Just In Time Quick Check

Standard of Learning (SOL) 1.15

Strand: Patterns, Functions, and Algebra

Standard of Learning (SOL) 1.15

The student will demonstrate an understanding of equality through the use of the equal symbol.

Grade Level Skills:

- Describe the concept of equality.
- Identify equivalent values and represent equalities through the use of objects, words, and the equal (=) symbol.
- Identify and describe expressions that are not equal (e.g., 4 + 3 is not equal to 3 + 5).
- Recognize that equations can be used to represent the relationship between two expressions of equal value (e.g., 4 + 2 = 2 + 4 and 6 + 1= 4 + 3).
- Model an equation that represents the relationship of two expressions of equal value.

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Just in Time Quick Check Teacher Notes

Supporting Resources:

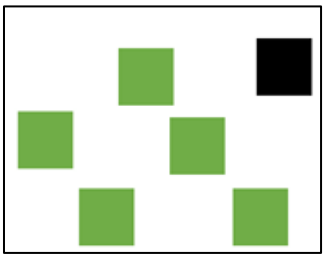
- VDOE Mathematics Instructional Plans (MIPS)
  - 1.15 – What is Equal? (Word / PDF)
- VDOE Word Wall Cards: Grade 1 (Word) | (PDF)
  - Equal
  - Not equal
- VDOE Rich Mathematical Tasks
  - 1.15 - How Can they Be Equal Task (Word / PDF)
  - 1.15 – How Can they Be Equal Student Version of Task (Word / PDF)
  - 1.15 – How Can they Be Equal Anchor Papers (Word / PDF)
  - 1.15 – How Can they Be Equal Anchor Papers Scoring Rationales (Word / PDF)

Supporting and Prerequisite SOL: 1.6, 1.7a, 1.7b

SOL 1.15 - Just in Time Quick Check

1) Look at the counters in Set 1 below. Write a number sentence to represent the counters in Set 1.

Set 1



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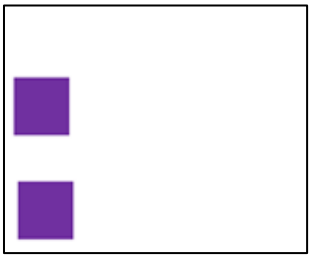
Look at the counters in Set 2. Draw more counters in Set 2 so that the number of counters in Set 2 are equal to the number of counters in Set 1.

Set 2



Once you have added counters to make Set 1 and Set 2 equal, write a number sentence that represents the relationship between Set 1 and Set 2.

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2) Circle 'is equal to' or 'is not equal to' to describe the relationship between these expressions.

a.	7 + 1	is equal to is not equal to	0 + 8
b.	6 + 3	is equal to is not equal to	5 + 4
c.	1 + 4	is equal to is not equal to	2 + 3

a.	7 + 1	is equal to is not equal to	0 + 8
d.	2 + 5	is equal to is not equal to	7 + 1

3) Solve the following number sentences or equations. (You may use counters or a number balance.)

   a. 5 + 3 = _____

   b. _____ = 4 + 5

   c. 9 - 2 = ____ + 7

   d. 3 + ___ = 2 + 4

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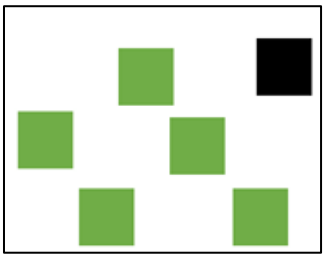
Common Errors/Misconceptions and their Possible Indications

1) Look at the counters in Set 1 below. Write a number sentence to represent the counters in Set 1.

Set 1



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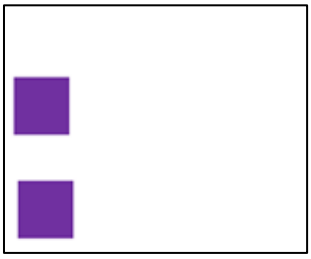
Look at the counters in Set 2. Draw more counters in Set 2 so that the number of counters in Set 2 are equal to the number of counters in Set 1.

Set 2



Once you have added counters to make Set 1 and Set 2 equal, write a number sentence that represents the relationship between Set 1 and Set 2.

Students who fail to add the appropriate number of blocks to Set 2 may be struggling to understand the term "equal" as having equal value. These students may not understand that equality represents a balance and will need opportunities to build equations and develop an understanding of part-whole relationships. A number balance will provide opportunities for these students to develop greater understanding of equality. In this problem, students would place pegs on one side at 5 and 1 (representing Set 1) and through exploration determine what two numbers they might place on the other side to equal 6 (i.e., 2 and 4, 3 and 3, etc.) or to represent Set 2. This type of activity can occur at a center where students are building equivalent expressions and writing equations.

2) Circle 'is equal to' or 'is not equal to' to describe the relationship between these expressions.

a.	7 + 1	is equal to is not equal to	0 + 8
b.	6 + 3	is equal to is not equal to	5 + 4
c.	1 + 4	is equal to is not equal to	2 + 3
d.	2 + 5	is equal to is not equal to	7 + 1

A common student error in considering equal/not equal statements is to solve the first expression and look for the answer in the second expression. When the total or the sum is not found in the second expression, students may say that the two expressions are not equivalent. For instance, in solving 6 + 3, a student may determine that the sum is 9 and only search for a 9, not recognizing that 5 + 4 is equivalent to 6 + 3; therefore they answer 'is not equal to.' For problems such as 2 + 5, students will look for the 7, find it, and therefore say that 2 + 5 'is equal to' 7 + 1 because they ignore the 1 altogether. These common misconceptions are often based on students' overgeneralizing their limited understanding of equality. Students need experiences solving grade-appropriate practical problems and comparing the results by writing comparison sentences. An example might include: Susie has 4 red apples and 1 green apple. Henry has 2 red apples and 3 green apples. Do they have an equal amount? The equation recording this relationship might look like 4 + 1 = 2 + 3 and could be read as 4 and 1 is equal to 2 and 3.

3) Solve the following number sentences or equations. (Counters or a number balance can be used if desired.)
   a. 5 + 3 = _____
   b. _____ = 4 + 5
   c. 9 - 2 = ____ + 7
   d. 3 + ___ = 2 + 4

Students who are unable to answer (a) likely need additional practice with part-part-whole relations and fact fluency. Those students who are unable to solve (b), where the 'answer' is located on the left, will need additional time developing the concept of equality and would benefit from more experiences using manipulatives and balances to model equality. Students who have not explored recording number sentences containing two expressions, such as (c) and (d) which contain missing addends, will benefit from acting out real-world situations then discussing and representing what is missing in order to develop greater understanding of equality and the use of the equal sign.

In order to develop a deeper understanding of equality, students need to engage in activities such as Shake and Spill (two-color) counters and write equations or expressions for how many are yellow and how many are red. Students will not only gain a better understanding of the part-whole relationship but will also develop a deeper understanding of equality and using the equal sign to represent equal parts.