1 Math Unit 05: Work with Addition and Subtraction Equations

Content Area: **Mathematics**
Course(s):
Time Period: **January**
Length: **2 Weeks**
Status: **Published**

Unit Overview

A rigorous curriculum emphasizes conceptual understanding, procedural skill and fluency, and applications.

CONCEPTUAL UNDERSTANDING

- **Understanding the Equal Sign** The equal sign is a symbol that signifies that the values on each side of the sign are the same. Students often see an equation written as 5 + 8 = ____, but they should also recognize ____ = 5 + 8. Understanding equality is critical to building algebraic thinking. Lesson 5-3 emphasizes that the equal sign means "the same value as." Using counters to represent quantities on both sides of the equation can help build this conceptual understanding.

> What missing number can you write to make the equation true?
>
> 14 = 5 + ____ + 8
>
> *The equal sign means "the same value as."*
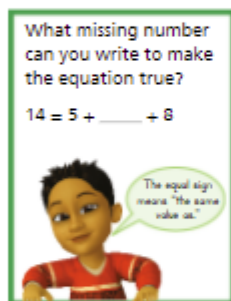
- **True and False Equations** Since the equal sign means "the same value as," an equation is false if both sides do not have the same value. Students need a good grasp of true and false equations as a foundation for later work solving algebraic equations. A solution to an algebraic equation must make the equation true. In Grade 1, finding the missing number in an equation means finding the number that makes the equation true.

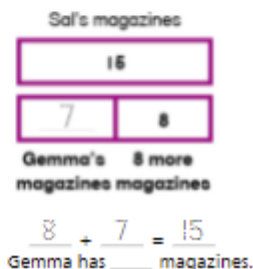### PROCEDURAL SKILL AND FLUENCY

There are no fluency expectations in Topic 5.

- **Use the Associative Property to Add** Adding three numbers in any order is possible because of the Associative (Grouping) Property of Addition. Using this property can help develop mental math. Because the order in which numbers are added does not matter, students can choose any two addends at a time, applying any strategy that works for them. For example, when adding multiple addends, students might sometimes find that it is easier to start with a double or two addends that make 10.

APPLICATIONS

- **Addition and Subtraction Situations** Throughout Topic 5, students apply their understanding of addition and subtraction situations to write equations that represent word problems. In Lesson 5-6, students also draw bar diagrams and other drawings to show how the numbers in word problems are related. This is students' first exposure to bar diagrams for "compare" problems.

> Sal has 8 more magazines than Gemma.
> Sal has 15 magazines.
> How many magazines does Gemma have?
>
> Sal's magazines
>
> | 15 |
>
> | 7 | 8 |
>
> Gemma's magazines 8 more magazines
>
> 8 + 7 = 15
>
> Gemma has ____ magazines.

Standards

MA.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.
MA.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.
MA.1.OA.B.3	Apply properties of operations as strategies to add and subtract.
MA.1.OA.C.5	Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

MA.1.OA.C.6	Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 − 4 = 13 − 3 − 1 = 10 − 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 − 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).
MA.1.OA.D.7	Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.
MA.1.OA.D.8	Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers.
	Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)
	For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 − 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.
	For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = __ − 3, 6 + 6 = __.

Materials

Core Materials:

- EnVision Math
- 5.1-Find the Unknown Numbers
- 5.2-True or False Equations
- 5.3-make True Equations
- 5.4-Add Three Numbers
- 5.5-Word Problems with three Addends
- 5.6-Solve Addition and subtraction word Problems
- 5.7-Precision

Supplemental Materials:

- ST Math
- Happy Numbers
- 3 Act Lessons
- Building Fact Fluency Kit
- Brainingcamp Manipulatives
- Nearpod Lessons
- Brainpop Resources
- Math Diagnosis and Intervention System
- Online Resources

Technology
Algorithms & Programming

8.1.2.AP.1: Model daily processes by creating and following algorithms to complete tasks.

8.1.2.AP.4: Break down a task into a sequence of steps.

Data & Analysis

8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats.

• 8.1.2.DA.3: Identify and describe patterns in data visualizations.

• 8.1.2.DA.4: Make predictions based on data using charts or graphs.

Assessment

Formative Assessment

- Teacher Observation
- Daily Quick Checks
- Quizzes
- Exit Tickets

Summative Assessment

- Topic Tests
- Benchmark Tests
- Alternative Assessments: Performance Tasks & Projects

Accommodations & Modifications

Special Education

- Follow IEP Plan which may contain some of the following examples...
- In class/pull out support with special ed teacher
- Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Limit number of questions

- Scribe
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video
- Practice buddy

504

- In class/pull out support with special ed teacher Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks Graphic organizers
- Vocabulary support Mnemonic devices
- Songs/videos to reinforce concepts Limit number of questions
- Scribe Manipulatives Calculators Reteach pages Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System Another look homework video
- Practice buddy

ELL

- Translation device/dictionary
- In class/pull out support with ESL teacher
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Math Diagnosis & Intervention System

At-risk of Failure

- Additional time during intervention time
- Questions read aloud
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video

- Practice buddy

Gifted & Talented

- Independent projects
- Enrichment pages
- Online games
- Leveled Homework
- Extension Activities
- Today's Challenge

Interdisciplinary Connections

Topic 1 Math and Science Project - Using different presentations tools, students will collect different types of paper. Talk about the uses of paper. Tell how strong each type of paper is. Tell how the paper feels. Tell if the paper can soak up water.

ELA:

RI.2.10. Read and comprehend informational texts, including history/social studies, science, and technical texts, at grade level text complexity proficiently with scaffolding as needed.

Science:

K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

21st Century Life Literacies & Key Skills

Critical Thinking and Problem Solving

• 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

• 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

Technology Literacy

• 9.4.2.TL.3: Enter information into a spreadsheet and sort the information.

• 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content.

9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts

Career Ready Practices

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP12. Work productively in teams while using cultural global competence.