover



The Phantom Tollbooth by Norton Juster

- Milo encounters amusing situations that involve numbers, geometry, measurements, and problem solving
- The chapters take Milo on various adventures
- Could assign activities for different chapters, but not necessarily all of them
- Cross-curriculum with history
- 2-8 grade level

Questions???



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