Understanding by Design

Designer Name(s): Young and Cowsert Date: 6/5/14

Subject Area: Math Grade Level(s):3rd

Unit Title/Focus: Section 1 (Lessons 1-10)

Estimated Amount of Instructional Time: ~ 14 days

Stage 1 – (Desired Results)

State Content and Skill Standards: *CCSS and section overview card*

Mathematic Claim #1: Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.

Domain: Operation and Algebraic Thinking

Target D.(3.OA.D) Solve problems involving the four operations, and identify and explain patterns in arithmetic. (DOK 2)

Gr. 3 Standards: 3.OA.8, 3.OA.9

3.OA.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

3.OA.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*

Domain: Measurement and Data

Target H. (3.M8.B)- Represent and Interpret Data

Gr. 3 Standards: 3.MD.3

3.MD.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*

Domain: Geometry

Target K.(3.G.A) Reason with shapes and their attributes. (DOK 1, 2)

Gr. 3 Standards: 3.G.1

3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

Enduring Understandings: *(what are the big ideas, what are the specific understandings desired)*	*Essential Questions:* *(what questions will foster inquiry, understanding, and transfer of learning)*
Students will understand that… • We can use the digits 0-9 to make 2 digit numbers • The place-value position tells the value of each digit • When we find the time 1 hour from now or one hour ago, we are solving elapsed-time problems • Data can be collected and displayed on a graph • A number must be either odd or even	• When I write a number how do I know where to place the digits? • How do I know the value of each digit of a number? • How do I find the time that is one hour later than a given time? • How do I find the time that is one hour ago? • What question can I answer by reading the graph?

	• How can I use a set of objects to show whether a number is odd or even? Extend and Challenge • How did you know where to put the missing number cards?

Big Idea(s)/ Real World Application

Students can recognize that the placement of a digit determines its value.

Students can recognize that time is in continuous motion and understand the relation between past, present, and future time frames.

Information can be collected and presented using graphs to gather information quickly.

Given a number, student can illustrate why it is odd or even.

What Students will know: (what knowledge will they acquire)	*What Students will be able to do: (what will they eventually be able to do as a result of their skills learned/knowledge)*
Math Vocabulary- added, angle, commutative property of addition, congruent, data, decrease, difference, digit, elapsed time, endpoint, estimate, even number, fewest, graph, greatest, hexagon, hour, hour hand, identity, inch, increase, increase, least, rhombus, right angle, sequence, shorter subtract, sum, tens' digit, trapezoid, triangle, width • Time is measured in hours and half hours • Information (Data) can be displayed on a graph • Numbers are made up of digits • Addition equations consist of addends and a sum • Addends can change positions without changing the sum • Solving for a missing addend • Length can be measured in inches • Mathematical term describing a line or object that is the same size and shape • Attributes of a rectangle • Numbers are even or odd • Numbers are placed in order based on their value • There is a process to solving word problems • Introduction to parts of a whole	(Saxon Lesson Objectives) Students will be able to • Tell and Show Time to the Hour • Solve Elapsed Time Problems • Graph Data on a Bar Graph • Read a Graph • Identify Digits and Write 2 Digit Numbers • Tell and Show time to the Half Hour • Estimate Time to the Nearest Half Hour • Identify Addends, Sums, and the Commutative Property of Addition • Addition Facts: Add 0, Add 1, and Doubles • Identify a Missing Addend • Estimate Length to the Nearest Inch • Measure and Draw Line Segments to the Nearest Inch • Draw Congruent Line Segments • Identify the Properties of a Rectangle • Identify and Measure the Length and Width of a Rectangle • Order Two- Digit Numbers • Identify Even and Odd Numbers • Subtraction Facts: Subtract 0 and 1; Differences of 0 and 1 • Use Logical Reasoning to Solve a Problem • Make an Organized List to Solve a Problem • Identify the Relative Value of Pattern Blocks • Cover Designs with Pattern Blocks

Stage 2 - Assessment Evidence (acceptable assessment evidence that students understand)

Performance Tasks: *(what authentic performance task (s) will students demonstrate understanding; by what criteria will it be judged?)*	*Other Evidence:* *(quizzes, tasks, academic prompts, homework, observations)*
• Use logical reasoning to solve a problem • Make an organized list to solve a problem • Use pattern blocks to determine what shapes are needed to cover the area of a design and worth of all the combined pattern blocks	• Cumulative Written Assessments 10-1, 10-2 • Oral Assessment 1 • Teacher Observations • Guided Practice • Homework Practice • Fact Practice

Stage 3 - Learning Plan (sequence of teaching and learning activities that will produce desired understandings, engagement and development) Use WHERETO elements to help you:

Learning Activities:

Saxon Table of Contents Section 1

Lesson 1- Time (Hour)- Grade 2 Review
Lesson 2- Graphing- Grade 2 Review
Literature Connection- Chicken Soup with Rice by Maurice Sendak
Lesson 3- Identifying Digits- Grade 2 Review
Lesson 4- Time (Half Hour)- Grade 2 Review
Lesson 5- Addition Properties- Grades 1 and 2 Review
Lesson 6- Length in Inches-Grade 2 Review
Lesson 7- Rectangle Properties- Grade 1 and 2 Review
Lesson 8- Ordering 2 Digit Numbers- Grade 2 Review
Lesson 9- Even and Odd Numbers- Grade 2 Review
Lesson 10-1- Solving Problems with Different Methods-
Lesson 10-2- Pattern Blocks- Area and Value-

** Per conversation with Mrs.Ybarra, if you feel this review is not necessary for your class, skip lessons as needed.**
You can assess if your students need the review by giving them the Unit 1 test at the beginning of the year.

Journal Writing:

- What is something you hope to learn in Math this year? (Lesson 1)
- Write 2 facts about the birthday graph. Write 2 equations. (Lesson 2)
- Tell about your favorite birthday and why it is your favorite. (Lesson 2)
- What is your favorite way to spend one half hour? (Lesson 4)
- List things in the classroom that are rectangles. (Lesson 7)

W=help the students know WHERE the unit is going and WHAT is expected/Help teacher to know where the students are coming from (prior knowledge, interests)
H=HOOK all students and hold their interest
E=EQUIP students, help them EXPERIENCE the key ideas and EXPLORE the issue
R=Provide opportunities to RETHINK and REVISE their understanding/work
E (2)=Allow students to EVALUATE their work
T=Be TAILORED (personalized) to different needs, interests, and abilities of learners
O=Be ORGANIZED to maximize initial and sustained engagement as well as effective learning

Assessment Tasks that Provide	☐ **Claim #1/DOK 1, 2, 3, 4 (circle one):**
	☐ **Claim #2/DOK 1, 2, 3, 4 (circle one):**
	☐ **Claim #3/DOK 1, 2, 3, 4 (circle one):**

Evidence for Claims including DOK	**Claim #4/DOK 1, 2, 3, 4 (circle one):**
Achievement Level Descriptors	**ALD #1: ALD #2: ALD #3: ALD #4: (circle one):**
Materials/Resources	**Saxon Math**