

## Understanding by Design

Designer Name(s): Young and Cowser

Date: 6/5/14

Subject Area: Math

Grade Level(s):3rd

Unit Title/Focus: Section 3 (Lessons 21-30)

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.9

**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- Fractions

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

Gr. 3 Standards: 3.NF.1, 3.NF.3b, 3.NF.3c

**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.

**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.

**c.** Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form  $3 = 3/1$ ; recognize that  $6/1 = 6$ ; locate  $4/4$  and 1 at the same point of a number line diagram.*

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...

- A fraction can be written to show a fractional part of whole
- Numbers can make patterns
- The small marks between the multiples of 10 on a thermometer represent numbers

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

- How do I write a fraction to show a part of a set?
- How do I find a missing number in a pattern?
- How do I know what to count by when I read a thermometer?

## Big Idea(s)/ Real World Application

Students will be able recognize that a whole unit can be broken down into smaller pieces and distributed equally.  
 Student will be able to accurately assess the information from a thermometer and plan accordingly.  
 (Activities, dress, etc.)  
 Given a coin value, students can represent it in 2 ways.

*What Students will know: (what knowledge will they acquire)*

Math Vocabulary- cent symbol, decimal point, degree, dollar sign, dozen, Fahrenheit, fraction bar, half dozen, hundreds, sixths, tally, thirds, twelfths

- Introduction to parts of a whole
- Coins have a set value
- Divide and Identify Thirds
- Temperature is measured using a thermometer using the Fahrenheit scale
- Smaller amounts can be combined to be traded for a larger unit
- How to Write Fractions
- Addition Facts
- A dozen equals 12; half dozen equals 6
- Numbers are made of digits
- Money can be represented using cent and dollar symbols
- Collect and organize information using tally marks

*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)**

Students will be able to

- Divide and Identify Thirds
- Regrouping Tens and Ones
- Counting Dimes, Nickels, and Pennies
- Write Fractions Using a Fraction Bar
- Add 9 to Given Number
- Write Fraction Number Sentences that Equal One
- Identify a Dozen and Half Dozen
- Read and Write Numbers to 1,000
- Write Money Amounts in 2 Ways
- Read and Shade a Thermometer to the Nearest 2 Degrees
- Add 3 and 4 to a Number
- Collect Data
- How to Tally

### 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?)*

- Use Guess and Check to Solve a Problem
- Solving a Problem by Acting it Out
- Collecting Data and Tallying

*Other Evidence: (quizzes, tasks, academic prompts, homework, observations)*

- Cumulative Written Assessments 25-1, 25-2, 30-1, 30-2
  - Oral Assessment 3
  - Teacher Observations
  - Guided Practice
  - Homework Practice
  - Fact Practice
  - Illustrative Mathematics Task over Thirds, Sixths, and Halves
- <https://www.illustrativemathematics.org/illustrations/1502>

**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 3**

Lesson 21- Dividing a Square into Thirds- Grade 2 Review

**Literature Connection The Grapes of Math by Greg Tang**

Lesson 22- Regrouping 10s and 1s using Numbers and Money

Lesson 23- Counting Dimes, Nickels, and Pennies-Grade 2 Review

Lesson 24- Writing Fractions using the Fraction Bar

Lesson 25-1- Addition Facts- Adding 9 – Grade 2 Review

Lesson 25-2- Writing Fraction Number Sentences that Equal 1

Lesson 26- Identifying Dozen and Half Dozen and Show part of a Set

Lesson 27- Reading and Writing Numbers to 1,000

Lesson 28- Writing Money Amounts- Grade 2 Review

Lesson 29- Reading and Shading a Thermometer to the Nearest 2 Degrees

Lesson 30-1- Solving Problems with Different Methods and Addition Facts adding 3 and 4- Grade 2 Review (Addition Facts)

Lesson 30-2- Collecting Data and Tallying

\*\* Per conversation with Mrs.Ybarra, if you feel this review is not necessary for your class, skip lessons as needed.\*\*

Journal Writing:

- Divide a square and a circle into thirds. Explain why they are divided differently ( Lesson 21)
- Where in your house would you look for coins? Explain why you would look there. (Lesson 23)
- Describe what you think your city/town/community will look like in 100 years from now. (Lesson 27)
- If the temperature was 82 degrees Fahrenheit, describe what you would do outside and what you would wear. (Lesson 29)

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

<b>Assessment Tasks that Provide Evidence for Claims including DOK</b>	<input type="checkbox"/> <b>Claim #1/DOK 1, 2, 3, 4 (circle one):</b>
	<input type="checkbox"/> <b>Claim #2/DOK 1, 2, 3, 4 (circle one):</b>
	<input type="checkbox"/> <b>Claim #3/DOK 1, 2, 3, 4 (circle one):</b>
	<input type="checkbox"/> <b>Claim #4/DOK 1, 2, 3, 4 (circle one):</b>
<b>Achievement Level Descriptors</b>	<b>ALD #1: ALD #2: ALD #3: ALD #4: (circle one):</b>
<b>Materials/Resources</b>	<b>Saxon Math</b>