1 Math Unit 06: Shapes and Solids

Content Area: **Mathematics**
Course(s):
Time Period: **Marking Period 2**
Length: **10 days**
Status: **Published**

Unit Overview

Shapes and Solids

In this unit, students extend their earlier work with recognizing, naming, and sorting 2- and 3-dimensional shapes to more formal work with defining 2- and 3-dimensional shapes based on their attributes. Students identify, describe, and define 2-dimensional shapes by their attributes. They also build and draw 2-dimensional shapes with various specified attributes.

Students work with defining attributes of a cube, rectangular prism, cone, cylinder, and sphere. To describe 3-dimensional shapes, they use the terms face, edge, and vertex. Students extend their understanding of 2- and 3-dimensional shapes. These include:

- **Defining and Non-Defining Attributes:** Defining attributes of a shape are characteristics that a shape will always have based on the definition of the shape. Characteristics of a shape that are not required by the definition of the shape are called non-defining attributes. For example, one triangle has three sides and three vertices. It is small and green. Therefore, "three sides" and "three vertices" are defining attributes of a triangle. Being blue or green or large or small applies to only some triangles, so those are non-defining attributes.
- **Composite Shapes and Solids:** Students have previously worked with composing and decomposing numbers. In this unit, they extend those ideas to composing and decomposing 2- and 3-dimensional shapes.

What Students Are Learning

- Students describe defining attributes and non-defining attributes of 2- and 3-dimensional shapes.
- Students draw 2-dimensional shapes given defining and non-defining attributes.
- Students put together 2-dinensional shapes to create new shapes.

Number Routines

- Break Apart
- Which Benchmark Is It Closest To?
- Notice & Wonder
- Which Doesn't Belong?

Standards

1.G.A.1	Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to

	possess defining attributes.
1.G.A.2	Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

Materials

Core Materials:

Reveal Math

6.1 Understand Defining Attributes of Shapes

6.2 Understand Non-Defining Attributes

6.3 Compose Shapes

6.4 Build New Shapes

6.5 Understand Attributes of Solids

6.6 Build New Solids

Supplemental Materials:

- ST Math
- Happy Numbers
- 3 Act Lessons
- Building Fact Fluency Kit
- Brainingcamp Manipulatives
- Nearpod Lessons
- Brainpop Resources
- Online Resources

Technology

8.1.2.DA.1	Collect and present data, including climate change data, in various visual formats.
8.1.2.DA.4	Make predictions based on data using charts or graphs.
8.1.2.AP.1	Model daily processes by creating and following algorithms to complete tasks.
8.1.2.AP.2	Model the way programs store and manipulate data by using numbers or other symbols to represent information.
8.1.2.AP.4	Break down a task into a sequence of steps.
8.2.2.ED.2	Collaborate to solve a simple problem, or to illustrate how to build a product using the design process.

Assessment

Formative Assessment

- Unit Readiness Diagnostics
- Lesson Checks
- Exit Tickets
- Teacher Observation

Summative Assessment

- Unit Assessment Performance Task
- Benchmark Tests
- Alternative Assessments: Performance Tasks & Projects

Accommodations & Modifications

Special Education

Differentiated Instruction			
Accommodate Based on Students' Individual Needs: Strategies			
Time/General • Extra time for assigned tasks • Adjust length of assignment • Timeline with due dates for reports and projects • Communication system between home and school • Provide lecture notes/outline	**Processing** • Extra response time • Have students verbalize steps • Repeat, clarify, or reword directions • Mini-breaks between tasks • Provide a warning for transitions • Reading partners	**Comprehension** • Precise step-by-step directions • Short manageable tasks • Brief and concrete directions • Provide immediate feedback • Small group instruction • Emphasize multi-sensory learning	**Recall** • Teacher-made checklist • Use visual graphic organizers • Reference resources to promote independence • Visual and verbal reminders • Graphic organizers

Assistive Technology	Tests/Quizzes/Grading	Behavior/Attention	Organization
• Computer/whiteboard • Tape recorder • Spell-checker • Audio-taped books	• Extended time • Study guides • Focused/chunked tests • Read directions aloud	• Consistent daily structured routine • Simple and clear classroom rules • Frequent feedback	• Individual daily planner • Display a written agenda • Note-taking assistance • Color code materials

504

- In class/pull out support with special ed teacher Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks Graphic organizers
- Vocabulary support Mnemonic devices
- Songs/videos to reinforce concepts Limit number of questions
- Scribe Manipulatives Calculators Reteach pages Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System Another look homework video
- Practice buddy

ELL

- Translation device/dictionary
- In class/pull out support with ESL teacher
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Math Diagnosis & Intervention System

At-risk of Failure

- Additional time during intervention time
- Questions read aloud
- Graphic organizers
- Vocabulary support

- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video
- Practice buddy

Gifted & Talented

- Independent projects
- Enrichment pages
- Online games
- Leveled Homework
- Extension Activities
- Today's Challenge

Interdisciplinary Connections

K-2-ETS1-2	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
ETS1.B	Developing Possible Solutions
	Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions, such as climate change, to other people.
2.2.2.PF	Physical Fitness
RI.MF.1.6	With prompting and support, use text features (e.g., diagrams, tables, animations) to describe key ideas.
W.IW.1.2.B	Develop the topic with facts or other information and examples related to the topic.

Career Readiness, Life Literacies & Key Skills

Creativity and Innovation: Brainstorming can create new, innovative ideas.

- **9.4.2.CI.1:** Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).

Example: Students will share ideas of multiple strategies and draw models to illustrate their perspective to the solution path they utilize to solve word problems.

Critical Thinking and Problem-Solving: Critical thinkers must first identify a problem then develop a plan to address it to effectively solve the problem.

- **9.4.2.CT.2:** Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

Example: Students will work in small groups and collaborate to identify possible solutions paths to word problems, utilizing the

strategies they have learned to solve addition and subtraction operations, such as place value charts, number lines, hundred chart, ten frames, etc., that could best illustrate the solution to the problem.

Digital Citizenship: Individuals should practice safe behaviors when using the Internet.

- **9.4.2.DC.3:** Explain how to be safe online and follow safe practices when using the Internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4).

Example: Students will model appropriate use of all digital platforms and share examples of their work that exhibit proper use of various platforms.

Interaction of Technology and Humans: Technology has changed the way people live and work. Various tools can improve daily tasks and quality of life.

- **8.2.2.ITH.3:** Identify how technology impacts or improves life.

Example: Students will track their progress using Reveal Math or other math programs often utilized in class. Students will discuss the pros and cons of using the program with the teacher. Students will use analog and digital clocks.

Career Ready Practices

STEM Career: Automotive Engineer- Students talk about the work of an automotive engineer.

Students use shapes to design a dashboard for a car.

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP12. Work productively in teams while using cultural global competence.