SD USD

San Diego Unified School District

Instructional Module to Enhance the Teaching of

HARCOURT

Math

California Edition

Grade 1

Module 13

Geometry

-WORK IN PROGRESS –

Revised 12/06/04

San Diego City Schools
Instruction and Curriculum Division

MATHEMATICS CURRICULUM MAP – GRADE 1

MODULE 13 –GEOMETRY

Modules represent individual units of study that lead to essential learnings

THREADS THROUGHOUT THE YEAR- FIRST GRADE ***This represents what students should do throughout all modules (units of study). These items should not be isolated to a particular unit of study.*** **Students will:**
Develop understanding of numbers and the number system and use their understanding to solve problems and recognize reasonable results.
Use mathematical reasoning to solve problems.
Develop understanding of and fluency in basic computation and procedural skills.
Use equations and to express generalizations of patterns and relationships.
Communicate their mathematical thinking by using words, numbers, symbols, graphs and charts., and describe different representations
Express generalizations of patterns and relationships.
Make connections among mathematical ideas and between other disciplines.
Develop and use strategies, skills, and concepts to solve problems.
Use appropriate tools, as vehicles to learn mathematical concepts.
Essential learnings that represent bigger ideas/concepts ***•Students identify, describe and classify familiar plane and solid geometric shapes (e.g. circle, triangle, square, rectangle, sphere, pyramid, cube, rectangular prism) by common attributes, such as color, position, shape, size, roundness, or number of corners and explain which attributes are being used to classify.*** ***•Students match solid figures to real-life objects.*** ***•Students give and follow directions about locations (e.g., put the picture of the ball above the picture of the house).*** ***•Students arrange and describe objects in space by proximity, position and direction (e.g., near, far, above, below, up, down, behind, in front of , next to, left or right of).***
Essential questions that will lead to the essential learnings: **How can I identify and describe solid figures by describing their attributes?** **In what ways can I match solid geometric figures to real-life objects?** **How can I sort and classify solid figures by common attributes?** **How can I give and follow directions to locate objects and describe their positions?**
Resources: Van de Walle, Chapter 20, pp.,345–350, 352

Harcourt Math – Grade 1

Module 8: Geometry

10 Days

Key Mathematical Concepts:

- Identify, compare, sort, and classify solid figures by their properties such as number of surfaces, edges, and corners; and relate them to real-life objects
- Identify and sort plane shapes by their properties such as size and number of sides and corners, and relate them to real-life objects
- Identify symmetrical shapes and their lines of symmetry
- Identify and use terms of orientation
- Solve problems by using an appropriate strategy

Chapter 20: Solid Figures and Plane Shapes	**Chapter 21: Spatial Sense**
DAY	DAY
1 20.1 Solid Figures	**6** 21.1 Same Size and Shape
2 20.2 Sort Solid Figures	**7** 21.2 Symmetry
3 20.3 Flat Surfaces on Solids	**8** 21.3 Give and Follow Directions
4 20.4 Plane Shapes on Solid Figures	**9** 21.4 Locate Objects
5 20.5 Sort and Identify Shapes	**10** 21.5 Problem Solving: Draw a Picture

Note:

When exploring solid figures and plane shapes with students, it is always best to use real objects rather than pictures. Ideally, each classroom would have sets of geometric solids and this is not the reality in many classrooms. Therefore, the following ordinary shapes might prove helpful when teaching this unit:

Cylinders **Tin cans** **Pringles potato chip cans**	**Spheres** **Tennis balls** **Rubber balls**	**Cubes** **Dice** **Wood blocks**
Rectangular prisms **Cereal boxes** **Tissue boxes**	**Cone** **Birthday party hats**	**Pyramid**

Harcourt Math: Grade 1

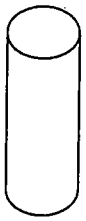
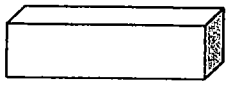
Module 8: Geometry

10 Days

Day 1 Lesson 20.1	**Day 2** Lesson 20.2	**Day 3** Lesson 20.3	**Day 4** Lesson 20.4	**Day 5** Lesson 20.5
Day 6 Lesson 21.1	**Day 7** Lesson 21.2	**Day 8** Lesson 21.3	**Day 9** Lesson 21.4	**Day 10** Lesson 21.5

MODULE 8: Geometry
Chapter 20: Solid Figures and Plane Shapes

DAY 1: LESSON 20.1 TE p.287A

LESSON FOCUS:	**Solid Figures**
CALIFORNIA STANDARD:	**Measurement and Geometry 2.2** Classify familiar plane and solid objects by common attributes, such as color, position, shape, size, roundness, or number of corners, and explain which attributes are being used for classification.
Purpose of Lesson:	To identify spheres, cones, cubes, cylinders, rectangular prisms, and pyramids and to relate them to everyday objects; to use spatial sense to identify solids from different views
ROUTINE *TE p. 285* *For the teacher: chart paper.* *For each student: pencil, marker, crayon box.*   	Suggestion: **Introducing the Chapter:** TE p. 285 Or **Problem of the Day:** • *What shape will you draw if you trace the end of a marker?* (Circle) *Take out a marker and try it.* • *Now look at the end of the marker. Do you see the shape you drew? Show me.* • *Can you find a circle somewhere else on your marker?* (The other end) • *When you have a shape that has the same-sized circle at each end, that shape is called a cylinder.* Draw a picture of a cylinder on the board or chart paper and label it "cylinder." • *Can you think of another object that is a cylinder?*" (soda can, trash can, crayon) • *What shape will you draw if you trace the bottom of your crayon box?* (rectangle) *First take a guess. Why do you think so? Try it. What shape did you draw? Show me where it is on the box. Can you find a rectangle anywhere else on this shape?* (Every side has a rectangle) • *When you have a shape with 6 sides and each side is a rectangle, that shape is called a rectangular prism.* Draw it on the chart and label it "rectangular prism." *Can you think of any other objects that are rectangular prisms?* (box of tissue, suitcase, pencil, box) • *Imagine you are holding an ice cream cone. You've eaten all the ice cream and only the cone is left. If you looked down at your empty cone, what shape would you see?* (circle) • *What other shape has a circle on the end?* (cylinder) *How is a cone different from a cylinder?* (a cylinder has the same-sized circles at both ends, a cone has a circle at one end and a point at the other) *The point or tip of a cone is called the apex.* Draw a cone on the chart and label it.

LAUNCH *TE and Workbook p.287*	**Introduce Activity:** Workbook p.287 • Ask students to find the three 3-dimensional shapes you talked about during routines. (cylinder, rectangular prism, and cone) • Ask students to circle them at the top of the page. Review attributes of each. • Ask students to find the objects on the page that represent these three shapes and color them accordingly. • As students finish, ask, *What objects are left?* (spheres, pyramids, and cubes) • Have a discussion about the attributes of these shapes and add them to your chart. • Ask students to finish coloring.
EXPLORE	Students work independently identifying objects as 3-D shapes
PRACTICE *6 pieces of blank paper with a shape and its name on the top*	**Shape Race:** • Divide students into 6 groups. Give each group a blank piece of paper with one of the 3-D shapes and its name on top. • Ask each group to find as many things in the classroom as they can that have the same attributes as their shape. • Ask students to either write down the name of the object or draw a picture of it. • After a set period of time (3-4 minutes), ask students to stop and share their work. • Students check other groups' work by referring to the chart and the attributes of each shape.
SUMMARIZE	*Revisit with students the lesson's objective by connecting the following discussion to the purpose of the lesson.* **Discuss:** Place one example of each shape at the front of the room. • Ask students to look for similarities and differences between the shapes and describe them. For example: Both *a cube and a rectangular prism have 6 sides, but a cubes sides are all square and the rectangular prism has rectangle sides.*
Homework	**Suggestion:** *Family Involvement Activities* p. FA89

MODULE 8: Geometry
Chapter 20: Solid Figures and Plane Shapes

DAY 2: LESSON 20.2 TE p.289A

LESSON FOCUS:	**Sort Solid Figures**
CALIFORNIA STANDARD:	**Measurement and Geometry 2.2** Classify familiar plane and solid objects by common attributes, such as color, position, shape, size, roundness, or number of corners, and explain which attributes are being used for classification.
Purpose of Lesson:	To sort and classify solid figures by properties (stacking, sliding, rolling)
ROUTINE *TE p.289* *TE p.290* *TE p.289A, sphere, cone, cube, cylinder, rectangular prism, pyramid, name card of each shape*	Suggestion: **Quick Review:** TE p. 289 Or **Mixed Review and Test Prep:** TE p. 290 Or **Shape Race:** (see "Practice" Day 1) Change groups Or **Stacking, Rolling, and Sliding:** TE p. 289A
LAUNCH *TE and Workbook p.289*	**Introduce Activity:** Workbook p. 289
EXPLORE	Students work together as a class discussing properties of shapes and completing workbook p. 289.
PRACTICE *For each student: blank piece of paper*	• Ask students to choose two different 3-D shapes that share a common attribute. For example, a cone and a pyramid both have a square bottom (base). A sphere and a cone both roll. • Ask students to fold a piece of blank paper lengthwise in half. Write the names of their 2 shapes at the top of each column and write down the names of as many objects they can think of that are the shape.
SUMMARIZE	*Revisit with students the lesson's objective by connecting the following discussion to the purpose of the lesson.* **Discuss:** How are the two shapes you choose alike? How are they different?
Homework	**Suggestion:** *Family Involvement Activities* p. FA90

MODULE 8: Geometry
Chapter 20: Solid Figures and Plane Shapes

DAY 3: LESSON 20.3 TE p.291A

LESSON FOCUS:	**Flat Surfaces on Solids**
CALIFORNIA STANDARD:	**Measurement and Geometry 2.2** Classify familiar plane and solid objects by common attributes, such as color, position, shape, size, roundness, or number of corners, and explain which attributes are being used for classification.
Purpose of Lesson:	To sort and classify solid figures by the number of flat surfaces
ROUTINE *TE p. 291* *TE p.292*	Suggestion: **Quick Review:** TE p. 291 Or **Mixed Review and Test Prep:** TE p. 292 Or **Shape Race:**(see "Practice" Day 1) Change groups Or **Stacking, Rolling, and Sliding:** TE p. 289A
LAUNCH *TE p. 291A* *For each group, a cube, sphere, cone* *For each student, Workbook pp. 291-292*	**Introduce Activity: Count the Flat Surfaces,** TE p. 291A, and **Workbook** pp. 291-292
EXPLORE	Students work in groups exploring and discussing the surfaces of 3-D shapes, then complete workbook pages.
PRACTICE	• As time allows, Ask students to create a riddle like the one in *"Problem Solving – Reasoning"* on Workbook p. 292. • Trade riddles with a partner to solve.
SUMMARIZE	*Revisit with students the lesson's objective by connecting the following discussion to the purpose of the lesson.* **Discuss and Write:** TE p. 292
Homework	**Suggestion:** *Reteach* 20.3 or *Challenge* 20.3 (see bottom margin TE p. 291)

MODULE 8: Geometry
Chapter 20: Solid Figures and Plane Shapes

DAY 4: LESSON 20.4 TE p.293A

LESSON FOCUS:	**Plane Shapes on Solid Figures**
CALIFORNIA STANDARD:	**Measurement and Geometry 2.1** Identify, describe and compare triangles, rectangles, squares, and circles, including the faces of three-dimensional objects.
Purpose of Lesson:	To identify plane figures as flat surfaces of solid figures
ROUTINE *TE p. 293A* *TE p. 293* *TE p. 294*	Suggestion: **Problem of the Day:** TE p. 293A Or **Quick Review:** TE p. 293 Or **Mixed Review and Test Prep:** TE p.294 *Continue to keep the Number Line and Hundred Chart visible to students to use as a tool for solving problems.* *Continue questioning each day:* • *How did you think about the problem to come up with that answer?* • *Did anyone think about it another way?* • *Do you agree or disagree with this response?* • *What was your strategy?* • *Explain how you got your answer.*
LAUNCH *TE p. 293A* *For the class, cube, rectangular prism, cylinder, cone, pyramid, sphere, paper, pencil*	**Introduce Activity: From Flat Surfaces to Planes** • Explain that "planes" are flat shapes (circle, triangle, square, rectangle, diamond, etc.) When you trace a "flat surface," you draw a plane shape on your paper. • Challenge groups to draw all of the plane shapes from the flat surfaces of their 3-D shape.
EXPLORE	Students work in small groups tracing 3-D shapes and discussing the flat surfaces or planes on each.
PRACTICE *TE and Workbook pp. 293-294*	As time allows, TE and Workbook pp.293-294
SUMMARIZE *Blank paper with one drawing each of circle, triangle, square, rectangle*	*Revisit with students the lesson's objective by connecting the following discussion to the purpose of the lesson.* **Discuss:** • Tell students that you traced some 3-D shapes before class but forgot to record which shape you were tracing. • Ask them to help you first identify the plane shapes you drew then determine which 3-D shape you might have traced.
Homework	**Suggestion:** *Family Involvement Activities* p. FA91

MODULE 8: Geometry
Chapter 20: Solid Figures and Plane Shapes

DAY 5: LESSON 20.5 TE p.295A

LESSON FOCUS:	**Sort and Identify Shapes**
CALIFORNIA STANDARD:	**Measurement and Geometry 2.2** Classify familiar plane and solid objects by common attributes, such as color, position, shape, size, roundness, or number of corners, and explain which attributes are being used for classification.
Purpose of Lesson:	To sort and identify plane shapes by the number of sides and corners
ROUTINE *TE p. 395A* *For each pair, geoboard and rubber bands* *TE p. 295* *TE p. 296*	Suggestion: **Problem of the Day:** TE p. 295 A Or **Quick Review:** TE p. 295 Or **Mixed Review and Test Prep:** TE p. 296 *Continue to keep the Number Line and Hundred Chart visible to students to use as a tool for solving problems.* *Continue questioning each day:* • *How did you think about the problem to come up with that answer?* • *Did anyone think about it another way?* • *Do you agree or disagree with this response?* • *What was your strategy?* • *Explain how you got your answer.*
LAUNCH *TE p. 295A* *For each child, attribute links, paper, pencil*	**Introduce Activity: Finding Corners and Sides** TE p. 295A • Ask students to draw and label the corners and sides for each attribute link. • Instruct students to name each plane shape they draw.
EXPLORE	Students work independently drawing and labeling corners and sides of attribute link shapes.
PRACTICE *TE and Workbook pp. 295-296*	As time allows, TE and Workbook pp.295-296
SUMMARIZE *Cube, rectangular prism, sphere, cylinder, pyramid, cone*	*Revisit with students the lesson's objective by connecting the following discussion to the purpose of the lesson.* **Discuss:** Display each of the 3-D shapes one at a time. Ask: • *What is the name of this shape?* • *How do you know?* (Look for children to answer with a specific attribute such as, 'It is a cylinder because it has two flat surfaces that are circles.') • *Where are the flat surfaces?* • *What are the plane shapes of the flat surfaces?* • *Where are the sides of the plane shape, the corners?*
Homework	**Suggestion:** *Family Involvement Activities* p. FA92

MODULE 8: Geometry
Chapter 21: Spatial Sense

DAY 6: LESSON 21.1 TE p.301A

LESSON FOCUS:	**Same Size and Shape**
CALIFORNIA STANDARD:	**Measurement and Geometry 2.2** Classify familiar plane and solid objects by common attributes, such as color, position, shape, size, roundness, or number of corners, and explain which attributes are being used for classification.
Purpose of Lesson:	To identify and construct congruent shapes
ROUTINE *TE p. 299* *TE p.301A* *TE p. 301A* *TE p.302*	Suggestion: **Introducing the Chapter:** TE p. 299 Or **Problem of the Day:** TE p.301A Or **Vocabulary Development:** TE p.301A Or **Mixed Review and Test Prep:** TE p.302 *Continue to keep the Number Line and Hundred Chart visible to students to use as a tool for solving problems.* *Continue questioning each day:* • *How did you think about the problem to come up with that answer?* • *Did anyone think about it another way?* • *Do you agree or disagree with this response?* • *What was your strategy?* • *Explain how you got your answer.*
LAUNCH *TE p. 301A* *For each group, attribute links*	**Introduce Activity: Congruent Attribute Links** TE p. 301A
EXPLORE	Students work in pairs identifying congruent shapes by sorting attribute links.
PRACTICE *TE and Workbook pp. 301-302* *Geoboards, if available*	As time allows, TE and Workbook pp.301-302 If available, ask students to recreate shapes on the workbook pages using geoboards and rubber bands.
SUMMARIZE *TE p.302, Dot paper (p. TR84)*	*Revisit with students the lesson's objective by connecting the following discussion to the purpose of the lesson.* **Discuss and Write:** TE p. 302 (Assess)
Homework	**Suggestion:** *Family Involvement Activities* p. FA93

MODULE 8: Geometry
Chapter 21: Spatial Sense

DAY 7: LESSON 21.2 TE p.303A

LESSON FOCUS:	**Symmetry**
CALIFORNIA STANDARD:	**Measurement and Geometry 2.2** Classify familiar plane and solid objects by common attributes, such as color, position, shape, size, roundness, or number of corners, and explain which attributes are being used for classification.
Purpose of Lesson:	To make symmetrical shapes and identify lines of symmetry
ROUTINE *TE p.303A* *TE p.303* *TE p.302A* *For partners, pattern blocks*	Suggestion: **Daily Routine:** TE p. 303A Or **Quick Review:** TE p.303 Or **Advanced Learners** TE p.302A Or **Mixed Review and Test Prep:** TE p.304 *Continue to keep the Number Line and Hundred Chart visible to students to use as a tool for solving problems.* *Continue questioning each day:* • *How did you think about the problem to come up with that answer?* • *Did anyone think about it another way?* • *Do you agree or disagree with this response?* • *What was your strategy?* • *Explain how you got your answer.*
LAUNCH *TE p. 303* *For each student, workbook p.303, construction paper, scissors, marker* *For partners, pattern blocks, marker*	**Introduce Activity: Creating a Symmetrical Shape Workbook** pp.303 and **Early Finishers** TE p. 304A
EXPLORE	Students work independently creating a symmetrical shape, then with a partner building symmetrical shapes with pattern blocks.
PRACTICE *TE and Workbook pp. 303-304*	As time allows, TE and Workbook pp.303-304
SUMMARIZE	*Revisit with students the lesson's objective by connecting the following discussion to the purpose of the lesson.* **Discuss:** Show me some of the symmetrical shapes you created with pattern blocks. • Where is the line of symmetry? • How do you know it is symmetrical? • Can you prove it?
Homework	**Suggestion:** *Family Involvement Activities* p. FA94