

## GRADE 1 UNIT 2 – WORD PROBLEMS INVOLVING ADDITION AND SUBTRACTION

<p><b>Established Goals:</b> Standards</p> <p><b><u>Operations and Algebraic Thinking</u></b></p> <p><b>1.OA.A.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.</b></p> <p><b>1.OA.A.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.</b></p> <p><b>1.OA.D.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.</b></p> <p><b>1.OA.D.8 Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.</b></p> <p><b><u>Numbers and Operations in Base Ten</u></b></p>	<b>Transfer</b>	
	<p><i>Students will be able to:</i></p> <ul style="list-style-type: none"> <li>• Students will develop an understanding of when it is appropriate to add to solve a problem and when it is appropriate to subtract.</li> <li>• Students will learn about the properties of equations</li> </ul>	
	<b>Meaning</b>	
	ENDURING UNDERSTANDING	ESSENTIAL QUESTIONS
	<ul style="list-style-type: none"> <li>• An equation must be equal on both sides</li> <li>• The sequence of numbers remains the same regardless of where one begins? counting</li> <li>• The number of objects displayed can be represented with a written numeral.</li> </ul>	<ul style="list-style-type: none"> <li>• How can we represent and solve word problems involving addition and subtraction?</li> <li>• How do we manipulate addition and subtraction equations?</li> <li>• How can we extend the counting sequence?</li> </ul>
	<b>Acquisition</b>	
	KNOWLEDGE	SKILLS
	<i>Students will know how to...</i>	<i>Students will be skilled at...</i>

<p><b>1.NBT.A.1 Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.</b></p> <p><b><u>Math Practice Standards</u></b></p> <p><b>Makes sense of problems and persevere in solving them.</b></p> <p><b>Reason abstractly and quantitatively.</b></p> <p><b>Model with mathematics.</b></p> <p><b>Attend to precision</b></p>	<ul style="list-style-type: none"> <li>•That both sides of an equation have the same value</li> <li>•How to count to 120 when starting at any number less than 120</li> <li>•How to read and write numerals to 120</li> <li>•How to write the correct numeral for the number of items displayed.</li> </ul>	<ul style="list-style-type: none"> <li>•Use manipulatives or drawings to solve addition and subtraction word problems.</li> <li>•Solve addition word problems with three whole numbers with sums less than or equal to 20.</li> <li>•Solve addition and subtraction problems when the missing number is located in various positions.</li> </ul>
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Vocabulary	Instruction and Pacing (suggested order to teach)	
addition, subtraction, word problems, altogether, manipulatives, missing, true, false, equal sign, blank space, forward	<b>Addition and Subtraction Strategies to 20</b>	<b>3 Weeks</b>
	<b>Addition Fluency</b>	<b>1 ½ Weeks</b>
	<b>Subtraction Fluency</b>	<b>1 ½ Weeks</b>
	<b>Problem Solving with Add/Sub within 20</b>	<b>Entire Unit</b>
	<b>Benchmark Testing &amp; Reteaching</b>	<b>2 Weeks</b>
Common Misconceptions	Proper Conceptions	
Students confuse taking away zero with taking away all	Cover objects taken away or act out taking away zero	
Students incorrectly write sums	Counting and checking the total in each group will give the correct sum	
A number sentence should have words	Number sentences are written with numbers and signs	
Number sentences written vertically are different	A number sentence can be written several ways	
Students make errors with addition sentences	Counting and/or acting out the number story helps to check answers	
In subtraction, students move the wrong number of counters	Counting objects and rechecking can make sure numbers are correct	
Students become confused with objects that are left and objects taken away	Cover the objects taken away to see what is left	
Students have difficulty matching sets objects to see which has fewer	Matching or drawing lines to sets of objects helps to compare sets	
How many more is a clue to add two sets of objects to have more	How many more is a strategy to compare which group has more	
There is only one way to write an addition or subtraction sentence	There are several ways to write addition and subtraction sentence	
The equal sign always has to be toward the end of a number sentence	An equal sign is used to show the same amount is on both sides of an equation	
Resources		

Common Core Standards, New Jersey Model Curriculum

Envisions Math Program Suggested Topics

Topic 4 Addition and Subtraction up to 12

Topic 5 Addition Facts to 20

Topic 6 Subtraction Facts to 20

**MATH MANIPULATIVES AND GRAPHIC ORGANIZERS** Two Sided counters, Multilink Cubes, Part-Part Whole Mat, Communicators/Smart Pal Sleeve Templates

<http://illuminations.nctm.org>

<https://www.illustrativemathematics.org>, <https://grade1commoncoremath.wikispaces.hcpss.org>

**Recommendations for ELL Learners**

**Envisions Spanish Resources & Printable Resources**

<http://www.njctl.org/courses/math/1st-grade/daily-routines/daily-routines-without-formative-assessment-questions/>

<http://www.njctl.org/courses/math/1st-grade/numbers-to-120/>

<http://www.njctl.org/courses/math/1st-grade/addition-to-20/>

<http://www.njctl.org/courses/math/1st-grade/subtraction-to-20/>

**Differentiation and Accommodations**

Provide graphic organizers

Provide additional examples and opportunities for additional problems for repetition

Provide tutoring opportunities

Provide retesting opportunities after remediation (up to teacher and district discretion)

Teach for mastery not test

Teaching concepts in different modalities

Adjust pace and homework assignments

## ELL Modifications

- Use math manipulatives for all activities. (two color counters, multilink cubes, part part whole mats)
- Use part part whole mats and two color counters to highlight the commutative property of addition and the relationship between addition and subtraction.
- Allow students to act out word problems, moving around room as necessary as well as using manipulatives and drawing.
- Illustrate a chart identifying addition and subtraction strategies.
- Use different colors to color code plus sign and minus sign to help students attend to the operation.

<b>21<sup>st</sup> Century Skills</b>	Critical Thinking, Creative Thinking, Collaborating, Communicating, and Technology Literacy
<b>Instructional Strategies</b>	Fairfield Township School recognizes the importance of the varying methodologies that may be successfully employed by teachers within the classroom and, as a result, identifies a wide variety of possible instructional strategies that may be used effectively to support student achievement. These may include, but not be limited to, strategies that fall into categories identified by the Framework for Teaching by Charlotte Danielson: <ul style="list-style-type: none"><li>• Communicating with students</li><li>• Using questioning and discussion techniques</li><li>• Engaging students in learning</li><li>• Using assessment in instruction</li><li>• Demonstrating Flexibility and Responsiveness</li></ul>
<b>Interdisciplinary Connections</b>	ELA, Science, and Technology

## Performance Task

You have been selected to be the teacher for a day. Show how you would teach the class how to solve the following problems. Include pictures and a number sentence for each. Solve the number sentences.

Bob has 5 toy cars. Jim has 8 toy cars. How many toy cars do Bob and Jim have altogether?

Jane came to school with 12 cookies. She gave 7 cookies to her friends. How many cookies does Jane have left?

The farm had 2 horses, 5 cows, and 4 pigs. How many animals are at the farm altogether?

Mary had some pencils. She gave 8 of her pencils to Bill and the other 7 pencils to Sue. How many pencils did she have at first?

#### Rubric

**3 point answer** At least three problems are correct

**2 point answer** At least one part of two problems is correct

**1 point answer** Fewer of one part of two problems is correct

# ASSESSMENTS

## Suggested Formative Assessment

Problem of the Day

Lesson Quizzes

Exit Ticket

Anecdotal Records (Topic Observation Checklist)

**Suggested Summative Assessment** - Grade Level developed Unit/Envisions Topic Tests/ Ed Connect Tests/ State Unit Benchmark/Performance Task