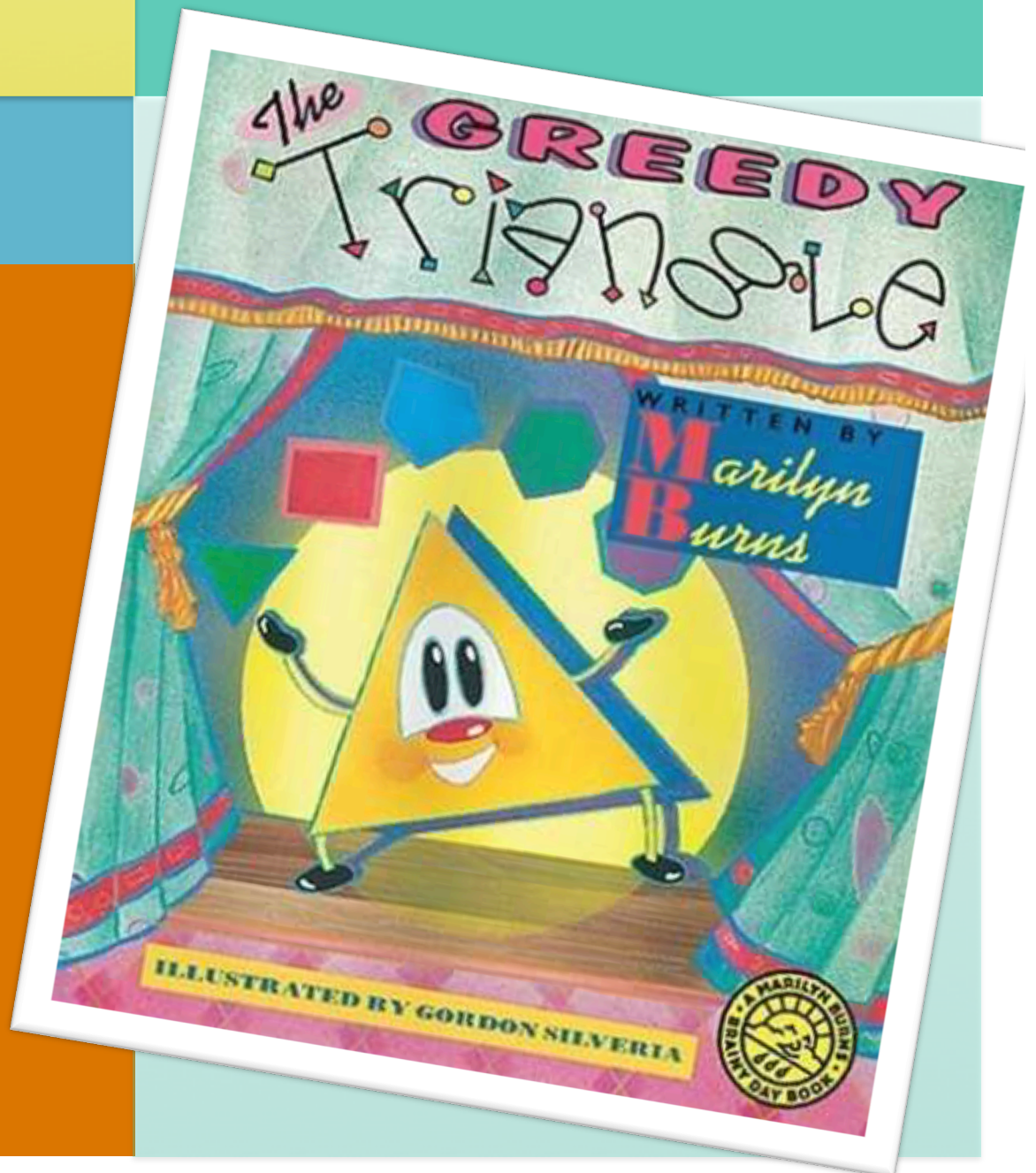


The Greedy Triangle





Summary

The Greedy Triangle is a book written by Marilyn Burns. This book introduces the reader to a variety of shapes. The book features a triangle that is very unhappy with its shape. When the triangle visits the Shape Shifter, the triangle asks for an additional angle. The triangle gets very greedy (or adventurous) and continues to ask for additional angles. Throughout the story the triangle turns into a quadrilateral, a pentagon, a hexagon, a heptagon, and various other shapes. By turning into other shapes, the triangle realizes exciting new career opportunities such as being a picture frame. At the end of the story the triangle is unhappy and learns that the triangle is the best shape for him to be.

Reference: Burns, M., & Silveria, G. (1994). The greedy triangle. New York: Scholastic.

ISBN: 13: 9780545042208

Grade Level, Math Strand, and Curriculum Expectations

Grade Level: 2

Math Strand: Geometry and Spatial Science

Curriculum Expectations:

- Identify and describe various polygons (i.e., triangles, quadrilaterals, pentagons, hexagons, heptagons, octagons) and sort and classify them by their geometric properties (i.e., number of sides or number of vertices), using concrete materials and pictorial representations (e.g., “I put all the figures with five or more vertices in one group, and all the figures with fewer than five vertices in another group.”);
- Distinguish between the attributes of an object that are geometric properties (e.g., number of sides, number of faces) and the attributes that are not geometric properties (e.g., colour, size, texture), using a variety of tools (e.g., attribute blocks, geometric solids, connecting cubes);

Suggestions for Discussion Questions

Before:

- Ask students about what shapes they already know.
 - Students should at least be familiar with triangle, rectangle, and circle.
 - Ask students what a shape is.
- Where do we see some of these shapes in our everyday lives?
- What makes these shapes different from one another?
- Can anyone tell me what an edge is?
- Can anyone tell me what a vertex is?
- How does changing the number of vertices change a shape?



Suggestions for Discussion Questions Continued

During:

- As students use elastics to create shapes on their Geo-board, have students stop after each polygon to comment about the similarities and differences in the shapes.
- After the triangle changes into a new shape, ask the students what changed about his shape?
- What do you think the next shape will be?
- What makes a square different than a triangle?
- Each time the triangle shape shifts, I will ask the students how many vertices and sides the new shape has.
- Can you think of another example of each shape in our environment?

After:

- Why did the triangle like being a triangle the best out of all the shapes?
- If the triangle continued to shape shift which shape would be next?
- Why do you think shapes are so important to our environment and to us?
- Are there any shapes with less vertices and/or sides than the triangle?

Self-Assessment and Rationale

This assignment deserves a 19.5/20. The book chosen for this assignment, *The Greedy Triangle* by Marilyn Burns is a creative story about a very adventurous triangle. This lesson involves both open ended and closed ended questions. Open-ended questions are important because there is no one correct solution. Students are able to work on the same problem at his or her own pace and according to their abilities. Students are able to develop and deepen their mathematical knowledge with the use of open-ended questions. Closed questions also have value because they give facts, are easy and quick to answer. The shape hunt activity has students using knowledge that they have previously learned and knowledge that they have gained from the book. The activity we have made to accompany *The Greedy Triangle* will engage the students in learning about geometry. Students are given the chance to explore their classroom finding every day objects that are shapes. This activity is then taken up as a class, and an anchor chart is made so students can refer to it in the future. The purpose of the activity and then creating the anchor chart is to involve the students in the process. Students remember things more clearly when they are involved in the process. Students then decide which shape they should like to become, and give a thorough explanation using appropriate vocabulary. We did not give ourselves a 20/20 because it is very difficult to know how this lesson would go without testing it on a real classroom of students. Lessons need to be catered according to the students in the class and planning a lesson without a specific class in mind is difficult. We acknowledge that our lesson may need to be adapted for use with a specific group of students. We may need to make some adjustments to our lesson, but we are not aware of what adjustments. It would be difficult to give us 20/20 without having taught this lesson. That being said, we do believe we have a very engaging lesson that will increase student's knowledge regarding Geometry.

1. Lesson Plan Information	
Subject/Course: Mathematics	Name:
Grade Level: 2	Date: Time:
Topic: Geometry and Spatial Science	Length of Period: 60 minutes

2. Expectation(s)
<p>Expectation(s) (<i>Directly from The Ontario Curriculum</i>):</p> <ul style="list-style-type: none"> Identify and describe various polygons (i.e., triangles, quadrilaterals, pentagons, hexagons, heptagons, octagons) and sort and classify them by their geometric properties (i.e., number of sides or number of vertices), using concrete materials and pictorial representations (e.g., “I put all the figures with five or more vertices in one group, and all the figures with fewer than five vertices in another group.”); Distinguish between the attributes of an object that are geometric properties (e.g., number of sides, number of faces) and the attributes that are not geometric properties (e.g., colour, size, texture), using a variety of tools (e.g., attribute blocks, geometric solids, connecting cubes); <p>Learning Skills (<i>Where applicable</i>):</p> <ul style="list-style-type: none"> Independent work Responsibility

3. Content
<p>What do I want the learners to know and/or be able to do?</p> <p>By the end of this lesson learners should be able to identify and describe triangles, quadrilaterals, pentagons, hexagons, heptagons, and octagons. Students will be able to classify each shape based on geometric properties.</p> <p>Today learners will:</p> <p>Today learners will explore various shapes and their properties from a real life perspective by discovering 6 different shapes in their classroom.</p>

4. Assessment (collect data) / Evaluation (interpret data) (Recording Devices (where applicable): anecdotal record, checklist, rating scale, rubric)
<p>Based on the application, how will I know students have learned what I intended?</p> <p>Assessment: Anecdotal notes taken from observations as students explore and discover shapes around the classroom. Students will have the chance to explain their thinking, which will allow for assessment of proper geometry vocabulary. Anecdotal notes would also address their level of independent work and responsibility.</p>

5. Learning Context
<p>A. The Learners</p> <p>(i) What prior experiences, knowledge and skills do the learners bring with them to this learning experience? Students should be able to identify and common two-dimensional shapes and be able to sort and classify them by their attributes.</p> <p>(ii) How will I differentiate the instruction (content, process and/or product) to ensure the inclusion of all learners? (Must include where applicable accommodations and/or modifications for learners identified as exceptional.) Student E.B. has difficulty communicating through written work. E.B. will be paired with a peer who will be responsible for recording their findings.</p> <p>B. Learning Environment</p> <ul style="list-style-type: none"> Classroom <p>C. Resources/Materials</p> <ul style="list-style-type: none"> <i>The Greedy Triangle</i> by Marilyn Burns “Shape Hunt” and “If I could be any shape ...” worksheet Writing materials (pencil) Geoboards & Elastics Chart paper & markers

6. Teaching/Learning Strategies:

INTRODUCTION (20 Mins) *How will I engage the learners? (e.g., motivational strategy, hook, activation of learners' prior knowledge, activities, procedures, compelling problem)*

- *The Greedy Triangle* by Marilyn Burns will be read aloud to the entire class.
- Discussion questions will be asked before, during, and after the text in order to engage students in the mathematical concepts being presented.
- Each time a new shape is introduced, the story will be paused and the students will create the shape on their Geoboard using elastics

MIDDLE (30 Mins)

Teaching: (5 Mins) *How does the lesson develop? How we teach new concepts, processes (e.g., gradual release of responsibility - modeled, shared, and guided instruction).*

- Discuss with class how shapes can be found all around us.
- Provide another real life example not found in the text – Example: the clock's face is a circle
- Create an anchor chart with the students that define the key terms: 2-dimensional, sides, and vertices. This chart can then be used later for reference if the students need.
- Introduce "Shape Hunt" worksheet and add in clock example for students to observe.
- Students will be responsible for working to complete their worksheet and find multiple examples of each shape in the classroom environment.

Consolidation and/or Recapitulation Process: (13 Mins) *How will I bring all the important ideas from the learning experiences together for/with the students? How will I check for understanding?*

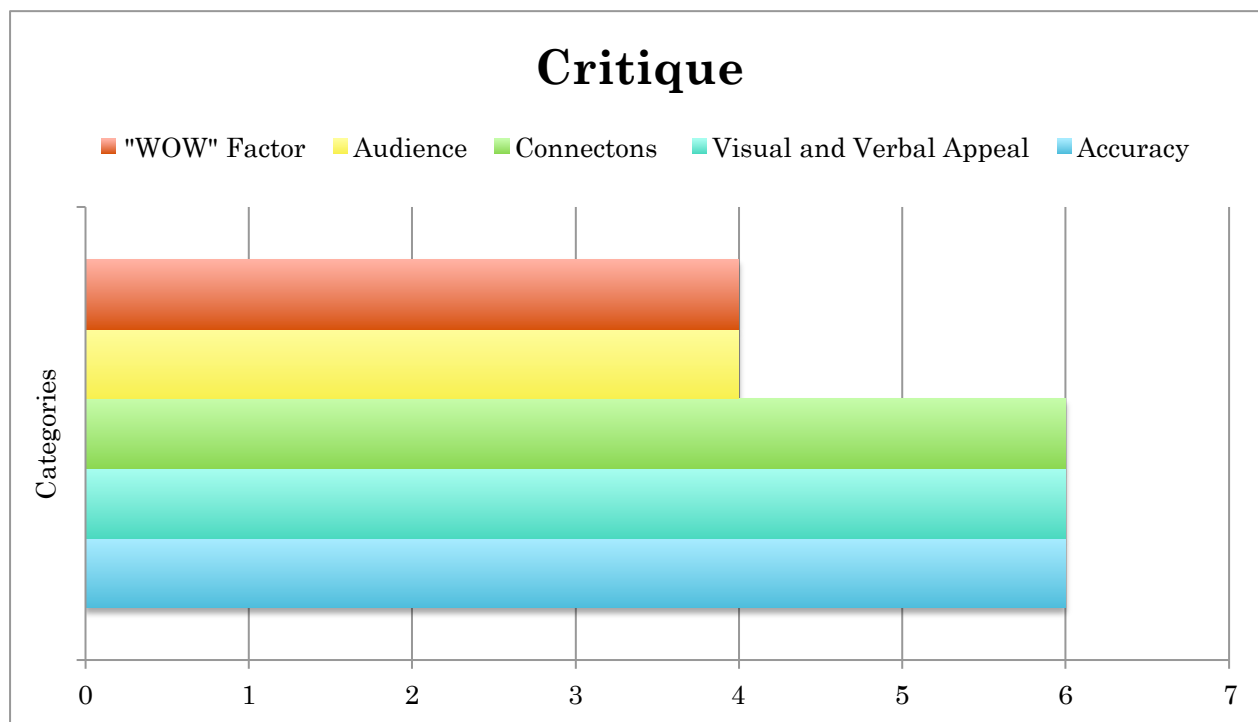
- Students will be given the shape hunt worksheet and will be allowed to move freely around to find examples of each shape in the classroom environment.
- After students have completed the shape hunt worksheet, we will take it up as a class.
- Students will share the shapes that they have found around the classroom.
- As a class, a chart paper anchor chart will be created that lists the name of a shape, the number of sides, the number of vertices, and a classroom example. Students will be able to refer to the chart in future geometry classes.

Application: (10 Mins) *What will learners do to demonstrate their learning? (Moving from guided, scaffolded practice, and gradual release of responsibility.)*

- Students will use their knowledge that they have gained from the shape hunt activity to complete the "If I could be any shape..." worksheet.
- Students are expected to complete the worksheet using mathematical language that they have acquired from previous lessons as well as this lesson.
- Students should thoroughly explain why they chose the shape that they did and give three real life uses of their shape.

CONCLUSION: How will I conclude the lesson?

- If students feel comfortable they are welcome to share their shape with the rest of the class. Students can explain to the class why they chose their shape. As a class, we can brainstorm other uses for that students shape. Students who chose the same shape will be encouraged to share why they chose their shape.
- The anchor chart that the class created together, along with students "If I could be any shape..." worksheets will be displayed on a Greedy Triangle bulletin board or area in the classroom.



Accuracy: (6/6) The book presents correct shape names, facts, and vocabulary. The new ways in which each shape is introduced and presented promotes deeper thinking and prediction from students. Furthermore, the illustrations of the text help to enhance and accurately represent the mathematical concepts.

Visual & Verbal Appeal: (6/6) The illustrations in the book are bright, colorful, and fun for the students. Each illustration correctly matches with the corresponding text making it easy for readers to use the illustrations to help their understanding. Each time the Shape Shifter changes the shape, the illustrations and text encourage the students to think about the shapes and predict which shape will be next.

Connections: (6/6) The text presents multiple rich real life examples for the children to examine and relate each shape to. It encourages students to begin to think about where they can find shapes in their own environment.

Audience: (4/6) While the text is appropriate for use in the classroom, it is targeted towards primary grades and would not be appropriate for students of all ages. However the book does appeal to primary students of various genders and backgrounds.

The "Wow" Factor: (4/6) The text focuses on one specific mathematical concept and does not add in many new ideas or layers. It does however present the specific concept of 2D shapes by exhibiting many rich connections. For students' with little experience viewing shapes, the book does introduce real-life connections that may be new for some students within the classroom.

Rating scale based on:

Hellwig, S. J., Monroe, E. E., & Jacobs, J. S. (2000). Making informed choices: Selecting children's trade books for mathematics instruction. *Teaching Children Mathematics*, 7(3), 138-143.

Shape Hunt

Let's go on a shape hunt! Can you find more shape examples around the classroom that the Greedy Triangle might have been?

2D Shape Name	Number of Sides	Number of Vertices	Examples Found
Ex. Triangle	3	3	- Sail on a boat - Slice of pie

Name: _____