

Understanding by Design

Designer Name(s): Young and Cowser

Date: 6/5/14

Subject Area: Math

Grade Level(s):3rd

Unit Title/Focus: Section 4 (Lessons 2-31-40)

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 A. (3.OA.A) **Represent and solve problems involving multiplication and division.**

Gr. 3 Standards:3.OA.2,

3.OA.2: Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.

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: Numbers and Operations in Base Ten

Target E. (3.NBT.E) - Use place value understanding and properties of operations to perform multi-digit arithmetic. (DOK 1)

Gr. 3 Standards: 3.NBT.1, 3.NBT.2

3.NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100.

3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Domain: Numbers and Operations- Fractions

Target E. (3.NF.A) - Develop Understanding of fractions as numbers. (DOK 1)

Gr. 3 Standards: 3.NF.1

3.NF.1 Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.

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.2

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.

3.G.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.*

Enduring Understandings: (what are the big ideas, what are the specific understandings desired)

Students will understand that...

- Lengths can be measured using centimeters
- A graph is used to display data that has been collected
- Each section on a bar graph can represent more than one
- A story problem can be translated into a number sentence

Essential Questions: (what questions will foster inquiry, understanding, and transfer of learning)

- How can I measure the length of a rectangle using centimeters as the unit of measure?
- How can I use information on a chart to make a bar graph?
- How do I display data on a bar graph that has a scale of 2?
- How do I know whether to use addition or subtraction to solve a problem?

Extend and Challenge Question

- What type of story problem were these? (on activity cd)
- What is an example of a problem you solved?
- Make up another story about the amusement park ride.

Big Idea(s)/ Real World Application

Students will be able understand time is broken down into segments (AM/PM, Days, Hours, Minutes)

Students will be able to equally distribute an amount between 2 people.

Students will be able to use computation to solve real world addition problems.

Students will be able to determine the correct equation to use to solve story problems.

Students will be able to measure line segments using centimeters.

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)

(Saxon Lesson Objectives)

<p>Math Vocabulary- AM- ante meridiem, bar graph, centimeter, largest, mental computation, metric system, minute, number sentence, PM- post meridiem, pictograph, set, smallest</p> <ul style="list-style-type: none"> • Adding 10 only increases the digit in the tens column • Numbers are placed in order based on their value • Time is broken down into segments • Story problems can be solved using equations. • Equations can be represented using a picture. • Individual coins have a certain value. • How to equally distribute an amount into 2 groups. • Length of a given object can be measured using centimeters. • Basic Addition Facts • Based on a survey, information must be collected and illustrated. 	<p>Students will be able to</p> <ul style="list-style-type: none"> • Add Multiples of 10 Using Mental Computation • Estimate the Sum of Two 2-Digit Numbers • Estimate, Measure, and Draw Line Segments Using Centimeters • Ordering 3-Digit Numbers • How to List Combinations • Adding 5 and 7 Facts • Write Number Sentences for Story Problems • How to Write Story Problems for Number Sentences • Counting Quarters • Finding Half of a Set of Objects • Adding 3 or More Single Digit Numbers • Telling Time in 5 Minute Intervals • How to Identify AM and PM • The Number of Minutes in an Hour • The Number of Hours in a Day • Adding 7 and 8 Facts • How to Conduct a Survey • How to Draw and Read a Pictograph
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Stage 2 - Assessment Evidence (acceptable assessment evidence that students understand)

<p><i>Performance Tasks: (what authentic performance task (s) will students demonstrate understanding; by what criteria will it be judged?)</i></p> <ul style="list-style-type: none"> • Conducting a Survey • Drawing and Reading a Pictograph • Drawing a Picture to Solve a Problem • Making a Table to Solve a Problem 	<p><i>Other Evidence: (quizzes, tasks, academic prompts, homework, observations)</i></p> <ul style="list-style-type: none"> • Cumulative Written Assessments 35-1, 35-2, 40-1, 40-2 • Oral Assessment 4 • Teacher Observations • Guided Practice • Homework Practice • Fact Practice
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Stage 3 - Learning Plan (sequence of teaching and learning activities that will produce desired understandings, engagement and development) Use WHERETO elements to help you:

<p><i>Learning Activities:</i></p> <p>Saxon Table of Contents Section 4</p> <p>Lesson 31- Adding Multiples of 10- Grade 2 Review Lesson 32- Estimate, Measure, and Draw Line Segments Using Centimeters Lesson 33- Adding Multiples of 10- Mental Computation- Grade 2 Review Lesson 34- Ordering 3 Digit Numbers and Listing Combinations Lesson 35-1- Addition Facts- Adding 5 and 6 –Grade 2 Review Lesson 35-2- Writing Number Sentences for Story Problems and Writing Story Problems for Addition and Subtraction Number Sentences Lesson 36- Counting Quarters- Grade 2 Review Lesson 37- Finding Half of a Set of Objects Lesson 38- Adding 3 or More Single Digit Numbers- Grade 2 Review Lesson 39- Telling and Showing Time in 5 Minute Intervals, Identifying AM and PM, and Identify Number of Minutes in an Hour and Hours in a Day- Grade 2 Review Lesson 40-1- Addition Facts- Adding 7 and 8 – Drawing a Picture or Making a Table to Solve a Problem Lesson 40-2- Conducting a Survey and Drawing/ Reading a Pictograph</p> <p>** Per conversation with Mrs.Ybarra, if you feel this review is not necessary for your class, skip lessons as needed.**</p>
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Journal Writing:

- Explain how you could use your pencil to estimate the length of an object in centimeters. (Lesson 32)
- Write a Some, Some More or a Some, Some Went Away story problem for a friend to solve. Include extraneous information in your problem. (Lesson 35-2)
- Write about something you do in the AM hours that you do not do in the PM hours. (Lesson 39)
- Describe a survey you would like to conduct. Explain what you will need to do to show the results of your survey. (Lesson 40-2)

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 Evidence for Claims including DOK	<input type="checkbox"/> Claim #1/DOK 1, 2, 3, 4 (circle one):
	<input type="checkbox"/> Claim #2/DOK 1, 2, 3, 4 (circle one):
	<input type="checkbox"/> Claim #3/DOK 1, 2, 3, 4 (circle one):
	<input type="checkbox"/> 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