MATHEMATICS COMMON CORE CURRICULUM UNIT # 4 Grade 1*
North Smithfield School Department

TITLE OF UNIT: Measurement, Time, and Shapes **GRADE : 1**

DATE PRESENTED: _____**DATE DUE:** _____ **LENGTH OF TIME:** Several weeks, quarter, semester

OVERVIEW OF UNIT:

Students will begin to understand measurement using non-standard units.
Students will tell and write time to the hour and half hour.
Students will reason with shapes and their attributes.
Students will represent and solve word problems involving addition and subtraction.
Students will add and subtract within 20.
Students will extend the counting sequence.

ESSENTIAL QUESTIONS

- *What do you see?*
- *What unit of length might you use to measure this object? Why might that be an appropriate unit?*
- *What happens to the number of units needed to measure length if you change the size of unit you use to measure? Why?*
- *How does telling time help us in our life?*
- *How are different types of clocks similar to and different from each other? (analog and digital)*
- *How does the hour hand move when an hour passes? … when a half hour passes?*
- *How are these shapes the same and different? What mathematical names do the shapes have?*
- *How are addition and subtraction related?*
- *What kinds of problems can be modeled and solved using addition and subtraction?*
- *How might different strategies be helpful when solving a problem?*
- *What number comes next? How do you know?*
- *What number comes before? How do you know?*
- *What patterns do you see?*

STANDARDS: Common Core Math Standards – Grade level domains K-5

Counting and Cardinality CC	Operations and Algebraic Thinking OA	Number and Operations in Base Ten NBT	Number and Operations – Fractions NF	Measurement and Data MD	Geometry G
☐	☐ 1.OA.1,6	☐ 1.NBT. 1	☐	☐ 1.MD.1,2,3	☐ 1.G.1
☐	☐	☐	☐	☐	☐
	☐	☐		☐ **Modeling with Geometry G-MG**	

STANDARDS: Mathematical Practices grades K-12

1. Make sense of problems and persevere in solving them
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others
4. Model with mathematics ★
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of structure
8. Look for and express regularity in repeated reasoning

FOCUS MATHEMATICS STANDARDS:

- Understand measurement using non-standard units. (1.MD.1,6)
- Tell and write time to the hour and half hour. (1.MD.3)
- Reason with shapes and their attributes. (1.G.1)
- Represent and solve word problems involving addition and subtraction. (1.OA.1)
- Add and subtract within 20. (1.OA.6)
- Extend the counting sequence. (1.NBT.1)

Applied Learning Standards:

problem solving communication critical thinking research reflection/ evaluation

Expectations for Student Learning (High School only):

ENDURING UNDERSTANDING:

Students order three objects by length and measure the length of an object using whole number length units (cubes, paper clips, etc.).Students tell and write time in hours and half hours using analog and digital clocks. Students use their beginning knowledge of defining and non-defining attributes of shapes to identify, name, build, and draw shapes. Students use properties of addition to create and use increasingly sophisticated strategies based on these properties to solve addition and subtraction problems within 20. Students will be able to read and write numerals to 120 and extend the counting sequence beginning at any number less than 120. Students use properties of addition to create and use increasing sophisticated strategies based on these properties to solve addition and subtraction problems within 20.

*Referenced templates from *Common Core Curriculum Maps, English Language Arts* and *The Understanding By Design Guide to Creating High Quality Units*

PRIOR KNOWLEDGE:

- Make comparisons of length by directly comparing objects using comparison words (i.e. long, longer, longest)..
- Understand that clocks measure time.
- Sort shapes by color, orientation, and size.
- In an oral word problem, students can summarize the main idea of the problem and, with teacher guidance, assign numeric values to important information within the word problem.
- Students should be able to count fluently to 25, as well as recognize the word forms of these numbers. In addition, students must have had practice with a variety of skip counting sequences.
- Addition means "put together" and subtraction means "take apart"

STUDENT OBJECTIVES, SKILLS and/or NEW KNOWLEDGE:

- Attention to starting points, gaps, and overlaps is important to measure accurately.
- Length does not change when an object is moved (conservation).
- First Grade students continue to use direct comparison to compare lengths. *Direct* comparison means that students compare the amount of an attribute in two objects without measurement.
- What unit of length might you use to measure this object? Why might that be an appropriate unit?
- What happens to the number of units needed to measure length if you change the size of unit you use to measure? Why?
- How does telling time help us in our life?
- How are different types of clocks similar to and different from each other? (analog and digital)
- How does the hour hand move when an hour passes? … when a half hour passes?
- Shapes can be composed and decomposed.
- Some attributes are defining attributes while others are non-defining.
- Shape attributes do not change regardless of orientation.
- Addition finds the missing whole when given the parts, and subtraction finds a missing part when given the whole and a part.
- Word problem situations can be: add-to, take-from, put-together/take-apart, and compare (see Table 1).
- The unknown in problem situations can be the start number, the change or the result.
- First grade students extend their experiences in Kindergarten by working with numbers to 20 to solve a new type of problem situation: Compare (See Table 1 at end of document for examples of all problem types). In a Compare situation, two amounts are compared to find "How many more" or "How many less".
- Patterns and relationships in addition and subtraction combinations can help build fluency.
- Numbers can be decomposed and recomposed to solve addition and subtraction problems.
- Strategies for addition and subtraction can be more or less efficient in different situations.
- Quantities can be represented by a written numeral.
- Counting can begin at any number and go forward or backward.
- There are patterns in numbers.
- Some patterns of the count sequence make counting predictable.

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SUGGESTED PROBLEMS:

1.MD.1 Basic
- http://www.illustrativemathematics.org/illustrations/797

1.MD.2 Basic
- http://www.illustrativemathematics.org/illustrations/688

1.MD.3 Basic
- http://www.k-5mathteachingresources.com/support-files/timebarriergame.pdf (game)
- http://www.k-5mathteachingresources.com/support-files/timebarriergamegrid.pdf (game)
- http://illuminations.nctm.org/LessonDetail.aspx?ID=L126 (template)
- http://illuminations.nctm.org/lessons/magnificentmeasurement/MagnificentMeasurement- AS-MorningNoonNight.pdf (worksheet)

1.G.1 Basic
- http://www.illustrativemathematics.org/illustrations/1104

1.OA.1 Basic
- http://www.illustrativemathematics.org/illustrations/196 (Parts A and B)

1.OA.1 Advanced
- http://www.illustrativemathematics.org/illustrations/196 (Part C)

1.OA.6 Basic
- http://www.illustrativemathematics.org/illustrations/1169

1.OA.6 Advanced
- http://www.illustrativemathematics.org/illustrations/1084

ACTIVITIES, PRODUCTS, PERFORMANCE, and ASSESSMENTS: see curriculum introduction

1. Application to real world problems
2. Creating charts/collecting data
3. Collaboration - interpersonal
4. Conferencing
5. Exhibits
6. Graphic organizers
7. Graphing
8. Interviews
9. Journals
10. KWL charts
11. Mathematical Practices
12. Modeling ★
13. Oral presentations
14. Problem/Performance based/common tasks
15. Real-life applications involving graphing
16. Represent numbers
17. Rubrics/checklists (mathematical practice, modeling)
18. Technology
19. Summarizing and note-taking
20. Tests and quizzes
21. Writing genres Arguments/ opinion Informative

HIGHER ORDER THINKING SKILLS: Web's Depth of Knowledge 2 – 4 or Bloom's Taxonomy

Web's Depth of Knowledge
- skill/conceptual understanding
- strategic reasoning
- extended reasoning

Bloom's Taxonomy
- apply
- analyze
- synthesize/create
- evaluate

ADDITIONAL RESOURCES: see curriculum for specifics

http://www.readtennessee.org/math/teachers/k-3_common_core_math_standards/first_grade.aspx

VOCABULARY

- Add
- Addend
- Addition
- Add-to
- Analog clock
- Attribute
- Closed-shape
- Compare
- Compose
- Count back
- Count on
- Cube
- Cylinder
- Data
- Decompose
- Difference
- Digital clock
- Doubles
- Equal
- Equal parts
- Face
- Fourths/fourth of
- Graph
- Half-hour/half past
- Halves/half of
- Hexagon
- Hour
- Length
- Length unit
- Measure
- Measurement
- Minus
- Open shape
- Shapes
- Sphere
- Square
- Strategies
- Subtraction
- Sum
- Take from
- Three-dimensional
- Time
- Trapezoid
- Triangle
- True/false
- Two-dimensional
- Unit of measure
- Vertex/point/corner

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LESSON PLAN for UNIT _____

LESSONS

- **Lesson # 1 Summary:**
- **Lesson #2 Summary:**
- **Lesson #3 Summary:**

OBJECTIVES for LESSON # _____

- **Materials/Resources:**
- **Procedures:**
  - **Lead –in**
  - **Step by step**
  - **Closure**
- **Instructional strategies:** see curriculum introduction
- **Assessments:** see curriculum introduction
  - **Formative**
  - **Summative**

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