

Unit 4: Geometry (Grade 2)

Content Area: **Mathematics**
Course(s): **Mathematics - Grade 2**
Time Period: **April**
Length: **3 Weeks**
Status: **Published**

Unit Overview

At the conclusion of this unit, students will Identify two- and three-dimensional shapes based on their attributes & partition two-dimensional shapes into equal shares.

* Administer the Link It! G2 Math NJSL Form C online before the end of the year.

* End of Year Benchmark Fluency Assessment - basic facts up to 20

Transfer

Students will be able to independently use their learning to...

- Identify two- and three-dimensional shapes.
- Relate shapes and solids.
- Partition a two-dimensional shape into equal parts.
- Find area of a two-dimensional shape.

For more information, read the following article by Grant Wiggins.

http://www.authenticeducation.org/ae_bigideas/article.lasso?artid=60

Meaning

Understandings

Students will understand that...

- * Two-dimensional shapes have attributes (sides and angles) that will help in the identification of the shape.
- * Drawing a diagram is a strategy that can be used to solve a problem.
- * Three-dimensional shapes can have faces, edges and vertices. These attributes can aid in the identification of these shapes.
- * Identifying two-dimensional shapes can aid in the identification of geometric solids.
- * Two dimensional shapes can be partitioned into equal parts (fractional parts of a whole).
- * Area is the measurement of space within a shape.

Essential Questions

Students will keep considering...

- * How do I use shapes and equal parts?

Application of Knowledge and Skill

Students will know...

Students will know...

- * The identity of two-dimensional shapes through examination of their attributes.
- * Polygons have sides and angles.
- * Drawing a diagram is a strategy that can be used to solve a problem.
- * The identity of three-dimensional solid figures.
- * Geometric solids can have faces, edges, and vertices.
- * Shapes can be partitioned into halves, thirds, and fourths.
- * How to find area of a rectangle.

Students will be skilled at...

Students will be skilled at...

- * Identifying two- and three-dimensional shapes.
- * Partitioning a shape into halves, thirds, and fourths.
- * Finding area of a rectangle.

Academic Vocabulary

Chapter 12:

two-dimensional shapes
parallelogram
trapezoid
pentagon
hexagon
three-dimensional shapes
cube
sphere
cone
cylinder
pyramid
rectangular prism
face
edge
vertex
halves

thirds
fourths
partition
half of
third of
fourth of

Please review the following terms from the previous year:

circle
rectangle
square

Daily Targets - Identify Two- & Three-dimensional Shapes Based on Their Attributes: Chapter 12

SWBAT:

- * identify two-dimensional geometric shapes - **(Chapter 12 / Lesson 1) DOK 1**
- * recognize attributes (sides and angles) of two-dimensional shapes - **(Chapter 12 / Lesson 2) DOK 1**
- * use the draw a diagram strategy to solve problems - **(Chapter 12 / Lesson 3) DOK 2**
- * identify three-dimensional geometric shapes - **(Chapter 12 / Lesson 4) DOK 1**
- * describe the faces, edges, and vertices of three-dimensional shapes - **(Chapter 12 / Lesson 5) DOK 2**
- * describe relationship between two-dimensional shapes and solid shapes - **(Chapter 12 / Lesson 6) DOK 1**

MA.2.G.A	Reason with shapes and their attributes.
MA.2.G.A.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.
MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.3	Construct viable arguments and critique the reasoning of others.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.

MA.K-12.6	Attend to precision.
MA.K-12.7	Look for and make use of structure.
MA.K-12.8	Look for and express regularity in repeated reasoning.

Learning Goal 2

Students will partition circles and rectangles into two, three, or four equal shares, describe the shares using words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Students will also recognize that equal shares of identical wholes need not have the same shape. 2.G.A.3

Students will also partition a rectangle into rows and columns of same-size squares and count to find the total number of them. 2.G.A.2

Daily Targets - Partitioning Shapes to Find Equal Parts and Area (Comprehension, DOK 2)

SWBAT:

- * partition two-dimensional shapes into two, three, and four equal shares - **(Chapter 12 / Lesson 7) DOK 2**
- * determine the area of a rectangle - **(Chapter 12 / Lesson 8) DOK 2**

MA.2.G.A.2	Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
MA.2.G.A.3	Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.
MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.3	Construct viable arguments and critique the reasoning of others.
MA.K-12.5	Use appropriate tools strategically.
MA.K-12.6	Attend to precision.
MA.K-12.7	Look for and make use of structure.
MA.K-12.8	Look for and express regularity in repeated reasoning.

Formative Assessment and Performance Opportunities

- * "Am I Ready?"
- * End of Lesson "On My Own" and "Homework" activities
- * Journal Writing Activity
- * Exit Slips
- * Chapter Quizzes
- * S.T. Math
 - Recognizing Shape Attributes
 - Rows and Columns
 - Partitioning
 - Identifying Shapes
- * Teacher Observation / Anecdotal Notes
- * Student Interview
- * LinkIt

Performance Task Chapter 12: **Shapes in Art** Use partitioning of 2-D shapes into squares and triangles to create designs (Rubric in TM pg. 792PT2)

Chapter Projects Available in Student Book:

Chapter Project; Two-dimensional Shape Collage (pg. 726)

Summative Assessment

- * Benchmark Assessments 2 & 3 (combined to make one assessment) to be administered at end of the year (June)
- * End of Year Benchmark Fluency Assessment (timed) - basic facts up to 20
- * Chapter Test (Chapter 12) - Forms 1, 2, & 3 - Written or On-line Assessment

Additional Resources Available for Assessment Purposes:

- * Vocabulary Test

* Oral Assessment

* Listening Assessment

21st Century Life and Careers and Technology

CRP.K-12.CRP1	Act as a responsible and contributing citizen and employee.
CRP.K-12.CRP1.1	Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.
CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP2.1	Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP4.1	Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.
CRP.K-12.CRP5	Consider the environmental, social and economic impacts of decisions.
CRP.K-12.CRP5.1	Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP8.1	Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.
CRP.K-12.CRP12	Work productively in teams while using cultural global competence.

CRP.K-12.CRP12.1	Career-ready individuals positively contribute to every team, whether formal or informal. They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.
CAEP.9.2.4.A	Career Awareness
CAEP.9.2.4.A.2	Identify various life roles and civic and work - related activities in the school, home, and community.
CAEP.9.2.4.A.4	Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.
TECH.8.1.2.D	Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
TECH.8.1.2.D.CS1	Advocate and practice safe, legal, and responsible use of information and technology.
TECH.8.1.2.E	Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.
TECH.8.1.2.E.1	Use digital tools and online resources to explore a problem or issue.

Accommodations and Modifications

- *Utilize manipulatives during instruction to teach and demonstrate concepts
- *Give students manipulatives to model all problems (wooden geometric solids, Pattern Blocks, Geoboards)
- *Provide reference tool for vocabulary (notebook, flashcards, or foldable)
- *Provide reference chart for shape and solids attributes
- * Small Group Instruction
- *A slower pace of verbal instruction
- *Various representations of directions
- *Visual and digital display as well as explanation of domain specific and academic vocabulary
- *Verbal communication of not only concept but also language goals (ELL)
- *Written and verbal examples given of these goals
- *Concepts evaluated for age level as well as cultural appropriateness based on the students background (ELL)
- *Allow higher level learners to assist in teaching concepts that they have mastered previously
- * Enrichment pages from notebook
- *Use TAG manipulative kits
- *Partitioning shapes beyond rectangles
- *Fractions along with partitioning rectangles

Unit Resources

- * McGraw-Hill "My Math" Grade 2 Text
 - * Chapters 12

- * McGraw-Hill "My Math" Website - www.connected.mcgraw-hill.com
 - * Virtual Manipulatives
 - * Virtual Games (Fact Dash, Sail Through Math, etc.)
 - * Math At Home - Practice Math
 - * Math Songs (Action Fraction, Geometric Shapes, etc.)
 - * Real World Problem Solving Library:
 - * Home of All Shapes (Chapter 12)

- * BrainPop Jr. - www.brainpopjr.com

- * Math Fact Cafe - www.mathfactcafe.com

- * **ST Math**
 - * **Student Center: online games and digital support resources for school and home**
 - * **STEM app-download fro home and practice www.mheonline.com**
 - * **My Math Trade Books to improve interdisciplinary connections**

- * Fun Brain - www.funbrain.com

- * Cool Math 4 Kids - www.coolmath4kids.com

- * AAA Math - www.aaamath.com

*<https://www.illustrativemathematics.org/>

*<http://achievethecore.org/coherence-map/>

Interdisciplinary Connections

Homes of All Shapes allows students to explore the variety in homes of people and animals, focusing on shapes, sizes, and functions of homes. Diagrams show differences in the sizes and shapes of animal and people homes. (2.G.1)

LA.RI.2.1	Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
LA.RI.2.2	Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text.
LA.RI.2.3	Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
LA.RI.2.6	Identify the main purpose of a text, including what the author wants to answer, explain, or describe.
MA.2.G.A.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.
2-LS4-1	Make observations of plants and animals to compare the diversity of life in different habitats.