

IISME Fellow - Saabirah Rasul

Hosting Company - Synopsys, Inc.
New Lesson - Geometry
Mathematics - Lengths and Shapes: Grade 2
IISME Coach - Michael Bautista
July 9, 2015

What Shape Is IT?

0. Abstract

In this lesson, students will learn to recognize and draw 2-dimensional shapes having specified attributes, such as a given number of angles or a given number of sides. The teacher will address certain misconceptions students might have about shape recognition. For example, if you tilt a square, is it still a square? Or, if you tilt a right angle, is it still a right angle? Recognizing shapes goes well beyond memorization or matching names to shapes. A student's ability to use reasoning when analyzing shapes and their attributes is key to their mastery of description and analysis of shapes. To determine if mastery of the skills and concepts taught in this lesson have been achieved, several assessments will be given.

I. Standards/Skills/Objectives/Assessment

Focal Standard or Skill:

Geometry:
In this ETP Lesson, students will achieve mastery in describing and analyzing shapes.

California Common Core Standards for Mathematics (CCCS)

CCCS: 2.G
Reason with shapes and their attributes.
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.

Measurable Objective(s):

Unit 3: Lesson 2 - Recognize and Draw Shapes/Activity 1

Reason with shapes and their attributes.

1. Describe properties of squares, rectangles, triangles, pentagons, and hexagons. Students will be able to compare and contrast sides and angles of various shapes.

Assessments:

Students will be able to analyze shapes and their attributes by comparing and contrasting the sides and angles of various shapes. Students will be assigned two projects, one in which they will use geometric shapes to design a cloak for a character in a folktale story, *"A Cloak for the Dreamer"* by Aileen Friedman. This is an Entry Task Assessment and comes at the beginning of the lesson. At the end of the lesson, students will be assigned the second project, *"Design a Playground"*, as an Expert Task, again using all of the geometric shapes learned in this lesson. Additionally, students will be given three Formative Assessments. One will be a written response to a question on a 5 x 8 card, and one will be a journal writing prompt, to be recorded in their Math Journal Book. For the third Formative Assessment, students will be given an opportunity to practice the skills and concepts taught in this lesson, using an interactive online math program, *IXL Learning.* This program will track their score, and the questions will automatically increase in difficulty as they improve! These Formative Assessments will occur before the final Summative Assessment. The Final Assessment will test their ability to reason with shapes and their attributes. Students will be required to identify and select the correct shape, given its attributes.

1. **Project #1**
   Pre-Lesson Assessment/Entry Task
   a. Design a Cloak using Geometric Shapes
2. **Formative Assessments (3)**
   a. Written Response - Single Question on a 5 x 8 Card
   b. Journal Writing Prompt
   c. Online Interactive Math Program (IXL) - Online Scoring and Report Generation
3. **Summative Assessment**
   a. Task Assessment
4. **Post-Lesson Assessment/Expert Task**
   a. Design a Playground

Additional Standards/Skills:
International Society for Technology in Education (ISTE)

Digital Citizenship

5. Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
   b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.

II. Fellowship Connections

1. 21st Century Skill(s):

CRITICAL THINKING AND PROBLEM SOLVING
Reason Effectively

- Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation.

Solve Problems

- Solve different kinds of non-familiar problems in both conventional and innovative ways.

2. Fellowship Description:

Synopsys develops the electronic products and software applications we rely on every day. They are the 15th largest software company, have a long history of being a global leader in electronic design automation (EDA) and semiconductor IP, and are also a leader in software quality and security testing with their Coverity® solutions. During my fellowship at Synopsys, I have been involved in the layout and organization of documents in SharePoint, which is a powerful web-based, productivity platform and tool that can be utilized by any information professional to manage and control document sharing from a central location. Working behind the scene of a SharePoint document is code (i.e., HTML, CSS, and JavaScript). In addition to my training in SharePoint, I am receiving training in the code that runs the SharePoint platform as well as Microsoft Visual Basic 6.0.

Additionally, I have been exposed to various careers in Information Technology; specifically Engineers, Interns, and IT Project Managers.

4. Fellowship Connection to School/Classroom:

As an IISME Fellow at Synopsys, I have learned a great deal about teamwork, collaboration, and coding through online tutorials, as well as hands-on, real-world application. It is my intention to integrate this knowledge into my Mathematics curriculum and classroom management. Students will be deeply engaged in group collaboration, teamwork and online learning. To ensure that knowledge is shared and discussed within groups, students will work together when completing lesson worksheets, ensuring that no student is left behind and that each student can contribute to the class discussion. In addition to the standard group collaboration model widely used in classrooms, I have been exposed to a different process of group collaboration and teamwork. Group collaboration isn't just meeting at specific times, but occurs throughout the day. Discussions, check-Ins, problem solving, and sharing opportunities are available as needed, on a one-on-one basis, informally. I would like to expand my group collaboration model to include informal discussions and problem solving opportunities as well. Online learning is an assessment portion to this lesson; and, as an extension to but not a part of this lesson, students will be taught code that will generate a 2-dimensional rectangle.

END Proposal!

III. Instruction

1. Instructional Plan:

Instructional Plan:

Unit 3: Lesson 2 (Days 2 - 3: see unit outline at end of instructional plan for more details)
Introduction- (Whole Class - Literature Connection- carpet):
"A Cloak for the Dreamer", by Aileen Friedman, is a folktale story about three sons who each make a cloak for the Archduke and each cloak is composed of one of the 3 different shapes. The teacher calls the students to the carpet and reads the folktale "A Cloak for a Dreamer". As the teacher reads the story, children will be prompted to respond to questions related to the story, generated by the teacher. At the end of the story, the teacher also has the option of showing the Youtube Video of this story to give the children a visual of what their shapes could look like as a cloak. Please click on the following link to view the video for this story. *(Attachment 1)* https://www.youtube.com/watch?v=kqgNHHcxXmg .

Entry Task - Assessment 1
The children will be assigned to one of three groups and asked to design their own cloak. Children will be assigned to a group as follows:

1. The teacher will write the names of the three different shapes on small pieces of paper. For example, ⅓ of the class will pull triangles, ⅓ will pull rectangles, and ⅓ will pull circles. There should be enough names of shapes for each student to pull one name.
2. The teacher will place the names in a container and have students pull the name of a shape.
3. Children will then form 3 groups based on the shape name they pulled.
4. The teacher will give each group white poster board on which to design their cloak. (One board per group and poster board size 22" x 28" with cloak design pre-drawn)
5. Poster board must include a heading, date, subject, and group names. Children have a choice regarding design layout. (i.e., where to place this information on their poster.)
6. Children will work in groups to create a cloak for the Archduke composed of their shapes. Geometric shapes can be different sizes, and the number of shapes may vary depending on cloak design. Once their design is complete, students will need to add color to their cloak. For this, students can color their design using crayola crayons, coloring pencils, or markers. They can also use construction paper to cut out and glue on their shapes. Be creative.
7. Each group will give a presentation on their cloak design; after which, their design will be displayed in the classroom.

Design Requirements:

- The cloak must be colorful.
- You can use only one geometric shape in your design.
- There can be no spaces between shapes.
    - Example of a cloak

Activity 1* - *Discuss and draw squares.

(Whole Class Instruction - carpet)

Direct Instruction

Teacher will draw four squares of various sizes on the board. The teacher will then draw small squares in the corner of each square and tell the children we will begin to call the corners of a shape angles and the corners of a square are called right angles.

The teacher will ask students the following questions:

- What is the name of these shapes?
    - answer - squares
- How many sides does a square have?
    - answer - 4
- How many angles does a square have?
    - answer - 4

Guided Practice (carpet):

1. Each child will be given a MathBoard with grid lines or a Dry Erase Board with graph paper and a clip to fasten the paper to the board and asked to draw several squares, freehand or using a centimeter ruler. The teacher will ask the children the following questions:
    - How can you describe the sides of a square?
        - possible answers - Each side is a straight line. All four sides are equal.
    - How can you describe the angles of a square?
        - possible answers - All four angles are right angles.

Teaching Notes: (Optional)

- Draw several examples of right angles on the board.

Also,

- Some children think of a tilted square as a diamond and not a square. To show them that a tilted square is still a square, give them cut outs of squares and have them tilt the square on their MathBoards/Dry Erase Boards, and place a ruler on the bottom angle of their tilted square. They will see that it is still a right angle.

Independent Work (student desks):

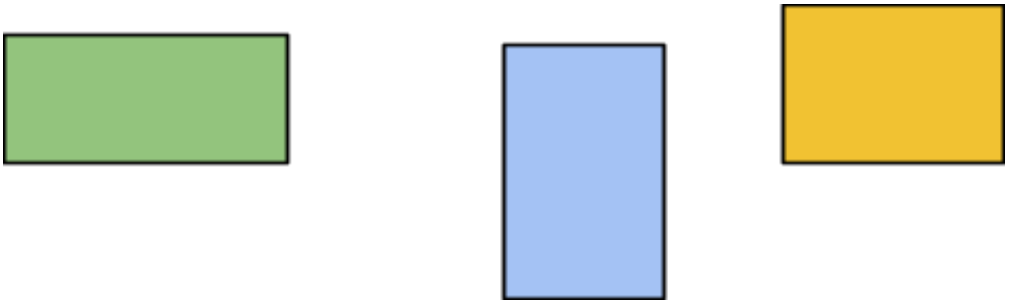
Teacher will instruct the students to leave the squares on the board for a later reference. Children will be instructed to return to their seats, and working in pairs, complete Exercises 1-5, "Draw and Identify Squares" in their Student Activity Book on page 121. When they are finished, discuss their answers as a class. Students grade their answers using their correcting pencil (coloring pencil). Please reference link below for "*Student Activity Book*" worksheet pages 121-124. Attachments are also included. *(Attachment 2)*
https://www-k6.thinkcentral.com/content/hsp/math/hspmathmx/ca/gr2/se_actv_book_blm_9780544274761_/pdf/unit_3.pdf#page=7

Activity 2* - *Observe and Draw Rectangles

Whole Class Instruction (carpet)
Through:

Direct Instruction

Teacher will draw three rectangles of various sizes on the board next to the squares drawn in Activity 1.



The teacher will ask students the following questions:

- What is the name of these shapes?
  - answer - rectangles
- How many sides does a rectangle have?
  - answer - 4
- How many angles does a rectangle have?
  - answer - 4

Guided Practice (carpet):

The teacher will ask the students to tilt their MathBoards/Dry Erase Boards.

- If you tilt a rectangle, is it still a rectangle? Yes
- How do you know? Answers may vary

The teacher will then have the children compare the squares and rectangles on the board.

- How are rectangles like squares? They have right angles and opposite sides have the same length.
- How are rectangles different from squares? All 4 sides don't have to be the same length.

The teacher will discuss with students how a square is a special kind of rectangle. It has four right angles and opposite sides of equal length, so it is a rectangle. But all sides are equal, so it is a special "square rectangle."

Independent Work (seats):

The teacher tells the children that they will return to their seats and work in pairs to complete Exercises 6-8 in Student Activity Book on page 122. After students complete page 122, they are to return to the carpet with their workbook/sheet, a centimeter ruler, and their correcting pencil for whole class discussion and grading of their completed work on page 122. *(Attachment 3)*

Whole Class Discussion (seats):

The teacher instructs the children to look at the rectangle they drew in Exercise 6 on page 122. The teacher then tells the children that we can measure to find out how much longer the long side is than the short side. The teacher then asks the class the following questions:

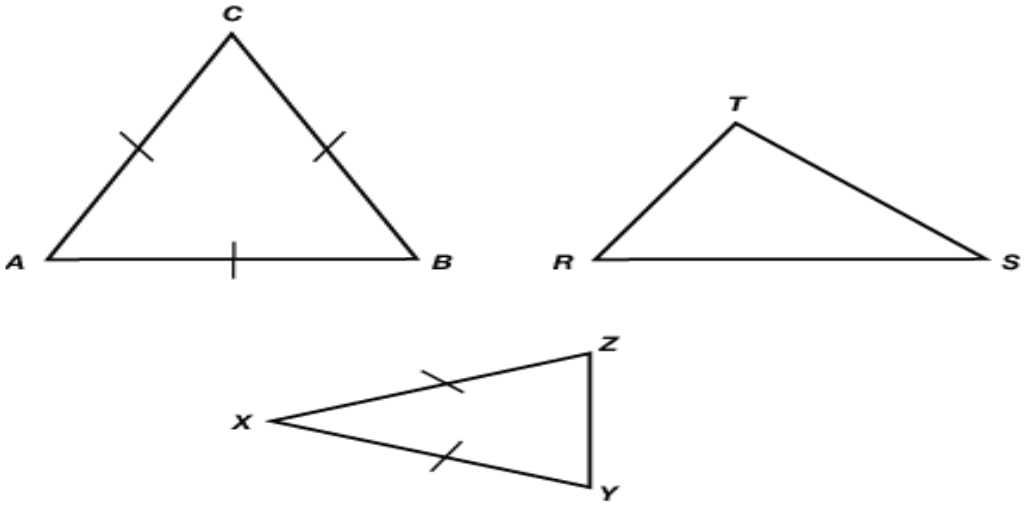
- How long is the short side? 3 cm
- Place your ruler along the long side. Mark 3 cm for the short side on the long side. Now loop the rest of the segment. (Students can use their correcting pencil to complete this task) How much longer is the long side than the short side? 3 cm

Activity 3* - *Observe and Draw Other Shapes

(Whole Class Instruction - carpet)
Through:

Direct Instruction

Teacher will draw three different triangles on the board.



The teacher will ask students the following questions:

- What is the name of these shapes? triangles
- How many sides does a triangle have? 3
- How many angles does a triangle have? 3

Children are invited to sketch several triangles on their MathBoards/Dry Erase Boards. They can draw freehand or use a centimeter ruler. The teacher then asks the students:

- If you tilt a triangle, is it still a triangle? yes

Guided Practice (carpet):

The teacher will ask the students to tilt their MathBoards/Dry Erase Boards.

- If you tilt a rectangle, it it still a rectangle? yes

Independent Work (seats):

The teacher instructs the children to return to their seats with their workbook, their centimeter ruler, and their correcting pencil. Work in pairs to complete Exercises 9-12 in Student Activity Book on page 123. After students complete page 123, discuss their answers as a class. This can be done at their seats or the teacher can have them return to the carpet. *(Attachment 4)*

Direct Instruction: (Return to the carpet for this activity without their workbook)

The teacher will write the word quadrilateral on the board and ask the children if they know what this word means. Have children turn and talk to a their partner and discuss what they think this word means. Give them one minute for this discussion. Their discussion should conclude with a definition of a quadrilateral: a shape that has 4 sides and 4 angles. The teacher will then ask the children the following questions:

- Do you think a square is a quadrilateral? Yes, a square is a quadrilateral because it has 4 sides and 4 angles.
- Do you think a rectangle is a quadrilateral? Yes, a rectangle is a quadrilateral because it has 4 sides and 4 angles.
- Do you think a triangle is a quadrilateral? No, a triangle is not a quadrilateral because it has 3 sides and 3 angles. "Quad" means 4 and "tri" means 3.
- Does a shape have to be a rectangle to be a quadrilateral? no
- Can anyone draw a quadrilateral that is not a rectangle? square

Guided Practice (seats):

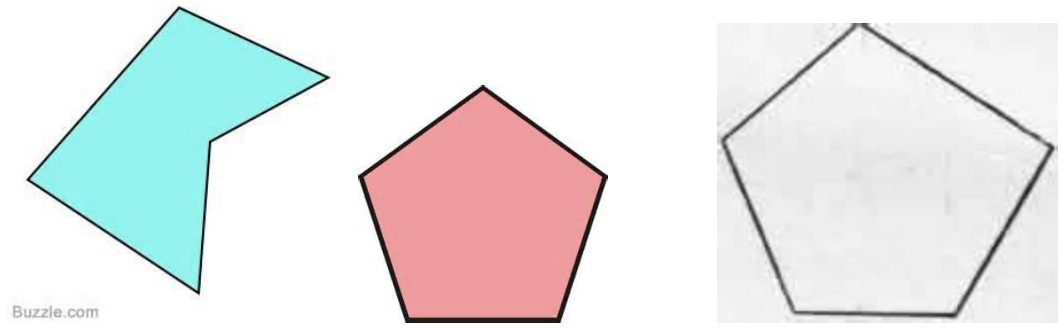
The teacher will ask children to return to their desks, turn to page 124 in their Student Activity Book, and determine the number of sides and angles for each shape on page 124. They can use the descriptions in the box at the top of this page. They can also look for other shapes in the classroom, then determine the number of sides and angles and the name the shape. The teacher will then direct the children to look at the hexagon in Exercise 15 and give the following instructions: *(Attachment 5)*

- We can measure to find out how much longer the longest side is than the shortest side. Measure the shortest side. 1 cm
- Place your ruler along the longest side. Loop that part of the segment that is more than 1 cm.
- Measure the length of the segment you loooped. How much longer is the longest side than the shortest side? 4 cm

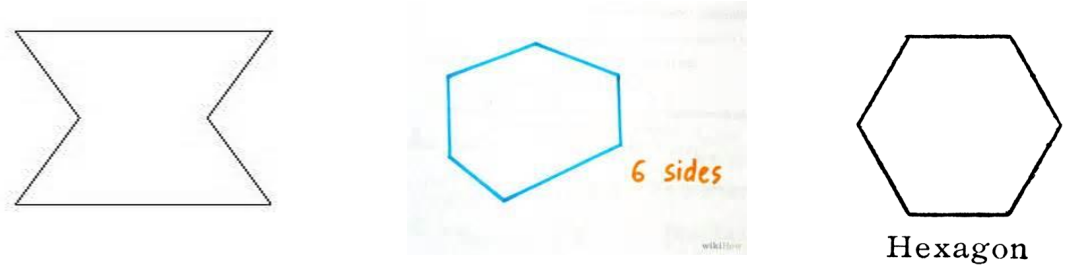
The teacher will direct children to look at the quadrilateral in Exercise 16 and give the following instructions:

- We can measure to find out how much longer the longest side is than the shortest side. Measure the shortest side. 2 cm
- Place your ruler along the longest side. Loop that part of the segment that is more than 2 cm.
- Measure the length of the segment you looped. How much longer is the longest side than the shortest side? 3 cm

The teacher asks the children to return to the **carpet** and now writes the word pentagon on the board and discusses the possible meanings of the word. The teacher tells the children that the definition of a pentagon is a shape with 5 sides and 5 angles. The following shapes are drawn on the board.



The teacher asks the children if these shapes are pentagons? Yes, they all have 5 sides and 5 angles. The teacher writes the word hexagon on the board and discusses with the children the possible meaning. The teacher will tell the children that -agon is in both pentagon and hexagon, and that -agon means "angle". The teacher will then tell the children that the definition of a hexagon is a shape with 6 sides and 6 angles. The teacher will draw the following shapes on the board.



The teacher will Ask the children if they think these shapes are hexagons? Yes, they all have 6 sides and 6 angles.

Whole Class Activity (seats):

The teacher will ask the children return to their desks, turn back to page 124 in their Student Activity Book; and, as a class, review the answers they wrote for questions 13-16. The teacher will read the questions on page 124 and ask for volunteers to respond. The teacher instructs all children to grade their answers on page 124. After children finish grading page 124, the teacher tells them to put their Student Activity Books and their correcting pencils away and return all math supplies to their proper storage areas. The teacher will then administer to each student the formative assessment below.

Formative Assessment - Assessment 2: *(Attachment 6)*

The teacher will give each student a 5 x 8 card with the following question written on it: *sample*

Student Name: _____ Date: _____
Unit 3-Geometry: Lesson 2
Formative Assessment - pg. 292

How are pentagons and hexagons alike and different?

_____
_____
_____
_____

The teacher will collect all Assessment Cards (5x8) cards for grading and comments. This assessment can be used to conference with children and to guide future instruction.

Math Writing Prompt - Assessment 3:

Using an overhead projector, the teacher will display the math writing prompt, written below, for this lesson and ask the children to quietly read the prompt as the teacher reads it aloud. The teacher will ask the children if this prompt needs clarification. No answers will be given to the children. The teacher will hand out math journals to students, instruct them to open their journal books to the next blank page, put the current date at the top, copy the writing prompt, and answer it.

Sample Journal Entry:

Date	Math Writing Prompt
11/2/15	Explain Your Thinking - Can any square also be called a rectangle? Explain. Can any rectangle also be called a square? Explain.

When the last student has completed their response to the Math writing prompt in their math journal, the teacher will collect the journal books for assessment and comments.

Online Learning - IXL (Practice/Assessment)

Students will be given a computer/Ipad, and directed to the following website below, which the teacher will have projected onto the screen, using an overhead projector. The teacher will need to sign up to get the full benefit of this website. There is a 30-Day Free trial. For students who do not have access to or are unfamiliar with a computer, additional time might be needed to teach them basic computer skills prior to giving this assessment. They will type this address into the URL and when the website comes up, a small window should appear which says "Welcome to IXL". The teacher will instruct the students to click on the bottom button which says "Start Practicing". They can now begin answering the questions. Once all students have finished, the teacher can run class reports. These reports can be a useful tool for conferencing and guiding future instructions.
https://www.ixl.com/math/grade-2/compare-sides-and-angles.

Summative Assessment - Assessment 5:

This final assessment is a Formative Instructional and Assessment Task, in which students will be asked to identify, circle, and color all pentagons, triangles, hexagons, and rectangles with specified colors. Children will need colors to complete this task. The teacher will collect all completed worksheets for assessment and comments. To download the Assessment Task worksheet, click on the link below, and when the page appears, go to the first standard, 2.G.1. and click on the second line to download "Task 1b", and "Student Form 1b". You will need to make class sets for both forms. *(Attachment 7)*
http://commoncoretasks.ncdpi.wikispaces.net/2.G+Tasks

Playground Project - Assessment 6

The teacher will direct the children to the carpet to discuss the last project. The teacher says to the children "Think of all the parks you have visited. What types of play structures did they have? How were the parks designed?" The teacher invites comments from the children. On flipchart paper, the teacher writes down their comments. For this project, the teacher tells the children that they will be given the task of designing a playground, using all of the geometric shapes they have learned in this lesson. The teacher will discuss project requirements, and give each child the "Playground Design Worksheet" on which to plan their playground. After explaining the purpose of the worksheet, the children will be directed to their seats to begin planning. The teacher tells the children that this is a quiet activity, and they will be given time to share their completed design plans with their table partner later and ask for feedback and suggestions for improvement. Once they have completed their playground design plans, the teacher will give each of them a rubric to check off against their project, as a means of insuring that all requirements of the project have been met. The teacher will inform the children that after checking their plans against the rubric and concluding that all requirements have been met, they can share what they have done with their table partner; getting feedback and suggestions for improvements if needed. Each child will bring their completed plans to the teacher to get the 11 x 14 poster paper for their final design. The teacher will collect completed projects to assess and post on the wall in the class. The class will conduct a gallery walk of the completed projects and make positive comments only, on post-it notes to be given to the author. Comments are optional but they must be positive comments only. Students are not to include their name on the notes, just comments. *(Attachments 8-9)*

Project Requirements:

- Paper size and color = 11 x 14 (white)
- Give their Playground a name.
- Must use all geometric shapes at least once. (square, rectangle, triangle, pentagon, and hexagon)
- Must be 2-dimensional only (no 3-dimensional objects or structures)
- The park structure must include the name of the geometric shape.
- Must be colorful
- Be creative regarding placement of shapes and function of play structure. (space is limited)

Please click on link below for an example of a 2-dimensional play structure.
http://1.bp.blogspot.com/-dPOx2xRv1ts/VAFkIhumWwI/AAAAAAAAAxw/5LEBr3K4jV4/s1600/IMG_0196%2Bw.jpg

Source Material:

Unit 3: Lesson 2-Activities 1-3

- Houghton Mifflin Harcourt: Textbook - Math Expressions (TE)
- Houghton Mifflin Harcourt: Student Activity Book - Lesson 3-2: pg. 121-124
- Literature Book - *"A Cloak for a Dreamer"* by Aileen Friedman
- Internet Websites
- IXL - Online Learning (K-2 Formative Instructional and Assessment Tasks for the Common Core State Standards in Mathematics)
    - Technical Requirements - https://www.ixl.com/membership/school/technical

2. Additional Instructional Context: (*Optional)*

Additional Instructional Context:

Unit 3: Lengths and Shapes

Lesson	Topic	Objective	Standard
Day 1			
L-1	Measure Length	Measure Line Segments Break apart centimeter lengths into partner lengths.	2.OA.2 2.MD.1 2.MD.4
Days 2-3			
L-2	Recognize and Draw Shapes	Describe properties of squares, rectangles, triangles, pentagons, and hexagons.	2.OA.2 2.MD.1 2.MD.4, 2.G.1
Day 4			
L-3	Estimate and Measure	Estimate and measure the sides and the distances around squares and rectangles.	2.OA.2 2.MD.1 2.MD.3, 2.G.1
Day 5			
L-4	Draw, Estimate, and Measure	Draw and name shapes with 3, 4, 5, or 6 angles and estimate and measure sides of triangles.	2.OA.2 2.MD.1 2.MD.3, 2.G.1

Day 6			
L-5	Draw Using Faces	Understand how 2-dimensional and 3-dimensional shapes are related, and draw rectangular prisms and cubes using faces.	2.G.1
Day 7			
L-6	Estimate and Measure with Centimeters	Estimate and measure with centimeters and use a line plot to display measurement data.	2.NBT.4 2.MD.1 2.MD.3 2.MD.4 2.MD.9
Day 8			
L-7	Estimate and Measure with Inches	Estimate and measure with inches, feet, and yards, Show measurement data on a line plot.	2.MD.1 2.MD.2 2.MD.3 2.MD.9
Day 9			
L-8	Measure for and Make Line Plots	Measure length and show the data on a line plot. Determine the relationship between length and the size of the measurement unit.	2.MD.1 2.MD.2 2.MD.3 2.MD.9
Day 10			
L-9	Focus on Mathematical Practices	Use the Common Core Content Standards and Practices in a variety of real world problem solving situations.	2.NBT.5 2.MD.1 2.MD.2, 2.G.1

Supporting Skills: Students need to be able to fluently add and subtract within 20 using mental strategies. Express the length of an object as a whole number of length units….. [1.MD.2] Build and draw shapes to possess defining attributes. [1.G.1]; compose 2-dimensional shapes or 3-dimensional to create to composite shape. [1.G.2]

Supply List:

Cloak Design Project

- 3-White Poster Board - 22" x 28"
- Art Supplies (colors, glue sticks, etc.)
- Construction Paper: 6-packs of various colors
- 30-scissors
- Pencils/erasers
- 30 - slips of paper for shape name
- 1- small container for students to choose a shape name
- 1- document camera (Elmo)
- 1 - Projector

Unit 3: Lesson 2 - Activities 1-3

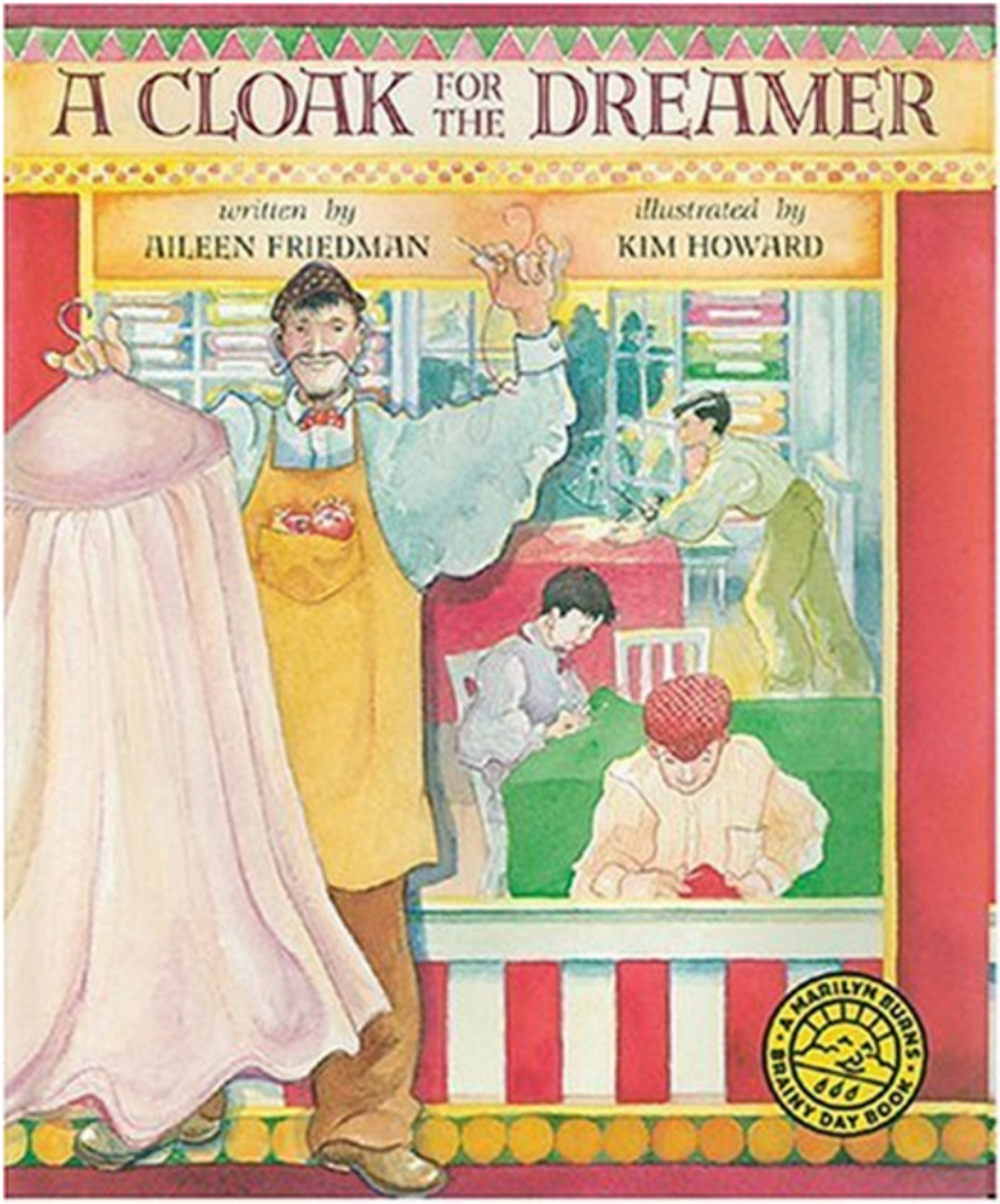
- Math Expressions - Student Activity Book - pg. 121-124
- 30-cut outs of squares
- Pencil/erasers(1 per student as needed)
- 30-coloring pencils (used for correcting student work-not red or red-like pencils)
- 30-MathBoards or Dry Erase Boards with centimeter grid paper
- 30-Giant Paper Clips (if using Dry Erase Boards)
- 30-MathBoard Materials
- 30-centimeter rulers
- 30-5 x 8 index cards or use attachment to make copies as needed
- 30-Journal books - lined
- 30-highlighters (Optional) for journal books

Playground Design Project

- Flipchart paper
- Attachment 2 - Playground Design Worksheet
- 30- 11x14 white poster board
- Art Supplies (glue sticks, scissors, crayola crayons, markers, coloring pencils, etc.)
- Post-its (any color)
- Project Rubric

Technology:

- 1-document camera
- 1-projector
- Printer and printer paper (for copying worksheets)
- Internet Access



Attachment 1:

3-2
Class Activity

Name _____

CA CC Content Standards 2.MD.1, 2.MD.4, 2.G.1
Mathematical Practices MP.2, MP.5, MP.6, MP.8

VOCABULARY
square
angle
right angle

► Draw and Identify Squares

A **square** is a shape with four equal sides and four **right angles**.

1. Use your centimeter ruler. Draw a square with sides that are each 3 cm long.

Look at these shapes.

2. Are any of these shapes squares? _____

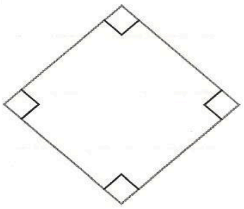
3. How are the **angles** of these shapes different from the angles of squares?

_____

4. How are the sides of these shapes different from the sides of squares?

_____

5. Is this shape a square? Explain why or why not.



_____

_____

Attachment 2

3-2
Class Activity

Name _____

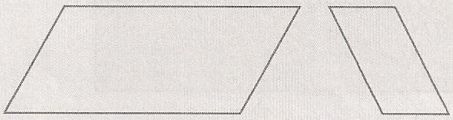
VOCABULARY
rectangle
opposite sides

▶ Draw and Identify Rectangles

A **rectangle** is a shape with **opposite sides** that are equal in length and four right angles.

6. Use your centimeter ruler to draw a rectangle that is 6 cm long and 3 cm wide.

Look at these shapes.



7. Are these shapes rectangles? Explain why or why not.

_____

_____

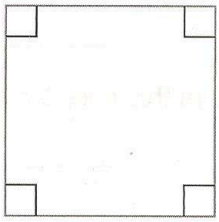
8. Is a square a rectangle? Explain why or why not.

_____

_____

_____

_____



Attachment 3

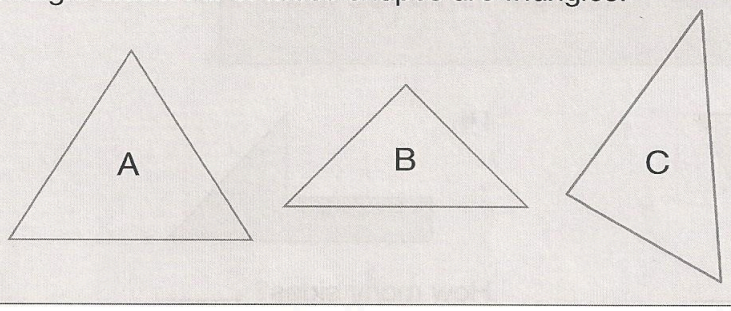
3-2
Class Activity

Name _____

VOCABULARY
triangle

▶ Compare Lengths of Sides of Triangles

A **triangle** is a shape with three angles and three straight sides. All of these shapes are triangles.



9. Measure each side of Triangle A. What did you discover about the sides?

_____

_____

10. Measure each side of Triangle B. What did you discover about the sides?

_____

_____

11. Measure each side of Triangle C. What did you discover about the sides?

_____

_____

12. Draw a loop to show how much longer the longest side of Triangle C is than the shortest side. The longest side of Triangle C is ☐ cm longer than its shortest side.

Attachment 4

3-2
Class Activity

Name _____

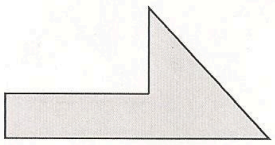
VOCABULARY
quadrilateral
pentagon
hexagon

▶ Describe Shapes

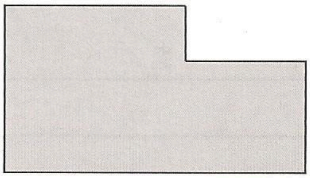
A **quadrilateral** is a shape with four sides. A **pentagon** is a shape with five sides. A **hexagon** is a shape with six sides.

13. 

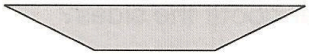
How many sides? _____
How many angles? _____
Loop the shape.
quadrilateral
square
hexagon

14. 

How many sides? _____
How many angles? _____
Loop the shape.
quadrilateral
pentagon
triangle

15. 

How many sides? _____
How many angles? _____
Loop the shape.
hexagon
triangle
rectangle

16. 

How many sides? _____
How many angles? _____
Loop the shape.
rectangle
pentagon
quadrilateral

Attachment 5

Student Name: _____ Date: _____
Unit 3-Geometry: Lesson 2
Formative Assessment - pg. 292

How are pentagons and hexagons alike and different?

_____
_____
_____
_____
_____

Student Name: _____ Date: _____
Unit 3-Geometry: Lesson 2
Formative Assessment - pg. 292

How are pentagons and hexagons alike and different?

_____
_____
_____
_____
_____

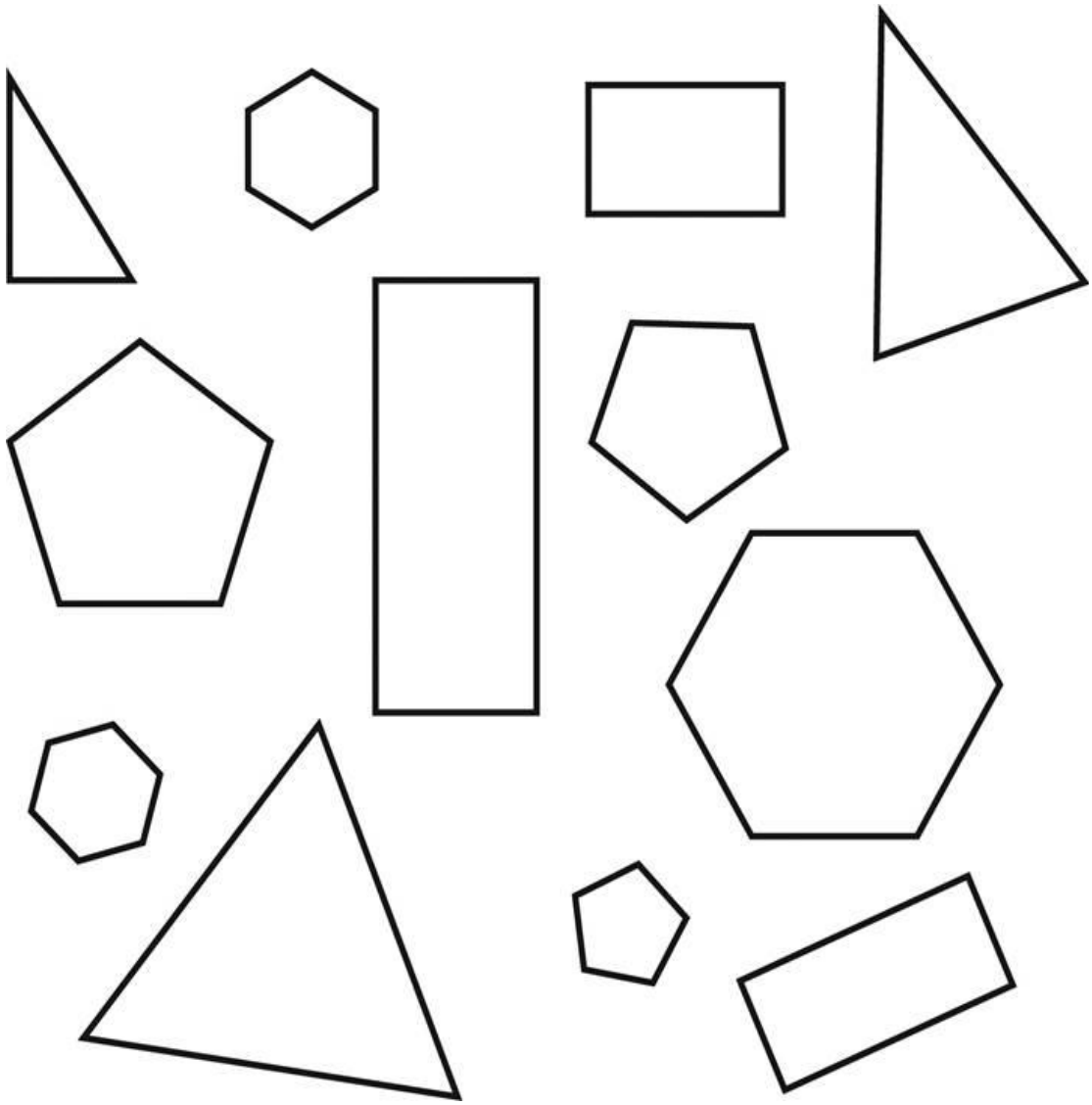
Note: Copy on cardstock.

Attachment 6

G Task 1b
2.G.1
Formative Instructional and Assessment Tasks

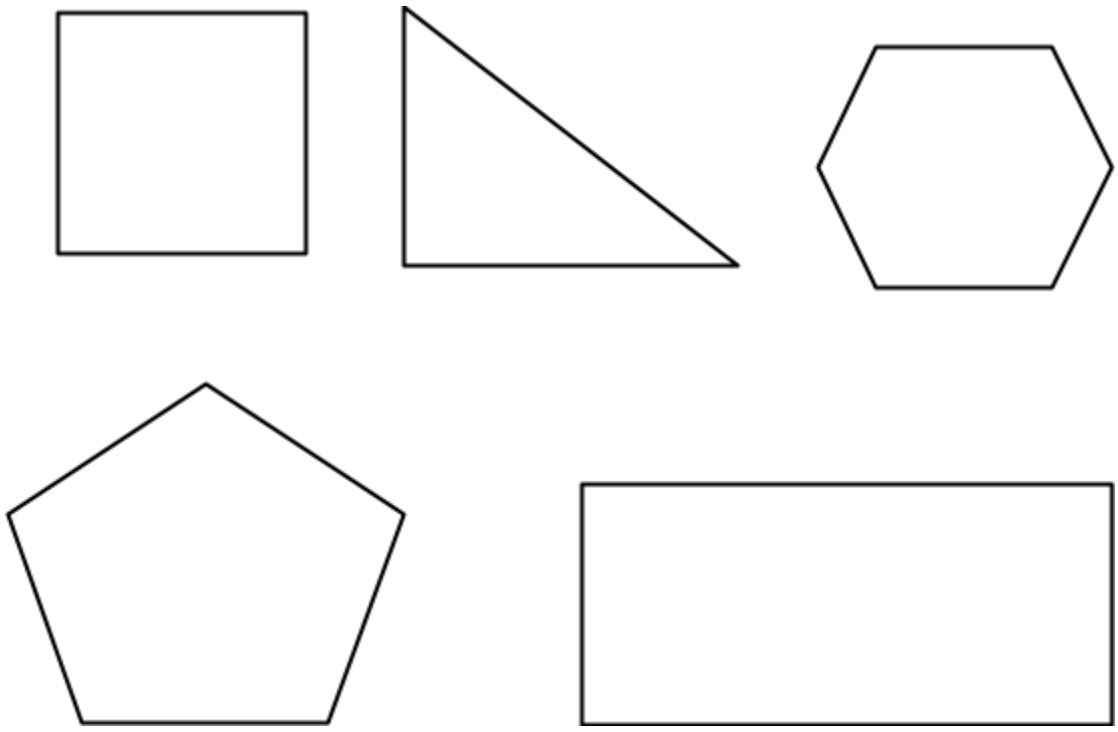
Name: _____

1. **Use your <u>red</u> crayon to draw a circle around all of the <u>pentagons</u>.**
2. **Use your <u>green</u> crayon to draw a circle around all of the <u>triangles</u>.**
3. **Use your <u>blue</u> crayon to draw a circle around all of the <u>hexagons</u>.**
4. **Use your <u>orange</u> crayon to draw a circle around all of the <u>rectangles</u>.**



Please download this assessment and make copies for your class:
http://commoncoretasks.ncdpi.wikispaces.net/2.G+Tasks **Attachment 7**

Playground Design Worksheet



1. Give each shape a name and function.
2. The name must include the geometric shape name.
3. Write in each shape the number you will need for your design.
4. Start designing.
5. You can use construction paper or you can color your shapes.

Attachment 8

Rubric

Student Name: _____ Date: _____
Name of Project: Design a Playground

Please check all items you completed.

( ) Did you use the appropriate paper size and color = 11 x 14 (white)?
( ) Did you give your Playground a name?
( ) Does your playground name include the name of the geometric shape?
( ) Did you use all geometric shapes at least once?
( ) Did you use 2-dimensional shapes only?
( ) Did you include color in your design?
( ) Did you edit for correct spelling?
( ) Did you include your name, title, grade, subject, and date on your poster?

***Student Copy**

Rubric

Student Name: _____ Date: _____
Name of Project: Design a Playground

Please check all items you completed.

( ) Did you use the appropriate paper size and color = 11 x 14 (white)?
( ) Did you give your Playground a name?
( ) Does your playground name include the name of the geometric shape?
( ) Did you use all geometric shapes at least once?
( ) Did you use 2-dimensional shapes only?
( ) Did you include color in your design?
( ) Did you edit for correct spelling?
( ) Did you include your name, title, grade, subject, and date on your poster?

***Teacher Copy**

Attachment 9

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Keywords and Phrases:

1. Geometric Shapes
2. geometry
3. Perimeter
4. Angles
5. sides of shapes
6. angles of shapes
7. squares
8. pentagons
9. hexagons
10. rectangles
11. triangles