

NCLB Math Institute Summer 2010

Faculty Name: Mrs. Delecia Liddell

School: H.M Nailor Elementary School

Grade Level: 2nd

1 Teaching Objective(s)

Day One - Day Four

- NCLB: MI Section 3A *Identify, describe, compare, and classify geometric figures.*
- NCLB: MI Section 3B *Apply geometric principles to angles and polygons as well as to two- and three- dimensional figures.*
- CCSS 2.G1 *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.*
- MMF 2.3.a. *Recognize and identify polygons (rhombus, square, triangle, trapezoid, rectangle, pentagon, hexagon, octagon, and decagon) according to the number of sides. (DOK 1)*

Day Five

- NCLB: MI Section 3A *Identify, describe, compare, and classify geometric figures.*
- NCLB: MI Section 3B *Apply geometric principles to angles and polygons as well as to two- and three- dimensional figures.*
- NCLB: MI Section 5A *Gather, organize, and display data in an appropriate chart or graph.*
- NCLB: MI Section 5B *Read, interpret, and presict data from charts and graphs.*
- CCSS 2.G1 *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.*
- CCSS 2. MD 10 *Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take apart, and compare problems using information presented in a bar graph.*

- *MMF 2.3.a. Recognize and identify polygons (rhombus, square, triangle, trapezoid, rectangle, pentagon, hexagon, octagon, and decagon) according to the number of sides. (DOK 1)*
- *MMF 5B Create line graphs, bar graphs, and pictographs using real data. (DOK 2)*

2 Instructional Activities

Describe completely the class activities for your lesson.

Day One

Before Reading

1. Recite, define, and discuss today's mathematical standard as written in CCSS 2. G1.
What are shapes? What are polygons?
What shapes do you know?
Do you know the number of sides?
Do you know the number of angles?
What does this standard mean?
2. Use a brace map to break the standard into its important pieces.
3. Use a tree map to define each piece, i.e. recognizing shapes, drawing shapes, having specialized attributes, etc.

During Reading

4. Project and read *When a Line Bends... A Shape Begins*.
5. TTW point out each shape in the text and draw it on the board. TSW use a pipe cleaner to bend the line into the appropriate shape.

After Reading

6. Recite math standard CCSS 2. G1.
7. TTW randomly show a picture of each shape. TSW name each shape.
8. TTW show pictures of real-life objects. TSW name each shape.
9. TTW explain a journal topic and give specific details based on the rubric. TSW write a journal entry, i.e. Explain the following task.
Recognize and draw shapes having a specified number of sides and angles.

Day Two

Before Reading

10. Recite, define, and discuss math standard CCSS 2. G1.
11. Use the illustrations of the two-dimensional shapes and real-life objects to identify each shape.
12. Point out shapes in the classroom.

During Reading

13. Read *The Greedy Triangle*.
14. TTW create a chart to tell how many sides and angles for each polygon in *The Greedy Triangle*, i.e. triangle, quadrilateral, pentagon, hexagon, heptagon, octagon, nonagon, and decagon. TSW use drinking straws to illustrate as it transforms in the text.

After Reading

15. TTW reread pages in the story to depict the transforming triangle. TSW use geoboards to show how the triangle transforms. TSW will use graph paper to illustrate each shape.

Day Three

Before Reading

16. Use questioning to review the characteristics of two-dimensional shapes.

How many sides does a triangle have?

How many angles?

What is the name of a shape with 3 sides?

During Reading

17. Read *The Shape of Things*.

After Reading

18. Use the format of *The Shape of Things* to create their own story or picture book about two-dimensional polygons.

19. TSW share their story or booklet with the class

Day Four

Before Reading

20. Use a circle map to survey students' knowledge and wonderings about graphs.

21. Give each student in the class a picture of a shape or a picture of a real-life object.

22. Have the students assemble in groups based on the shape they are holding.

23. List the shapes and objects for each group. Count the total number of shapes for each list.

24. Create a frequency table that organizes the shapes and the totals.

During Reading

25. Project and read selected pages from *The Greedy Triangle*.
26. List and count the number of polygons mentioned and/or shown in the text.
27. Create a frequency table to display the data.

After Reading

28. TSW go on a scavenger hunt in selected areas of the school. TSW visit a designated area and make a list of objects.
 - Cafeteria
 - Computer Lab
 - Gymnasium/Auditorium
 - Library
 - Music Room
 - Playground/Outside
 - Principal's Office

A parent volunteer will take groups of students to designated areas.
29. TSW compare and compile their lists. TTW assist students in putting the data in a chart.

Day Five

Before Reading

30. Give each student a description of shapes, e.g. this shape has three angles.
31. Have the students assemble in groups based on the shape they are holding.
32. List the shapes and objects for each group. Count the total number of shapes for each list.
33. Create a tally chart that organizes the shapes and the totals.

During Reading

34. Give each student a page from *The Shape of Things*.
35. Tell the students to write at least two sentences to describe the page they were given. Each sentence should include a name of a shape.
36. Assemble in a line and tell the story.
37. Create a tally chart to reflect the shapes and objects mentioned.
38. Use the information to create a bar graph.

After Reading

39. TSW use pattern blocks to create a picture. (5 minutes)
40. TSW will create a tally chart, frequency table, and bar graph to tell the number of shapes used to create their picture.
TTW ask the students questions about their frequency table, tally chart, and bar graphs.

3 Materials and Resources

Identify various materials and equipment needed for the lesson activities. Provide complete references (include textbook and additional resources).

Day One

- Mathematics Common Core State Standard 2. G1 (posted)
- Brace map (Attachments #1 & 2)
- Tree map (Attachments #3 & 4)
- *When a Line Bends...A Shape Begins* written by: Rhonda Gowler
- Pipe cleaners
- Pictures of shapes
- Pictures of real life objects
- Journal entry
- Rubric

Day Two

- Mathematics Common Core State Standard 2.G1 (posted)
- Pictures of shapes
- Pictures of real-life objects
- Classroom objects
- *The Greedy Triangle* written by: Marilyn Burns
- Chart paper & markers
- Drinking straws
- Geoboards
- Rubber bands
- Copies of geoboards
- Graph paper

Day Three

- *The Shape of Things* written by: Dayle Ann Dobbs
- Assorted paper (color & size)
- Crayon/marker
- Scissors
- Rulers
- Hole puncher
- Yarn

Day Four

- Circle map (Attachments #5 & 6)
- Pictures of shapes and objects
- Chart paper & markers
- *The Greedy Triangle* written by: Marilyn Burns
- Chart paper & markers
- Scavenger Hunt Info Sheet (Attachment #7)
- Chart paper & markers

Day Five

- Description of Shapes
- Chart paper & markers
- *The Shape of Things* written by: Dayle Dobbs
- Chart paper & markers
- Pattern blocks
- Paper & markers
- Checklist with questions (Attachment #8)

4 Assessment

Describe completely the assessment to be used for this lesson.

Day One

- Listen to student responses to the questions about the math standard. Celebrate correct responses. Correct students as needed. Encourage in-depth responses.
- Monitor student work by checking brace maps and tree maps. Provide feedback as needed.
- Observe student performance while forming shapes. Assist student as needed.
- Evaluate student explanation using the journal entry rubric.

Day Two

- Celebrate correct responses. Correct students as needed.
- Observe student performance while arranging straws to illustrate shapes. Assist student as needed.
- Observe student performance while creating shapes on the geoboard. Assist student as needed.
- Evaluate student illustrations of shapes on graph paper by checking its attributes.

Day Three

- Evaluate student story or booklet using the rubric.
- Evaluate student presentation of their story or book using the rubric.

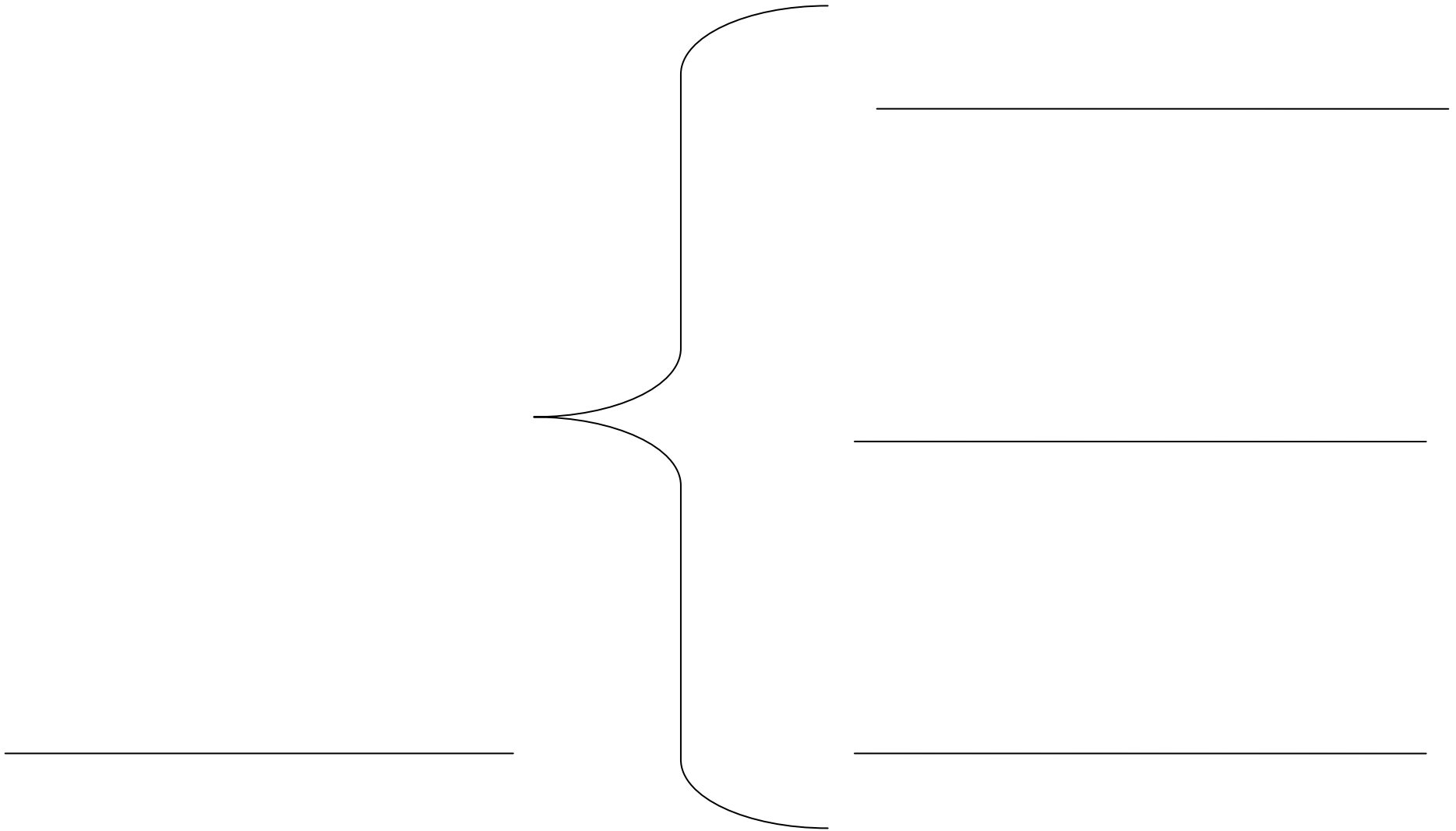
Day Four

- Observe and respond to student wonderings and knowledge about graphs.
- Praise students who are in the correct group. Redirect students in the wrong group.
- Ask students to describe the elements in frequency table.
- Ask questions to name the polygons.
- Ask students to describe the elements in the frequency table.
- Check Scavenger Hunt Info Sheet. Encourage corrections as needed.
- Monitor student progress in producing a chart with compiled information.

Day Five

- Praise students who are in the correct group. Redirect students in the wrong group.
- Ask students to describe the elements in the tally chart.
- Guide sentences in writing sentences to describe the shapes in the picture.
- Ask students to describe the elements in the tally chart and the bar graph.
- Encourage students to use the pattern blocks creatively.
- Use the checklist to evaluate student success.

Brace Map



Geometry Standard #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.

Recognize shapes.

triangles
quadrilaterals
pentagons
hexagons

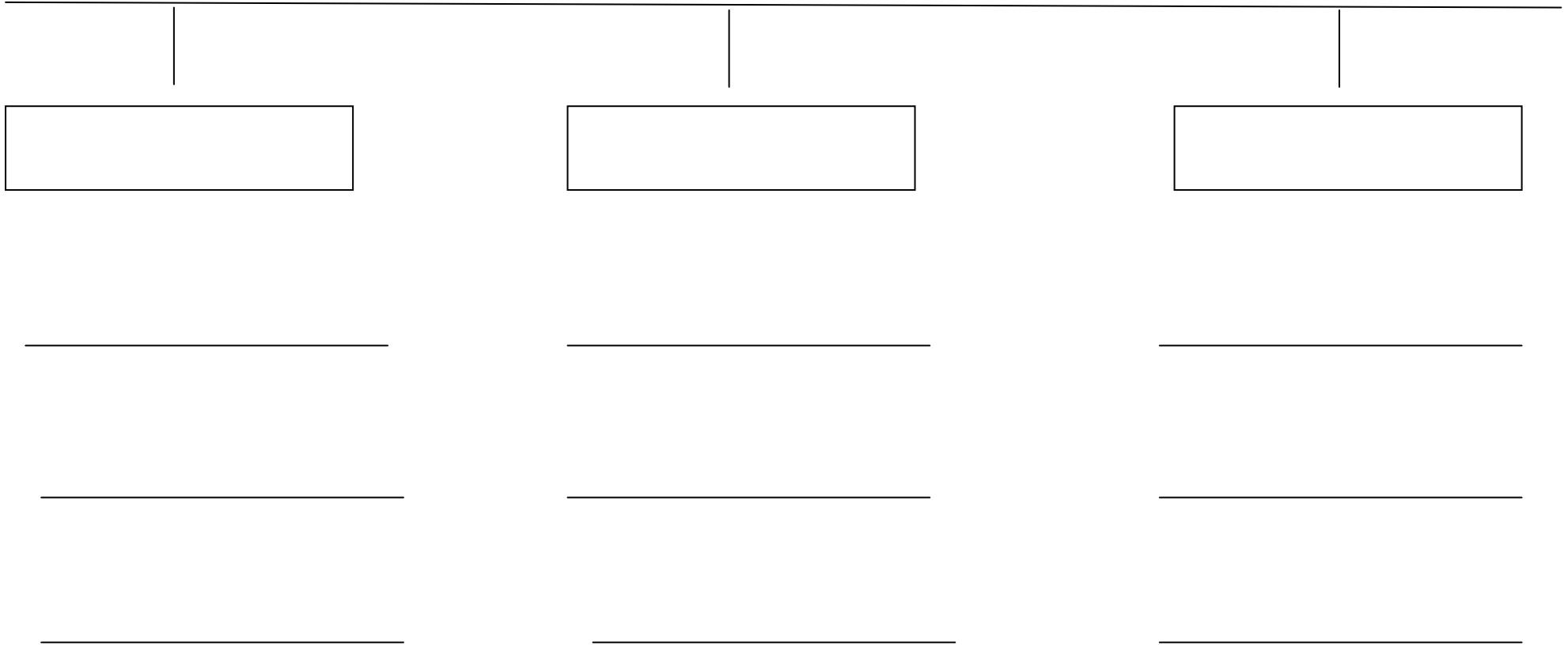
Draw shapes.

triangles
quadrilaterals
pentagons
hexagons

Have the specified attributes.

number of angles
number of equal faces

Tree Map



Geometry Standard #1

Recognize shapes.

triangles

quadrilaterals

pentagon

hexagon

Draw shapes.

triangles

quadrilaterals

pentagon

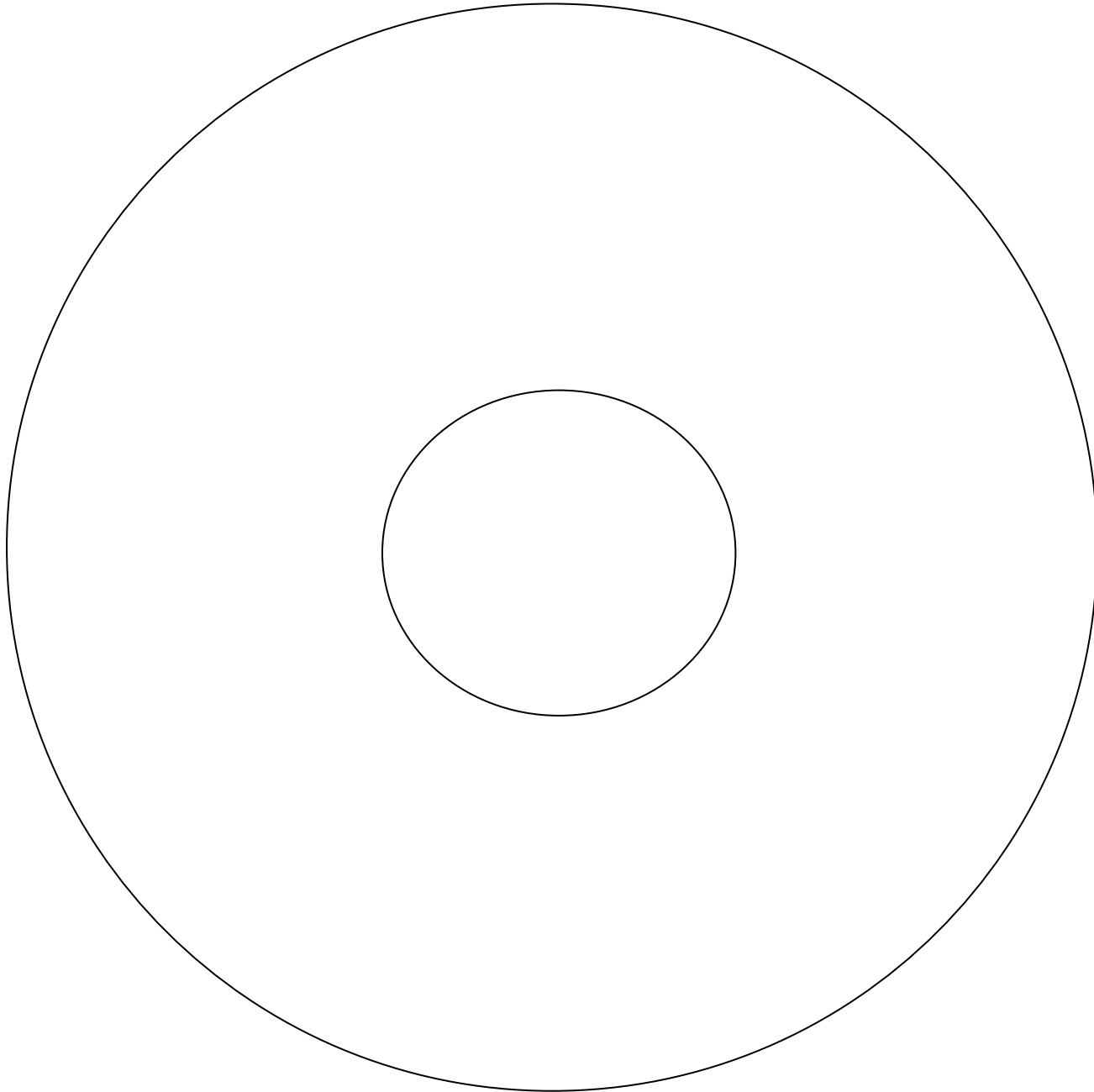
hexagon

Have the specified attributes.

number of angles

number of equal faces

Circle Map





Graphs

Geometry Scavenger Hunt

Student Name _____

Directions: *Go to your designated area. Look for 2D shapes. Complete the table below by listing at least ten objects and its shape.*

Object	Shape
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

Circle your area.

Cafeteria/Kitchen

Computer Lab

Gymnasium

Library

Music Room

Playground/Outside

Principal's Office

Student Name _____

Assessment Checklist

Question	Mastery +/-		Comments
2D Shapes			
Show me a triangle. How many are there in your illustration?			
How many sides does it have? How many angles?			
Show me a quadrilateral. How many are there in your illustration?			
How many sides does it have? How many angles?			
Show me a pentagon. How many are there in your illustration?			
How many sides does it have? How many angles?			
Show me a hexagon. How many are there in your illustration?			
How many sides does it have? How many angles?			
Frequency Table			
What is the title of your frequency table?			
How many columns are on your frequency table?			
What is the title of each column? Why?			
Tally Chart			
What is the title of your tally chart?			
How many columns are on your tally chart?			
What is the title of each column? Why?			
Bar Graph			
What is the title of you bar graph?			
How will you show the name of each shape on your bar graph?			
How will you show the total number of each shape on your bar graph?			