Understanding by Design: School: Mountain Home School District

Designer Name(s): 4th Grade Team Date:

Subject Area: Math Grade Level(s): 4th

Unit Title/Focus: Lessons 91-100, Investigation 10

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 and Algebraic Thinking)

3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. 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.

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 (Numbers and Operations in Base Ten)

4. Fluently add and subtract multi-digit whole numbers using the standard algorithm.

4.NF (Numbers and Operations – Fractions)

4. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.

b. Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number.

c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.

7. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.

4.MD (Measurement and Data)

7. Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

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.

3. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

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… • The values placed to the right of the decimal point are less than one. • We can use the equal to, greater than, and less than symbols to compare rational numbers. • Perpendicular lines intersect to form right angles. • Quadrilaterals can be identified by the number of parallel sides, number of right angles, and by the length of their sides.	• What are the values of numbers place to the right of the decimal point? • What symbols can we use to compare rational numbers? • What angles to perpendicular lines form when they intersect? • What are several ways that quadrilaterals can be classified?

Big Idea(s)

Use the four operations with whole numbers to solve problems.
Geometric measurement: understand concepts of angle and measure angles.

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

Math Vocabulary – mill, decimal place, decimal point, digit, hundredth, place value, tenths, thousandth, value, parallelogram, rectangle, rhombus, square, trapezoid, acute angle, endpoint, line of symmetry, obtuse angle, parallel, perpendicular, polygon, quadrilateral, reflective symmetry, right angle, side, dividend, estimate, multiple, product, quotient, round, divide, equation, number line, ounce, point, pound, segment, fraction, multiply, average, data, equal, mean, median, mode, outlier, range, difference, even numbers, sum, apex, base, cone, cube, cylinder, edge, face, geometric solid, pyramid, rectangular prism, sphere, triangular prism, circle, rectangle, triangle, vertex, net, congruent, equilateral triangle, perpendicular, certain, chance, probability, sector, bar graph, half, less than, percent, sum, tally

- Demonstrate understanding of place value to the thousandths place by identify which digit is in a given place and being able to compare using >,<, or =.
- Demonstrate knowledge of the attributes of a parallelogram, trapezoid, rectangle, rhombus, and square.
- Understand the difference between parallel and perpendicular line segments.
- Understand that estimating (either by rounding or using compatible numbers) the correct answer before solving is an excellent way to check your answer.
- Understand how to utilize problem solving strategies when solving a 2 step word problem.
- Understand that to find a fraction of a group you divide by the denominator and multiply by the numerator.
- Understand that finding the average is a 2 step process (first find how many altogether, then find how many would be in each group).
- Understand how to find the mean, median, mode, and range for a set of data.
- Understand that geometric solids have 3 dimensions and take up space.
- Be able to identify the main geometric solids (cube, rectangular prism, triangular prism, pyramid, cylinder, sphere, and cone).
- Demonstrate knowledge of face, edge, and base.
- Use knowledge of knowledge of the terms face, edge, perpendicular, parallel, angles to tell about attributes of geometric solids.
- Use knowledge of fractions to show the probability (degree of likelihood of an outcome) of certain events

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

- Be able to compare who is getting the larger paycheck
- Be able to divide/multiply quickly in your head to double check someone work (ex the paint mixer who just told you how many gallons of paint you will need to buy to paint your house
- Find 2/5, 2/3, 4/6 of a certain number
- Use a set of data to determine the mean, median, and mode
- Compute your grade using your scores to make sure your teacher didn't make any errors
- Determine the fairness of a carnival spinner board and then decide if you should play it or not
- Understand the attributes of geometric solids

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?)

- Performance Task 10

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

• Activities from pages 587, 620-621, 625, and 632 • Reinforcing the Content Standards activity on insert page SOV10a • 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 91 – Decimal Place Value 4.OA.3 & 5; 4.NBT.6; 4.NF.3b, 4c, 6 – 7; 4.G.3
Lesson 92 – Classifying/Symmetry of Quadrilaterals 4.OA.2 & 5; 4.NBT.6; 4.NF.3b, 4c & 6; 4.MD.7; 4.G.1, 4.G.2, 4.G.3
Lesson 93 – Estimating Multiplication and Division Answers 4.OA.2 & 3; 4.NBT.6; 4.NF.3b, 4c, & 6
Lesson 94 – Two-Step Word Problems 4.OA.2, 3, & 5; 4.NBT.4 & 6; $.NF.3b, 4c, & 6; 4.MD.5A – B; 4.G.3
Lesson 95 – Two-Step Problems About a Fraction of a Group 4.OA.2 – 3; 4.NBT.6; 4.NF.3b, 4b – c, & 6; 4.G.3
Lesson 96 – Average 4.OA.2 – 3; 4.NBT.4 & 6; 4.NF.3b, 4b - c
Lesson 97 – Mean, Median, Range, and Mode 4.OA.2 - 3, 4.NBT.6; 4.NF.3b, 4b – c, & 6; 4.MD.5a - b
Lesson 98 – Geometric Solids 4.OA.3; 4.NBT.6; 4.NF.4b – c & 6
Lesson 99 – Constructing Prisms 4.OA.3; 4.NBT.6; 4.NF.4b – c; 4.G.1
Lesson 100 – Constructing Pyramids 4.OA.2 – 3; 4.NBT.6; 4.NF.4c, 6 – 7; 4.G.3
Investigation 10 - *Not a 4th Grade Standard*

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	