



San Diego Unified School District

Instructional Module to Enhance the Teaching of

HARCOURT

Math

California Edition

Grade 2

Module 2 - Revised

Geometry

- WORK IN PROGRESS -

MODULE 2 – GEOMETRY
Modules represent individual units of study that lead to essential learnings

THREADS THROUGHOUT THE YEAR:

The threads represent ongoing learning opportunities in which students should be actively engaged throughout all units of inquiry during the entire school year. These items should not be isolated to any one particular unit of inquiry.

Students will:

- Develop understanding of numbers and the number system and use their understanding to solve problems and recognize reasonable results.
- Develop understanding of and fluency in basic computation and procedural skills.
- Use mathematical reasoning to solve problems.
- Communicate their mathematical thinking by using words, numbers, symbols, graphs and charts.
- Express generalizations of patterns and relationships.
- Develop logical thinking to analyze evidence and build arguments to support or refute a hypothesis.
- Make connections among mathematical ideas and between other disciplines.
- Develop and use strategies, skills, and concepts to solve problems.
- Use appropriate tools, including technology, as vehicles to learn mathematical concepts.

These are essential learnings that represent bigger ideas/concepts:

- Students identify, describe and classify plane and solid geometric shapes (e.g., circle, triangle, square, rectangle, sphere, pyramid, cube rectangular prism) according to the number and shape of faces, edges and vertices.
- Students match solid figures to real-life objects.
- Students put shapes together and take them apart to form other shapes (e.g., two congruent right triangles can be arranged to form a rectangle).

These are essential questions that learners ask themselves in order to achieve the essential learnings:

- How can I identify and describe solid figures by describing the faces, edges, and sides?
- *In what ways can I match solid geometric figures to real-life objects?**
- How can I put shapes together and take them apart to form other shapes?

*Presented in previous grade

Resources: Van de Walle, Chapter 20, pp. 345 –347, 350-352

Harcourt Math – Grade 2

Module 2: Geometry

11 Days

Key Mathematical Concepts:

- Identify and classify plane shapes
- Identify, describe and compare sides and corners
- Identify and construct congruent figures
- Identify lines of symmetry
- Combine and separate shapes
- Move figures by flipping, turning, and sliding
- Match solid figures to real-life objects
- Match plane shapes to faces of solids
- Sort solid figures
- Solve a problem by using an appropriate strategy

<p>Chapter 17 Plane Shapes</p> <p>Lesson 17.1: Identify Plane shapes Lesson 17.2: Side and Corners Lesson 17.4: Combine and Separate Shapes Lesson 17.5: Moving Shapes Lesson 17.6: More About Moving Shapes</p>	<p>Chapter 18 Solid Figures</p> <p>Lesson 18.1: Identify Solid Figures Lesson 18.2: Make Plane Shapes Lesson 18.3: Sort Solid Figures Lesson 18.4: Problem Solving: Making a Model Assessment</p>
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Module 2
 Geometry
 Days 25 - 34
 2 weeks

<p>Day 1 Unit 4 Lesson 17.1</p>	<p>Day 2 Unit 4 Lesson 17.2</p>	<p>Day 3 Unit 4 Lesson 17.3</p>	<p>Day 4 Unit 4 Lesson 17.4</p>	<p>Day 5 Unit 4 Lesson 17.5</p>
<p>Day 6 Unit 4 Lesson 17.6</p>	<p>Day 7 Unit 4 Lesson 18.1</p>	<p>Day 8 Unit 4 Lesson 18.2</p>	<p>Day 9 Unit 4 Lesson 18.3</p>	<p>Day 10 Unit 4 Lesson 18.4</p>
<p>Day 11 Unit 4 Assessment</p>				

Grade 2

Order of Units
2003-2004 School Year
TRADITIONAL CALENDAR

September October	Module 1: Addition and Subtraction Strategies and Facts, Place Value, and Graphing. Chapters 6, 1-4, 5	25 days
October	Module 2: Geometry Chapters 17 and 18	11 days
October November	Module 3: Money and Time Chapters 7 and 9	11 days
November	Module 4: 2-Digit Addition and Subtraction Chapters 11-13	15 days
December	Module 5: Measurement Chapters 19 and 20	13 days
January February	Module 6: 2-Digit Addition and Subtraction Chapters 14 - 16	20 days
February	Module 7: Number Sense and Fractions Chapters 21 and 22	10 days
February March	Module 8: Multiplication and Division Chapters 28 - 30	15 days
March April	Module 9: 3-Digit Addition and Subtraction Chapters 25 and 26	16 days
April	Module 10: Number Sense and Fractions Chapters 23 and 24	11 days
April May	Module 11: Money and Time Chapters 8 and 10	11 days
May	Module 12: 3-Digit Addition and Subtraction Chapter 27	10 days
	Days to be used throughout the year (at teacher's discretion) when more time is necessary to make meaning of a concept.	13 days

GRADE 2
Order of Units
2003-2004 School Year
YEAR ROUND CALENDAR

September October	Module 1: Addition and Subtraction Strategies and Facts, Place Value, and Graphing. Chapters 6, 1-4, 5	25 days
October	Module 2: Geometry Chapters 17 and 18	11 days
October November	Module 3: Money and Time Chapters 7 and 9	11 days
November	Module 4: 2-Digit Addition and Subtraction Chapters 11-13	15 days
December	Module 5: Measurement Chapters 19 and 20	13 days
January February	Module 6: 2-Digit Addition and Subtraction Chapters 14 - 16	20 days
February March	Module 7: Number Sense and Fractions Chapters 21 and 22	10 days
March April	Module 8: Multiplication and Division Chapters 28 - 30	15 days
April May	Module 9: 3-Digit Addition and Subtraction Chapters 25 and 26	16 days
May June	Module 10: Number Sense and Fractions Chapters 23 and 24	11 days
May June	Module 11: Money and Time Chapters 8 and 10	11 days
June July	Module 12: 3-Digit Addition and Subtraction Chapter 27	10 days
	Days to be used throughout the year (at teacher's discretion) when more time is necessary to make meaning of a concept.	13 days

DAY 1

UNIT 4: GEOMETRY AND MEASUREMENT
 Chapter 17: Plane Shapes
 LESSON 17.1, TE P. 241A

LESSON FOCUS:	Identify Plane Shapes
CALIFORNIA STANDARD:	Measurement and Geometry: 2.0 Students identify and describe the attributes of common figures in the plane and of common objects in space.
Purpose of Lesson:	To identify circles, squares, triangles, rectangles, and ovals
Routine Materials: • snap cubes • base ten materials • money • other manipulatives	Suggestion: Number of the Day <ul style="list-style-type: none"> • For School Day 26, record '26' on a larger piece of chart paper. • Have students brainstorm equations that equal 26. • Record a '26' on the number line and circle it in red to continue the counting by twos number pattern. • On the 10x18 square chart, record a '26' next to the '25'. • Students represent today's number with snap cubes, base ten materials, money and other manipulatives. • Students share their representations with the rest of the class. • Ask students to suggest ways in which equations can represent manipulative models.
LAUNCH Materials: • TR 93	Introduce: What is Geometry? <ul style="list-style-type: none"> • Ask students to respond to this question aloud and/or in writing. • Show students shapes; ask them to identify shapes and explain the identifying attributes (e.g., "I know it is a triangle because..."). • Focus on the number of sides and corners.
EXPLORE	Plane Shapes <ul style="list-style-type: none"> • Students draw a series of 3 – 5 of the following shapes: square, triangle, circle, and oval. Each new one should be different in some way from the previous shapes. • Students discuss and/or write about why each one is different. They label their shapes.
PRACTICE	As time allows: p. 243 and/or 244.
SUMMARIZE	Closure: Revisit purpose of the lesson with students. <ul style="list-style-type: none"> • Students share their shapes from Explore. • Discuss the numbers of sides and corners on each.
Homework	Suggestion: <ul style="list-style-type: none"> • Locate things at home that are squares, circles, ovals and triangles. • Draw each and write the name of the shape it represents. • Write the number of sides and corners for each shape.

DAY 2
 UNIT 4: GEOMETRY AND MEASUREMENT
 Chapter 17: Plane Shapes
 LESSON 17.2, TE P. 243A

LESSON FOCUS:	Sides and Corners
CALIFORNIA STANDARD:	Measurement and Geometry: 2.0 Students identify and describe the attributes of common figures in the plane and of common objects in space.
Purpose of Lesson:	Identify the sides and corners of plane shapes
Routine Materials: • quart jar filled with snap cubes	Suggestion: Making Estimates <ul style="list-style-type: none"> • Fill a quart jar full of snap cubes. • Ask students to estimate the number of cubes in the jar, based on the number that was in the half-filled jar. • Discuss the range of estimates. • Ask students how they might figure out the actual number of cubes; take suggestions of counting in different ways (2s, 5s and 10s), having students demonstrate counting with the whole class observing. • Discuss the differences between some of the estimates and the actual number of cubes.
LAUNCH Materials: • <i>The Greedy Triangle</i> , by Marilyn Burns et al or another book focusing on shapes • 3-inch squares of construction paper • scissors • masking tape	Introduce: Sides and Corners <ul style="list-style-type: none"> • Read <i>The Greedy Triangle</i> (or another book focusing on shapes). • Discuss the names of the shapes that were in the story (concentrate on the number of sides and angles/corners in each shaped named). • List the names of shapes Two Triangles <ul style="list-style-type: none"> • Demonstrate how to fold a square on the diagonal and cut on the fold to make two congruent triangles. Ask students to make their own. • Ask students to put their two triangles together to make a new shape, following two rules: triangles must touch each other and touching sides must be of equal length. • Demonstrate how to use a tiny piece of masking tape to keep the two triangles together.
EXPLORE Materials: • 3-inch squares of construction paper (approximately 60 per small group) • masking tape • pair of scissors per students	Four Triangles (this will be continued on Day 3) <ul style="list-style-type: none"> • Give small groups of students additional squares of the same size and masking tape. • Have small groups of students make as many shapes as possible with four triangles, following the same rules (triangles must touch each other and touching sides must be of equal length). Students tape together shapes. • Each group attempts to find all of the possible different shapes. (i.e., rectangle, quadrilateral, square, parallelogram, rhombus, pentagon, hexagon)
SUMMARIZE	Closure: Revisit purpose of the lesson with students. <ul style="list-style-type: none"> • Have students discuss the shapes they have made, focusing on the number of sides and corners/angles in each. • Did all follow the “rules” for Four Triangles?
Homework Materials: • 3 to 5 index cards per student	Suggestion: Early Finishers, TE, Pg. 244A. <ul style="list-style-type: none"> • Students make up riddles about plane shapes such as, “I am a shape with 3 corners and 3 sides. What am I?” • Students write their riddles on index cards.

DAY 3
 UNIT 4: GEOMETRY AND MEASUREMENT
 Chapter 17: Plane Shapes
 LESSON 17.3
 TE P. 245A

LESSON FOCUS:	Congruence and Symmetry
CALIFORNIA STANDARD:	Measurement and Geometry: 2.0 Students identify and describe the attributes of common figures in the plane and of common objects in space.
Purpose of Lesson:	Use a line of symmetry to divide a plane shape into two congruent parts.
Routine	Suggestion: Homework Sharing Have students share shape riddles from yesterday's homework (School Day 27).
LAUNCH	Review: Four Triangles Ask students to recall the directions for Four Triangles and the rules for arranging triangles to make a new shape. See Math Background TE and p. 245. <ul style="list-style-type: none"> • Introduce term "line of Symmetry." Have students fold square to make triangles that are congruent. It is a line of symmetry because each of the triangles are congruent (same size, same shape).
EXPLORE Materials: <ul style="list-style-type: none"> • 3-inch squares of construction paper (approximately 60 per small group, from School Day 27) • masking tape • pair of scissors per students 	Continue: Four Triangles <ul style="list-style-type: none"> • Have small groups of students continue to find all the possible shapes made with four triangles. • When students are done, they discuss how they know they have found all the possible shapes. • Students sort their collection of shapes in different ways.
PRACTICE	As time allows: Examine Four Triangles <ul style="list-style-type: none"> • Students review all shapes to see if they follow the rules. They set aside a shape if it is the same as one that has already been made by the group (keep for Day 5, Lesson 17.5). • Ask groups to find shapes that have one or more lines of symmetry.
SUMMARIZE	<ul style="list-style-type: none"> • Closure: Revisit purpose of the lesson with students. • One at a time, ask a group to bring up one different four-triangle shape at a time. Post shapes one at a time, until all different shapes are posted. • Redefine "symmetry" and "congruent" (see Math Background, TE, and P. 245). Have students look for congruent shapes; remove them. Sort them in different ways, letting students guess the sorting rules. Include "symmetry" (e.g., one line, two lines) as a sorting rule.
Homework Materials: <ul style="list-style-type: none"> • one tagboard copy of TR 97 per student 	<ul style="list-style-type: none"> • Suggestion: Give students a copy of tag board tangrams. • Students trace shapes on another sheet of paper and label shapes. Students use all seven shapes to make a new shape. • Students trace only the perimeter of the new shape (rather than each shape itself), creating a puzzle for classmates to solve. • Tracings can be embellished with crayon/marker.

DAY 4
 UNIT 4: GEOMETRY AND MEASUREMENT
 Chapter 17: Plane Shapes
 LESSON 17.4
 TE P. 247A

LESSON FOCUS:	Combine and Separate Shapes
CALIFORNIA STANDARD:	Measurement and Geometry: 2.2 Put shapes together or take them apart to make new shapes.
Purpose of Lesson:	Understand shapes can be combined and separated to make new shapes.
Routine	Suggestion: Sharing Tangram Puzzles Students share puzzles made from homework on Module 2, Day 3, Lesson 17.3.
LAUNCH Materials: • four-triangle shapes	Sorting Four-Triangle Shapes <ul style="list-style-type: none"> • Continue to sort the four-triangle shapes in different ways. Sort by number of sides; focus on the terms “triangle,” “quadrilateral,” “pentagon,” “hexagon.” • Discuss how some shapes can have more than one name (parallelogram/square/quadrilateral; all are quadrilaterals, but not all quadrilaterals are squares or parallelograms; square are rectangles and both are quadrilaterals, but not all rectangles are squares).
EXPLORE Materials: • pattern blocks	Introducing Pattern Blocks: Building Shapes from Shapes <ul style="list-style-type: none"> • Allow students to explore the blocks. Ask them to identify the blocks by name, rather than color. • Students: Use two blocks. What new shapes can you make, using all different blocks? Trace each. What are the names of these shapes? Label each shape. • Repeat with three, four and five blocks.
PRACTICE Materials: • student-made tangram puzzles (Homework, Day 28)	As time allows: Solving Tangram Puzzles, p 248. Students solve classmate’s tangram puzzles.
SUMMARIZE	Closure: Revisit purpose of the lesson with students. <ul style="list-style-type: none"> • Have students share their Building Shapes from Shapes work. • Ask, “How was your shape made up of other shapes?” • Which shapes are easier/harder to combine? Why/why not? • Which shapes are easier to take apart?
Homework Materials: • one copy of p. FA 69 per student	Suggestion: Family Involvement Activity, Pg. FA 69.

DAY 5
 UNIT 4: GEOMETRY AND MEASUREMENT
 Chapter 17: Plane Shapes
 LESSON 17.5
 TE P. 249A

LESSON FOCUS:	Moving Shapes
CALIFORNIA STANDARD:	Measurement and Geometry: 2.0 Students identify and describe the attributes of common figures in the plane and of common shapes in space.
Purpose of Lesson:	Understand what it means to turn or flip a shape. Understand congruency.
Routine	Suggestion: Number of the Day Have students concentrate on making tens (e.g., $1 + 9 + 8 + 2 + 6 + 4 = 30$).
LAUNCH Materials: • duplicate four-triangle shapes	Model: Rotations and Flips <ul style="list-style-type: none"> • Use the duplicate congruent four-triangle shapes set aside from Module 2, Day 3, Lesson 17.3. • Ask students to come up to the board; have them use this shape and the congruent four-triangle shape to demonstrate how you can prove congruence through flipping and rotating/turning the shapes.
EXPLORE Materials: • four-triangle shapes, including duplicates	Testing Four Triangle Shapes <ul style="list-style-type: none"> • Give groups of students some four-triangle shapes. Include congruent ones that have been previously set aside because they were congruent. • Have students test for congruence by rotating/turning and flipping. • Have them keep these pairs of congruent shapes for Summarize, Lesson 17.5.
PRACTICE	As time allows: pgs. 249 and/or 250.
SUMMARIZE	Closure: Revisit purpose of the lesson with students. <ul style="list-style-type: none"> • Have groups present how they used flips and rotations/turns to test for congruence with the four triangle shapes. • Discuss and write: What does it mean to flip an object? Turn/rotate an object?
Homework Materials: • one copy of p. FA 70 per student	Suggestion: Family Involvement Activity, Pg. FA 70.

DAY 6
 UNIT 4: GEOMETRY AND MEASUREMENT
 Chapter 17: Plane Shapes
 LESSON 17.6
 TE P. 251A

LESSON FOCUS:	More About Moving Shapes
CALIFORNIA STANDARD:	Measurement and Geometry: 2.0 Students identify and describe the attributes of common figures in the plane and of common shapes in space.
Purpose of Lesson:	Understand what it means to “slide” a shape.
Routine	Suggestion: Number of the Day Have students concentrate on making tens (e.g., $5 + 5 + 3 + 7 + 2 + 8 + 1 = 31$).
LAUNCH Materials: • four-triangle shapes	Model: Slides Use the four triangle shapes to demonstrate (see Model a Slide, TE p. 251A)
EXPLORE Materials: • four-triangle shapes • tagboard • one 18x24 inch sheet of newsprint per students	Identifying Terms: Flip, Rotate, Turn, Slide <ul style="list-style-type: none"> • Students pick a four-triangle shape. • They trace the shape onto a piece of tag board, and then cut out the tag board copy. • Students trace the original shape onto a piece of newsprint and label the shape “original shape.” • They flip the shape, trace it again, and label the new tracing “flip”. • They repeat the process with “rotation/turn” and “slide.” <p>Repeat with another shape if time allows.</p>
PRACTICE	As time allows: pgs. 251 and/or 252.
SUMMARIZE	Closure: Revisit purpose of the lesson with students. Discuss: How is a slide different from a turn?
Homework Materials: • at least two sheets of dot paper per student	Suggestion: Do Early Finishers, TE, P. 252A. <ul style="list-style-type: none"> • Explain the terms “flip”, “slide” and “rotate/turn” to an adult. • Have an adult identify. • Take turns.

DAY 7
 UNIT 4: GEOMETRY AND MEASUREMENT
 Chapter 18: Solid Figures
 LESSON 18.1
 TE P. 257A

LESSON FOCUS:	Identify Solid Figures
CALIFORNIA STANDARD:	Measurement and Geometry: 2.0 Students identify and describe the attributes of common figures in the plane and of common shapes in space.
Purpose of Lesson:	Identify solid figures.
Routine	Suggestion: Number of the Day Have students concentrate on making doubles (e.g., $5 + 5 + 8 + 8 + 2 + 2 + 1 + 1 = 32$).
LAUNCH Materials: • models of a cube, cone, cylinder, sphere, rectangular prism, and pyramid • real life objects with these shapes • large paper bag	Handling Solid Figures See TE, Pg. 257A. Do with the whole class and in small groups. <ul style="list-style-type: none"> • Hold up the solid figures one at a time, and have children name each figure. • Place everyday items in the bag. Ask a volunteer to reach in, choose an item, without removing it, and describe what he or she is touching. For example, “it is round, it is flat on both ends.” • Have other children guess which solid figure is being described. Have them give the name of the everyday item first, then tell them the geometric name of the solid figure.
EXPLORE	Finding Real Life Examples <ul style="list-style-type: none"> • Students locate classroom/school examples of the solid figures that have been introduced. • Students draw and label the object they find.
PRACTICE	As time allows: pgs. 257 and/or 258.
SUMMARIZE	Closure: Revisit purpose of the lesson with students. <ul style="list-style-type: none"> • Students share the real life figures they have found in the classroom (see Explore). • Ask questions to elicit the characteristics of each object. How are objects alike/different?
Homework	Suggestion: <ul style="list-style-type: none"> • Students locate real life examples of solid figures at home. • They draw and label the cubes, cones, cylinders, spheres, rectangular prisms found. • Students bring in some cardboard examples to deconstruct for School Day 33, Lesson 18.2 (e.g., rectangular prism boxes, cylindrical boxes).

DAY 8
 UNIT 4: GEOMETRY AND MEASUREMENT
 Chapter 18: Solid Figures
 LESSON 18.2
 TE P. 259A

LESSON FOCUS:	Make Plane Shapes
CALIFORNIA STANDARD:	Measurement and Geometry: 2.0 Students identify and describe the attributes of common figures in the plane and of common shapes in space.
Purpose of Lesson:	Understand that plane shapes form the faces of solid figures.
Routine Materials: • quart jar half-filled with objects or other manipulatives	Suggestion: Making Estimates <ul style="list-style-type: none"> • Fill a quart jar half full with a new manipulative. • Ask students to estimate the number of objects in the jar and explain how they determined their estimate. Discuss the range of estimates. • Ask students how they might figure out the actual number of objects; take suggestions of counting in different ways (2s, 5s and 10s), having students demonstrate counting with the whole class observing. • Discuss the differences between some of the estimates and the actual number of cubes.
LAUNCH Materials: • boxes from Homework, School Day 32, Lesson 18.1 • models of solids	Introducing: Plane Shapes from Solids <ul style="list-style-type: none"> • Using the boxes students have brought in, demonstrate how to trace the faces of the box onto a large sheet of newsprint. • Title the newsprint with the name of the solid figure; label the faces with plane shapes terms. • Discuss the number of faces and edges on the solid figure. • Repeat with plastic models of solids.
EXPLORE Materials: • boxes from Homework, School Day 32, Lesson 18.1 • large sheets of newsprint	Plane Shapes from Solids Individual or pairs of students choose a box and trace the faces, titling the newsprint with the name of the solid figure and labeling the faces with plane shapes terms.
PRACTICE	As time allows: pgs. 259 and/or 260.
SUMMARIZE	Closure: Revisit purpose of the lesson with students. <ul style="list-style-type: none"> • Students share their Plane Shapes from Solids work. • Classmates try to match the box used to the newsprint tracings.
Homework Materials: • one large sheet of newsprint per student	Suggestion: <ul style="list-style-type: none"> • Students locate real life examples of solid figures at home. • They title the paper with the name of the solid figure, then trace and label the faces of the solid figure. • Students try to bring in solid to share on Module Day 9.

DAY 9
 UNIT 4: GEOMETRY AND MEASUREMENT
 Chapter 18: Solid Figures
 LESSON 18.3
 TE P. 261A

LESSON FOCUS:	Sort Solid Figures
CALIFORNIA STANDARD:	Measurement and Geometry: 2.1 Describe and classify plane and solid geometry shapes.
Purpose of Lesson:	Describe solid figures by the number of faces, edges, and corners.
Routine Materials: • coins • homework from School Day 33, Lesson 18.2	Suggestion: Number of the Day <ul style="list-style-type: none"> Students write equations using money ($33\text{¢} = 10\text{¢} + 10\text{¢} + 5\text{¢} + 5\text{¢} + 3\text{¢}$). They prove their equations with collections of coins. Suggestion: Homework Sharing Students share their homework from School Day 33, Lesson 18.2.
LAUNCH Materials: • boxes from School Day 32, Lesson 18.1	Introducing: Find Faces, Edges and Corners <ul style="list-style-type: none"> Use the boxes students have brought in from their homework assignment, Day 32, Lesson 18.1 as well as plastic models of solid figures. Demonstrate how to fill in the chart explained in Find Faces, Edges, and Corners, TE, Pg. 261A.
EXPLORE Materials: • boxes from School Day 32, Lesson 18.1 • approximately 12 toothpicks per student • 4 wooden skewers per student (w/pointed end removed) • clay	Find Faces, Edges and Corners <ul style="list-style-type: none"> Individual or pairs of students chart the features of solid figures as explained in Introducing: Find Faces, Edges and Corners, School Day 33, Lesson 18.3. Students choose one to construct with toothpicks/skewers and clay, (see Alternative Teaching Strategy, TE, Pg. 262A).
PRACTICE	As time allows: pgs. 261 and/or 262.
SUMMARIZE	Closure: Revisit purpose of the lesson with students. <ul style="list-style-type: none"> Give clues based on the number of faces, edges and corners of a solid figure students have been using during Launch and Explore. Students locate the shape/shapes that matches the clues. Have them explain their choice by demonstrating the location of the features.
Homework Materials: • one copy of pgs. TR 84-86, 95 and 100 per student	Suggestion: <ul style="list-style-type: none"> Provide students with copies of Teacher's Resource Book Pgs. TR 84 – 86, 95 and 100. With adult assistance, students build models of these solids.

DAY 10
 UNIT 4: GEOMETRY AND MEASUREMENT
 Chapter 18: Solid Figures
 LESSON 18.4
 TE P. 263A

LESSON FOCUS:	Problem Solving: Making a Model
CALIFORNIA STANDARD:	Mathematical Reasoning: 1.2 Use tools, such as manipulatives or sketches, to model problems.
Purpose of Lesson:	To solve problems by using the strategy <i>make a model</i>.
Routine	Suggestion: Number of the Day Students write equations using money ($34¢ = 25¢ + 5¢ + 4¢$)
LAUNCH Materials: • a “creature” constructed from 20 or less snap cubes	Introducing: Cube Creatures <ul style="list-style-type: none"> • Show students a “creature” made from interlocking 20 or less snap cubes. • Ask them to estimate the number of cubes you used. • Discuss cubes that are difficult to see. • Ask students how they could find the actual number of cubes that were used.
EXPLORE Materials: • 20 snap cubes per student	Making Cube Creatures <ul style="list-style-type: none"> • Students make Cube Creatures using less than 20 cubes, placing them on their desks. • When all students are done constructing their creatures, each student walks around the classroom to view the various creatures made. • Students record the name of the person who constructed the creature, an estimate of the number of cubes used, and the actual number of cubes.
PRACTICE	As time allows: pgs. 263 and/or 264.
SUMMARIZE	Closure: Revisit purpose of the lesson with students. Discuss: <ul style="list-style-type: none"> • What is your Cube Creature’s name? • With which Cube Creatures was it easy to make an estimate of the number of cubes used? Why? • Which were difficult? Why? • In what ways did you determine the number of cubes that were used? • How might we sort the Cube Creatures?
Homework	Suggestion: <ul style="list-style-type: none"> • Make a Geometry Dictionary. Use the following terms: triangle, quadrilateral, pentagon, hexagon, flip, rotate/turn, slide, side, angle, edge, face, corner/vertex. • Optional: cube, rectangular prism, cone, pyramid, cylinder, sphere.

DAY 11
 UNIT 4: GEOMETRY AND MEASUREMENT
 Chapter 18: Solid Figures
 Assessment
 TE P. 253, 254; 265, 266

LESSON FOCUS:	Assessment
CALIFORNIA STANDARD:	<p>Measurement and Geometry: 2.0 Students identify and describe the attributes of common figures in the plane and of common shapes in space.</p> <p>Measurement and Geometry: 2.1 Describe and classify plane and solid geometry shapes.</p> <p>Measurement and Geometry: 2.2 Put shapes together or take them apart to make new shapes.</p>
Purpose of Lesson:	Assess understanding of geometry skills and concepts.
Routine	<p>Number of the Day Have students concentrate on making doubles (e.g., $5 + 5 + 8 + 8 + 2 + 2 + 6 = 36$).</p>
<p>Materials:</p> <ul style="list-style-type: none"> • TE and Student book, pgs. 253, 254, 265, 266 • Assessment Guide AG 105, 106, AG 109, 110 	<p>Launch</p> <ul style="list-style-type: none"> • Revisit the models and activities used during this module. • Refer to vocabulary generated. <p>Explore</p> <ul style="list-style-type: none"> • Give students sample problems similar to those on pages 253, 254, 265, and 266. . • Let students use familiar materials to model solutions to the problems. <p>Assessment As time allows: Chapter 17 Test, pgs. 253 and 254; Chapter 18 Test, pgs. 265 and 266.</p> <p>For more authentic assessment, use Chapter 17(AG 105-106) and Chapter 18 (AG 109-110, #1 –7) Free Response Form B.</p> <p>Things to consider:</p> <ul style="list-style-type: none"> • Does the student appear to understand the characteristics of basic plane shapes? • Does the student appear to understand the characteristics of basic solid figures? • Do they know the names of plane shapes/solid figures? • Do they know how to “flip,” “turn,” or “slide” shapes? • Do they understand the differences between faces, edges, and corners (vertices)? • Do they understand what it means to draw a “line of symmetry?” <p>What could you build into routines that might help reinforce areas of weakness that appear?</p>
Homework Materials:	Suggestion: Family Involvement Activity, Pg. FA 73.
<ul style="list-style-type: none"> • one copy of p. FA 73 per student 	