Designer Name(s): 4th Grade Team

Date:

Subject Area: Math

Grade Level(s): 4th

Unit Title/Focus: Lessons 21-30, Investigation 3

Estimated Amount of Instructional Time: 13 days (1 day per lesson/investigation, 1 day for testing, 1 day for Performance Task Activity)

Stage 1 – (Desired Results)

State Content and Skill Standards:

4.OA (Operations an Algebraic Thinking)
1. Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.
4. Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.
5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.

4.NBT (Number an Operations in Base Ten)
1. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.
2. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
3. Use place value understanding to round multi-digit whole numbers to any place.
4. Fluently add and subtract multi-digit whole numbers using the standard algorithm.
5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

4.MD (Measurement and Data)
1. Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.
2. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

4.G (Geometry)
1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
2. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

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… • A missing number in subtraction can be found by adding up.	 • How can we use addition in subtraction problems? • How are story problems and math problems related?

- In mathematics, story problems can translate into math problems.
- A pattern can be used to solve a missing addend problem.

- How can patterns be used to solve missing addend problems?

Big Idea(s)
Generalize place value understanding for multi-digit whole numbers.
Use place value understanding and properties of operations to perform multi-digit arithmetic.
Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

What Students will know: *(what knowledge will they acquire)*
Math vocabulary – center, circle, circumference, compass, diameter, equilateral triangle, radius, length, perimeter, compatible numbers, decimal point, denominator, estimate, fraction, half, numerator, quarter, ordinal numbers, regroup, sum, whole numbers, acute angle, angle, endpoint(s), intersecting lines, obtuse angle, parallel, perpendicular, ray, right angle, vertex, line, segment, inverse operations, addition, equation, subtraction, equation, formula, multiplication, addition, elapsed time, Commutative Property of Multiplication, factor, Identity Property of Multiplication, multiplication table, product, Property of Zero for Multiplication, sequence, multiple, difference, exchange, align, area, array, square, square centimeter, square inch, square number, square root, centimeter, odd numbers

- Understand the different properties of a circle, square, rectangle, and triangle.
- Understand that parts of a whole can be named using fractions.
- Understand that the denominator tells how many parts in the whole and the numerator tell how many parts are being counted.
- Understand that when adding numbers with a decimal point the decimal points must be lined up.
- Understand that compatible numbers can sometimes be used to help estimate.
- Understand the different properties of a line, segment, and ray.
- Understand the differences in parallel lines, intersecting lines, perpendicular lines.
- Understand that an angle has a vertex and 2 sides.
- Understand the different properties of a right angle, an acute angle, and an obtuse angle.
- Understand that knowledge of inverse operations can help in finding missing numbers in an equation.
- Understand how to evaluate words problems and then solve appropriately.
- Understand how to draw pictures that represent fractions (using equal parts)
- Understand that multiplication is repeated addition.
- Understand how to find the time that has passed between start and finish.
- Understand how to utilize a multiplication table.
- Understand how knowing the commutative property of multiplication, the property of zero for multiplication, and the identity property for multiplication can make understanding multiplication easier.

What Students will be able to do: *(what will they eventually be able to do as a result of their skills learned/knowledge)*

- Knowing how long it will take you to get to practice so that you are not late
- Bea able to check the cashier's total for accuracy
- Build a bird house, fence, or picture frame
- Cut a pie or cake into equal pieced for friends/relatives and know how many pieces each person may have
- Find how much an item without a price tag was if you know how much 1 item was and the total
- Find the total number of bunnies if there are 0, 2, or 5 in a set number of cages

• Understand that 0 times any number is 0, 1 times any number is that number, 2 times any number doubles that number, any number times 5 will end in 0 or 5. • Understand how to regroup when necessary.	

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)
• Performance Task 3 • Activities from pages 129, 135, 143, 164, 181, and 188-189 • Reinforcing the Content Standards activity on insert page SOV3 • Any idea from "What will students be able to do section	• Daily homework • Power-up tests • Cumulative tests • Performance on daily Power-up activities

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:

Lesson 21 – Triangles, Rectangles, Squares, and Circles 4.0A.4, 4.OA.5, 4.NBT.1, 4.NBT.2, 4.NBT.3, 4.NBT4.4, 4.MD.1, 4.MD.2, 4.MD.3
Lesson 22 – Naming Fractions, Adding and Counting Dollars and Cents 4.0A.5, 4.NBT.1, 4.NBT.2, 4.NBT.3, 4.NBT.4, 4.MD.1, 4.MD.2
Lesson 23 – Lines, Segments, Rays, and Angles 4.0A.4, 4.OA.5, 4.NBT.2, 4.NBT.3 4.NBT.4, 4.MD.1, 4.MD.2, 4.MD.3, 4.G.1, 4.G.2
Lesson 24 – Inverse Operations 4.OA.5, 4.NBT.1, 4.NBT.2, 4.NBT.3, 4.NBT.4, 4.MD.1, 4.MD.2, 4.G.1
Lesson 25 – Subtraction Word Problems 4.OA.5, 4.NBT.1, 4.NBT.2, 4.NBT.3, 4.NBT.4, 4.MD.1, 4.MD.2, 4.G.1
Lesson 26 – Drawing Pictures 4.NBT.1, 4.NBT.2, 4.NBT.3, 4.NBT.4, 4.MD.1, 4.MD.2,.4.G.1
Lesson 27 – Multiplication as Repeated Addition and Elapsed Time 4.OA.1, 4.OA.5, 4.NBT.2, 4.NBT.3, 4.NBT.4, 4.MD.1, 4.MD.2, 4.G.1, 4.G.2
Lesson 28 – Multiplication Table 4.OA.1, 4.0A.2, 4.OA.5, 4.NBT.1, 4.NBT.2, 4.NBT.3, 4.NBT.4, 4.NBT.5, 4.MD.1, 4.MD.2, 4.MD.3, 4.G.1
Lesson 29 – Multiplication Facts 0's, 1's, 2's, 5's 4.OA.1, 4.OA.5, 4.NBT.2, 4.NBT.3, 4.NBT.4, 4.MD.1, 4.MD.2, 4.G.1
Lesson 30 – Subtracting Three – Digit Numbers with Regrouping including Money 4.OA.2, 4.OA.5, 4.NBT.2, 4.NBT.3, 4.NBT.4, 4.MD.1, 4.MD.2, 4.MD.3, 4.G.1
Investigation 3 – Multiplication Patterns, Area, Perimeter, Square's and Square Roots 4.OA.5, 4.NBT.5, 4. MD.3

It was discussed that the "fact" section of the daily Power-Ups be done on Tuesday/Thursday and the "mental math" section be done on Monday, Wednesday, and Friday. Teacher may also want to cut back on "Written Practice", possibly only 15 problems each day or having 1 assignment every 2 lessons. This will free up some time for higher level discussion of concepts and Performance Tasks.

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	☐ 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):
	☐ Claim #4/DOK 1, 2, 3, 4 (circle one):
Achievement Level Descriptors	ALD #1: ALD #2: ALD #3: ALD #4: (circle one):
Materials/Resources	