

Roscommon Area Public Schools – Curriculum Framework

Course: Second Grade Math; Eureka Math Squared

Unit Number: #5

Unit Title: Money, Data, and Customary Measurement

Timeframe: 16 Lessons - 4 weeks



Stage 1: Identify Desired Results

Essential Question:

What thought-provoking questions will foster inquiry, meaning making and transfer?

- *An essential question is open-ended; it has no simple "right answer."*
- *Is meant to be investigated, argued, looked at from different points of view*
- *Encourages active "meaning making" by the learner about important ideas.*
- *Raises other important questions.*
- *Naturally arises*

- How does it help us in life to be able to use addition and subtraction to analyze and solve word problems using multiple units of length, money and data?

Scaffold Questions:

What questions can we ask students that break the essential question into smaller pieces of content?

- How does using a strategy, such as making a ten or a hundred, help you count?
- How can a given value be represented by using the fewest number of coins?
- Can different representations model the same word problem?
- How is it helpful to draw a model to represent a problem before solving?
- How do different models help us make change from 1 dollar?
- How is making 1 dollar similar to making change from 1 dollar?
- How does the part-total understanding help us decide which strategy to use?
- How does the unit affect the value of money?

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	• How is measuring with a different length unit, such as inches, similar to or different from measuring in centimeters? • How do we measure accurately? • How do we select an appropriate measurement tool? • How do benchmarks help us make reasonable estimates? • Why is it important to include the number and the unit when we record measurements? • Does the relationship between the size of the unit and the number of units stay the same when we use different units to measure the same object? • How can we use measurements to compare lengths? • Why do we need to measure precisely? • How does the interval help me find unknown numbers on a number line? • How are the number of intervals and the size of the interval related? • How does the size of the length unit affect the number of units used to measure? • When should precise measurements be used? When should estimates be used? • How does drawing a model help us solve a two-step word problem? • What information can we get from line plots? • How is the scale on a line plot similar to a ruler? How is it different? • How does a line plot help us ask and answer questions about data? • Why is it important to be precise when you make a line plot?
Brief Summary of Unit:	In this unit, students will practice and develop a variety of skills. In Topic A, students will engage in a real-world application of place value strategies and properties of operations to solve problems with coins and bills. They will also find the total value of a group of coins or bills in the context of one- and two-step word problems. In Topic B, students will iterate a 1-inch square tile to make inch rulers, relating 12 inches to a new unit, the foot. They will also apply their knowledge of the ruler to

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	a number line diagram. In Topic C, students will apply place value strategies and the properties of operations to solve measurement problems. They will also generate measurement data by measuring to the nearest inch and by representing data with a line plot, where the horizontal or vertical scale is marked off in whole number units, drawn as a number line diagram.
Desired Understanding: <i>The long-term accomplishments that students should be able to do with knowledge and skill, on their own. Frames Standards as long-term performance accomplishments. Answer the questions Why? And What can you do with this?</i>	Achievement Descriptors • Represent whole numbers within 100 on a number line. (2.MD.B.6) • Measure lengths of objects by using an appropriate customary measurement tool. • Measure an object by using different length units and relate the number of units in the measurement to the size of the unit. • Estimate lengths of objects by using customary (inches, feet, and yards) and metric (centimeters and meters) units. • Measure two objects to find the difference in length by using customary (inches, feet, and yards) and metric (centimeters and meters) units. • Add, subtract, or compare within 100 to solve word problems involving lengths that are given in the same units by using drawings and equations. • Represent and solve word problems involving money by using the \$ and ¢ symbols appropriately. • Measure lengths of several objects or the same object repeatedly to make a line plot.
Common Core State Standards (CCSS) - Mathematics <i>List all of the standards in this unit.</i>	• 2.MD.A.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. • 2.MD.A.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen. • 2.MD.A.3 Estimate lengths using units of inches, feet, centimeters, and meters.

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	• 2.MD.A.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. • 2.MD.B.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem. • 2.MD.B.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2,..., and represent whole-number sums and differences within 100 on a number line diagram. • 2.MD.C.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. • 2.MD.D.9 Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units. • 2.G.A.1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
Mathematical Practices <i>Which of the mathematical practices will be focused on during this unit?</i>	Highlight those from unit As a result of ambitious math instruction, students will: • MP1 Make sense of problems and persevere in solving them • MP2 Reason abstractly and quantitatively • MP3 Construct viable arguments and critique the reasoning of others

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	• MP4 Model with mathematics • MP5 Use appropriate tools strategically • MP6 Attend to precision • MP7 Look for and make use of structure • MP8 Look for and express regularity in repeated reasoning
Essential Standards* <i>List the Essential Standards that will be taught and assessed in this unit.</i>	• 2.MD.A.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. • 2.MD.A.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen. • 2.MD.A.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. • 2.MD.B.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem. • 2.MD.B.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2,..., and represent whole-number sums and differences within 100 on a number line diagram. • 2.MD.C.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?

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	• 2.MD.D.9 Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units. • 2.G.A.1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
Crossover standards* <i>Connection to other content areas (Option)</i>	N/A
Alignment to the Vision of High Quality Instruction in Mathematics <i>(How do the instructional targets in this unit align to the district's vision of high quality instruction?)</i>	Highlight those included from unit Teacher Actions: • Teacher establishes clear goals for the mathematics that students are learning, situates targets within learning progressions, and uses the targets to guide instructional decisions. • Teacher engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allows multiple entry points and varied solution strategies. • Teacher engages students in making connections among mathematical representations to deepen understanding of mathematics concepts and procedures and as tools for problem solving.

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- Teacher facilitates discourse among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.
- Teacher uses purposeful questions to assess and advance students' reasoning and sense making about important mathematical ideas and relationships.
- Teacher builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems.
- Teacher consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships.
- Teacher uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.
- Teacher provides instructional scaffolding with the gradual release model of instruction to ensure students are able to construct meaning of mathematics.

Student Actions:

- Students solve problems without giving up.
- Students think about numbers in many different ways.
- Students explain and justify their thinking and understand the thinking of others.
- Students show, analyze and revise their work in many different ways.
- Students use math tools and explain why they chose them.
- Students calculate accurately and efficiently, evaluate their work, and clearly communicate their thinking.
- Students use what they know to solve new problems.

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- Students solve problems by looking for rules and patterns and evaluate their results.
- Students apply the mathematics they know to solve problems arising in everyday life, society, and the workplace.

Stage 2: Determine Acceptable Evidence

(With the exception of formative assessments, all assessments listed in this section are required elements of the district's curriculum and the data associated will be collected in the district's performance management driver system.)

Measure of Understanding (Performance Task)

(How will students demonstrate their attainment of the desired understanding?)

Achievement Descriptors

- Represent whole numbers within 100 on a number line. (2.MD.B.6)
- Measure lengths of objects by using an appropriate customary measurement tool.
- Measure an object by using different length units and relate the number of units in the measurement to the size of the unit.
- Estimate lengths of objects by using customary (inches, feet, and yards) and metric (centimeters and meters) units.
- Measure two objects to find the difference in length by using customary (inches, feet, and yards) and metric (centimeters and meters) units.

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	• Add, subtract, or compare within 100 to solve word problems involving lengths that are given in the same units by using drawings and equations. • Represent and solve word problems involving money by using the \$ and ¢ symbols appropriately. • Measure lengths of several objects or the same object repeatedly to make a line plot.
Assessing the Performance Task <i>(How will we evaluate quality student work in the performance task? How will we determine that students can use their learning independently?)</i>	• Module Assessment (end of module)
Summative Assessments <i>(How will we know if students can demonstrate mastery of the unit's content, skills, and common core state standards?) Can overlap the performance-based evidence, thereby increasing the reliability of the overall assessment (especially if the performance task was done by a group)</i>	• Module 5 Pre-Assessment • Daily Exit Tickets • Topic Tickets (End of Topic Assessment) • Module 5 Post Assessment

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Interim Assessments	• Daily Exit Tickets • Topic Tickets • Teacher Observations
Formative Assessments	• Daily Exit Tickets • Topic Tickets • Teacher Observations
Student Self-Reflection and Self-Regulation (Student-Centered) <i>(How will we measure students' ability to think meta-cognitively?)</i>	Students will use the SMART Goal setting process to drive their own goal setting throughout this unit • KWL Journals to help students assess what math skills they have mastered vs. skills they still need work with • Incorporate goal setting rubrics from Exit Ticket and Topic Ticket work • Improvement/Success conversations after each assessment
State Assessment Practice <i>(How will we measure students' ability to interact with content and skills in an MSTEP-like or SAT-like format?)</i>	• NWEA



Stage 3: Learning Plan

(Summary of Key Learning Events and Instruction)

What activities, experiences and lessons will lead to achievement of the desired results and success at the assessments?

The learning events –

- *should be derived from the goals of Stage 1 and the assessments of Stage 2 to ensure alignment and effectiveness of the activities.*
- *should match the level of rigor within the standard*
- *support student Acquisition, Meaning Making, and Transfer.*

Teachers follow the following sequence

- Module 5
 - Module 5 Pre-Assessment
 - Eureka² Module 45Lessons (1-16)
 - Daily Exit Tickets (after each lesson)
 - Topic Tickets (after each topic)
 - Module 5 Post Assessment
 - Observational Assessment Recording Sheet

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Learning Targets

What will students be taught? What should they know? What should they be able to do?

Topic A

- Lesson 1 - I can organize, count, and represent a collection of coins, so I can problem solve with coins and bills. I am successful when I estimate and count money.
- Lesson 2 - I can use the fewest number of coins to make a given value, so I can problem solve with coins and bills. I am successful when I show a given value two different ways.
- Lesson 3 - I can solve one and two step word problems, so I can problem solve with coins and bills. I am successful when I use the RDW strategy to find the total value of a group of coins.
- Lesson 4 - I can solve one and two step word problems, so I can problem solve with coins and bills. I am successful when I use the RDW strategy to find the total value of a group of bills.
- Lesson 5 - I can use strategies to make 1 dollar and make change from a dollar, so I can problem solve with coins and bills. I am successful when I find an unknown value to make one dollar.
- Lesson 6 - I can solve word problems, so I can problem solve with coins and bills. I am successful when I use the RDW strategy to make change from 1 dollar.
- Lesson 7 (optional) - I can solve word problems, so I can problem solve with coins and bills. I am successful when I use the RDW strategy to solve word problems involving money.

Topic B

- Lesson 8 - I can use an inch tile to create a unit ruler, so I can use customary units to measure and estimate length. I am successful when I measure to the nearest inch.
- Lesson 9 - I can use an inch ruler and a yard stick, so I can use customary units to measure and estimate length. I am successful when I estimate and measure the length of various objects.
- Lesson 10 - I can measure an object twice by using different length units, so I can use customary units to measure and estimate length. I am successful when I compare and relate measurement to

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	unit size. • Lesson 11 - I can measure objects, so I can use customary units to measure and estimate length.. I am successful when I compare differences in length. • Lesson 12 - I can identify unknown numbers on a numberline, so I can use customary units to measure and estimate length. I am successful when I use a number line to show distances. Topic C • Lesson 13 - I can solve measurement word problems, so I can use measurement and data to solve problems. I am successful when I choose an appropriate unit to measure and explain why it is the appropriate unit. • Lesson 14 - I can solve two step addition and subtraction word problems, so I can use measurement and data to solve problems. I am successful when I use the RDW strategy to solve word problems involving length. • Lesson 15 - I can use measurement data, so I can use measurement and data to solve problems. I am successful when I make a line plot of measurement data. • Lesson 16 - I can create a line plot, so I can use measurement and data to solve problems. I am successful when I ask and answer questions about measurement data.
How will the unit be sequenced and differentiated to optimize achievement for all learners? <i>Teaching -</i> • <i>should reflect the instructional approaches most appropriate</i>	• The modules are already sequenced and differentiated. You will not want to omit anything present in the modules. • We will use the Pre-Module Equip Assessments in order to see what students know from the previous year to influence our instruction for the module. • The Pre-Module Equip Assessments will also guide our Math WIN instruction.

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<i>to the goals (not what is easiest or most comfortable for the teacher).</i> • <i>should employ resources most appropriate to the goals (not simply march through a textbook or commercial program).</i> • <i>be responsive to differences in learners' readiness, interests, and preferred ways of learning.</i>	
Key Vocabulary	• Lesson 8 - foot, inch • Lesson 9 - yard • Lesson 12 - interval • Lesson 15 - line plot
Resources <i>Description or link to resources</i>	• Teacher Booklet • Student Workbook • Great Minds (log in with Google for students and staff) • Module 5 Learning Target Slides