

Understanding by Design

Designer Name(s): Young and Cowser

Date: 6/9/14

Subject Area: Math

Grade Level(s):3rd

Unit Title/Focus: Section 8 (Lessons 71-80)

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. (DOK 1)

Gr. 3 Standards: 3.OA. 3

3.OA.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

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.

Target F. (3.NF.A) - Develop understanding of fractions as numbers. (DOK 1, 2)

Gr. 3 Standards: 3.NF.1,3.NF.3a, 3.NF.3b, 3.NF.3d

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 $1/b$.

3.NF.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

- a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
- b. Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model.
- d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

Domain: Measurement and Data

Target G. (3.MD.A)- **Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. (DOK 1, 2)**

Domain: Geometry

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

Gr. 3 Standards: 3.G.2

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...

- Fractions can be added and subtracted
- Models can be used to show the addition and subtraction of fractions
- Money amounts can be written using fractions and decimals
- Information or data is used to make reasonable predictions

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

- How do I add 2 fractions with like denominators? Subtract?
- How do I use models to help me understand the addition and subtraction of fractions?
- How do I write a money amount that is more than a dollar using digits?
- When I write a money amount less than a dollar using a fraction, why do I use 100 for the bottom of the fraction?
- How do I tell if the prediction is reasonable?

Extend and Challenge Question

- Activity 8- What strategies do you use to find the fewest coins to show a money amount?

Big Idea(s)/ Real World Application

Students will be able recognize that each interval on the clock represents 1 minute.

Students will be able to recognize and demonstrate that parts of a whole can be represented using fractions and decimals.

<p>What Students will know: <i>(what knowledge will they acquire)</i></p> <p>Math Vocabulary- multiple, ordinal number, roman numeral</p> <ul style="list-style-type: none"> • Consecutive numbers increase by 1 • Part of a set can be represented using a fraction bar (____ parts out of _____ whole) • Money can be represented using fractions and decimals • Each interval on the clock represents 1 minute • Numbers can be increased or decreased to the nearest hundred based on the number to the right of the rounding digit • Numbers can be ordered based on their placement • Numbers decrease in value when subtracting 	<p>What Students will be able to do: <i>(what will they eventually be able to do as a result of their skills learned/knowledge)</i></p> <p>(Saxon Lesson Objectives)</p> <p>Students will be able to</p> <ul style="list-style-type: none"> • Tell and Show Time to the Minute • Round a Number to the Nearest Hundred • Compare Fractions Using Pattern Blocks • Add and Subtract Fractions Using Pattern Blocks • Write a Fraction to Show a Part of a Whole • Subtract 5 and 6 From a Number • Read and Write Roman Numerals • Add 3-Digit Numbers • Identify Ordinal Position • Read and Write Money Amounts to 1,000 Using Fractions and Decimals • Selecting Coins for a Given Amount • Look for a Pattern to Solve a Problem Using a Picture and a Table • Make a Reasonable Prediction by Collecting and Analyzing Data
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<p>Stage 2 - Assessment Evidence (acceptable assessment evidence that students understand)</p>	
<p>Performance Tasks: <i>(what authentic performance task (s) will students demonstrate understanding; by what criteria will it be judged?)</i></p> <ul style="list-style-type: none"> • Recognize Roman Numerals on a Clock Face and Applying Roman Numerals to a Calendar • Display All the Combinations to Make \$0.25 Using Coins • Look for a Pattern to Solve a Problem Using a Picture and a Table • Make Predictions About a Number of Tiles in a Bag Based on Tally Marks (Probability) 	<p>Other Evidence: <i>(quizzes, tasks, academic prompts, homework, observations)</i></p> <ul style="list-style-type: none"> • Cumulative Written Assessments 75-1, 75-2, 80-1, 80-2 • Oral Assessment 8 • Teacher Observations • Guided Practice • Homework Practice • Fact Practice

<p>6Stage 3 - Learning Plan (sequence of teaching and learning activities that will produce desired understandings, engagement and development) Use WHERETO elements to help you:</p>	
<p><i>Learning Activities:</i></p> <p>Saxon Table of Contents Section 8</p> <p>Lesson 71- Telling Time to the Minute Lesson 72- Rounding a Number to the Nearest 100 Lesson 73- Comparing Fractions with Denominators of 2, 3, and 6 Lesson 74- Writing a Fraction to Show Part of a Whole, Comparing Fractions, Adding and Subtracting Fractions with Denominators of 2, 3, and 6 Lesson 75-1- Subtraction Facts- 5 and 6 - Grade 2 Review Lesson 75-2- Reading and Writing Roman Numerals – Does Not Align to Common Core Lesson 76- Adding 3-Digit Numbers Lesson 77- Identifying Ordinal Numbers Lesson 79- Selecting Coins for a Given Amount Lesson 80-1- Subtracting 7, 8, and 9, Looking for a Pattern to Solve a Problem – Grade 2 Review Lesson 80-2- Making Reasonable Predictions by Collecting and Analyzing Data</p> <p>Literature Connection: Probably Pistachio by Stuart J. Murphy</p> <p>** Per conversation with Mrs. Ybarra, if you feel this review is not necessary for your class, skip lessons as needed.**</p>	

Journal Writing:

- Create the perfect school day schedule. Use hours and minutes. (Lesson 71)
- Would you rather half $\frac{1}{2}$, $\frac{2}{3}$, or $\frac{1}{6}$ of something? Explain why. (Lesson 74)
- Draw a map of the desks/ tables in the room. Assign each desk/ table a Roman Numeral. (Lesson 75-2)
- Tita added 278 and 324. Her answer was 5,912. Pretend you are the teacher. How would you explain to her what she did wrong? Explain what you would do to help her find the correct answer. (Lesson 76)
- Your class is lining up to go to lunch. You are at the end of the line. What ordinal position are you? How do you feel about that? (Lesson 77)
- You can write your teacher a check for any amount up to \$1,000. What amount would you write a check for and what would you like your teacher to spend the money on? (Lesson 78)

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