MATHEMATICS COMMON CORE CURRICULUM UNIT #2 Grade 1*
North Smithfield School Department

TITLE OF UNIT: Represent and solve problems involving addition and subtraction   **COURSE OR GRADE :1**

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

OVERVIEW OF UNIT:

In this unit students will extend the counting sequence. Students will work with addition and subtraction equations. Students will represent and solve word problems involving addition and subtraction.

ESSENTIAL QUESTIONS
- *How are addition and subtraction related?*
- *When you add, can you add the parts in any order? If yes, why? If not, why not?*
- *Is 5+1=4+2 true or false? How can you prove it?*
- *What makes an equation true/false?*
- *How might the position of the missing addend affect the answer and how can you prove it?*
- *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, 2, 7,8	☐ 1.NBT 1	☐	☐	☐
☐	☐	☐	☐	☐	☐
	☐	☐		☐ **Modeling with Geometry G-MG**	

STANDARDS: Mathematical Practices grades K-12

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

FOCUS MATHEMATICS STANDARDS:
- Represent and solve problems involving addition and subtraction (1.0A.1, 2)
- Work with addition and subtraction equations (1.OA.7,8)
- 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 will make sense of word problems and develop strategies to solve them. Students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. 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.

PRIOR KNOWLEDGE:
- 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 can solve word problems involving addition with two numbers.
- Students have mastered the knowledge that the value of a number is the same regardless of the objects being counted (i.e. 8 kittens is the same amount as 8 cars).
- Students have had practice in solving simple addition and subtraction problems where the equal sign is a part of the problem.
- Students can add and subtract fluently through 10.
- 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.

STUDENT OBJECTIVES, SKILLS and/or NEW KNOWLEDGE:

- 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".

- Numbers can be added in any order to achieve the same sum.

- The quantity on one side of the equal sign is the same as the quantity on the other side of the equal sign; it is not necessarily a command to "do something" or a statement that means "the answer is."

- The related unknown whole number in an addition and subtraction equation can be determined by performing an operation on the known whole numbers.

- 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.

SUGGESTED PROBLEMS:

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.2 Basic
- http://www.illustrativemathematics.org/illustrations/1150

1.OA.2 Advanced
- http://www.illustrativemathematics.org/illustrations/468

1.OA.7 Basic
- http://www.illustrativemathematics.org/illustrations/475
- http://www.illustrativemathematics.org/illustrations/466

1.OA.8 Basic
- http://www.illustrativemathematics.org/illustrations/4

1.NBT.1 Basic
- http://www.illustrativemathematics.org/illustrations/680   (game)
- http://www.illustrativemathematics.org/illustrations/681
- http://www.illustrativemathematics.org/illustrations/405

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	**Bloom's Taxonomy**
• skill/conceptual understanding	• apply
• strategic reasoning	• analyze
• extended reasoning	• 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
- Base ten blocks
- Combine
- Combine ones to make a ten
- Compare
- Count
- Count back
- Count backward
- Count forward
- Count on
- Decompose
- Decompose to make friendly numbers
- Difference
- Digits
- Doubles
- Equal
- Equal to
- Equations
- Estimate
- Greater than
- Greatest
- Groups of/bundles of
- Horizontal form
- Hundreds
- Join
- Least
- Leftovers
- Less than
- Minus
- More than
- Most
- Not equal to
- Number line
- Number relationship
- Ones
- Patterns
- Place value
- Quantity
- Remove
- Same as
- Separate
- Strategies
- Subtract
- Subtraction
- Sum
- Take from
- Tens
- True/false
- Vertical form

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
   o **Formative**

   o **Summative**