Just In Time Quick Check
Standard of Learning (SOL) 1.6

Strand: Computation and Estimation

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The student will create and solve single-step story and picture problems using addition and subtraction within 20.

Grade Level Skills:
- Create and solve single-step oral or written story and picture problems, using addition and subtraction within 20.
- Identify a number sentence to solve an oral or written story and picture problem, selecting from among addition and/or subtraction equations (e.g., number sentences).
- Combine parts contained in larger numbers up to 20 by using related combinations (e.g., 9 + 7 can be thought of as 9 broken up into 2 and 7; using doubles, 7 + 7 = 14; 14 + 2 = 16 or 7 broken up into 1 and 6; making a ten, 1 + 9 = 10; 10 + 6 = 16).
- Explain strategies used to solve addition and subtraction problems within 20 using spoken words, objects, pictorial models, and number sentences.

Just in Time Quick Check

Just in Time Quick Check Teacher Notes

Supporting Resources:
- VDOE Mathematics Instructional Plans (MIPS)
  - 1.6 - Doubles Facts (Word) / PDF Version
  - 1.6 - Make Ten (Word) / PDF Version
  - 1.6 - Near Doubles (Word) / PDF Version
  - 1.6 - Neighbor Facts (Word) / PDF Version
  - 1.6 - Number Stories (Word) / PDF Version
- VDOE Word Wall Cards: Grade 1 (Word) | (PDF)
  - Addition
  - Subtraction
  - Related Facts
  - Number Sentence
  - Join
  - Separate
  - Compare
  - Part/Whole
- VDOE Rich Mathematical Tasks
  - 1.6 Toy Cars Task Template (Word) / PDF Version
  - 1.6 Toy Cars Student Version of Task (Word) / PDF Version
  - 1.6 Toy Cars Anchor Papers (Word) / PDF Version
  - 1.6 Toy Cars Anchor Papers Scoring Rationales (Word) / PDF Version

Supporting and Prerequisite SOL: 1.7a, 1.7b, 1.15, K.4a. K.4b, K.6

SOL 1.6 - Just in Time Quick Check

1. Circle the number sentence that could be used to solve this problem.

   Corey has 6 cookies. He gives 4 cookies away. How many cookies does Corey have now?

   $$6 + 4 = 10 \qquad\qquad 6 - 4 = 2$$

2. Aniya has 7 chocolate chip cookies and 9 sugar cookies. How many cookies does she have? Draw a picture and write a number sentence to solve the problem.

3. Ellis has 5 dinosaur toys. For his birthday he gets some more. Now he has 11 dinosaur toys. How many dinosaur toys did he get for his birthday? Draw a picture and write a number sentence to solve the problem.

4. Mrs. Smith has 10 stickers. She gives some to Caroline. She has 6 stickers left. How many stickers did Mrs. Smith give to Caroline? Draw a picture and write a number sentence to solve the problem.

SOL 1.6 - Just in Time Quick Check Teacher Notes
Common Errors/Misconceptions and their Possible Indications

1. Circle the number sentence that solves the problem.

    Corey has 6 cookies. He gives 4 cookies away. How many cookies does Corey have now?

    $$6 + 4 = 10 \qquad\qquad 6 - 4 = 2$$

    A common student error is to pull the numbers out of the context and add them (i.e., adding 6 + 4 = 10). This error indicates that the student has not developed an understanding of the context and the action taking place (i.e., giving cookies away means Corey will have fewer cookies). Students would benefit from additional experience with role play and/or modeling what is happening in the story problem.

    Students need to make sense of the problem by first discerning the action taking place. Students who do not understand the action in the story may use an operation that will not correctly solve the problem. Students need to develop a better understanding of the context and would benefit from more experiences with the associated different problem types. Refer to the Grade 1 Curriculum Framework for descriptions of various problem types.

2. Aniya has 7 chocolate chip cookies and 9 sugar cookies. How many cookies does she have? Draw a picture and write a number sentence to solve the problem.

    Students may not see that the two numbers need to be added. They may say that she has 7 and 9, but not understand that the question is asking for the sum of those two numbers. Students who use "key words" may be looking for the word altogether so they know to add in this problem. They may not have fully developed the concept of addition as joining and need more work with a part-part-whole mat. Students may need to develop a better understanding of the context to solve the problem and would benefit from more experiences with the associated problem types. Refer to the Grade 1 Curriculum Framework for descriptions of problem types.

    Other common errors that may occur is miscounting when counting on. Students who count on from 7 may miscount and get the wrong number of cookies; another student might think 7 + 10 = 17 but forget to take off the one extra they added on to make it easier to add. These students would benefit from composing and decomposing activities that allow them to develop a better sense of number and part-part-whole relationships. Students who may still be counting on as their sole strategy, would benefit from participation in number routines focused on Making Tens or the Use of Doubles. For 7 + 9, some students might make the numbers 6 + 10 while others might think 7 + 7 + 2 = 14 + 2.

3. Ellis has 5 dinosaur toys. For his birthday he gets some more. Now he has 11 dinosaur toys. How many dinosaur toys did he get for his birthday? Draw a picture and write a number sentence to solve the problem.

    Students who have not made sense of the context in this problem, and focus on the word 'more', often add the numbers from the story problem, which would create the problem 5 + 11 = 16. In this type of problem (change unknown), students need to find how many more are needed to get to 11. Students who understand the inverse relationship of addition and subtraction will know that 11 is the total and that they can use subtraction to find the answer as 11 - 5 = 6. Students may need to develop a better understanding of the context to solve the problem and would benefit from more experiences solving and discussing solution strategies of different problem types. Refer to the Grade 1 Curriculum Framework for descriptions of problem types.

Another common student error is counting up from 5 to 11 and not counting accurately. They may conserve 5 in their head but say 5, 6, 7, 8, 9, 10, and 11, resulting in an answer of 7 instead of 6. Students do not yet understand that they should say 5 (the initial number), 6, 7, 8, 9, 10, and 11, which results in an answer of 6. These students would benefit from opportunities to model problems with objects in order to visualize the action and the appropriate quantity.

4. Mrs. Smith had 10 stickers. She gave some to Caroline. She has 6 stickers left. How many stickers did Mrs. Smith give to Caroline? Draw a picture and write a number sentence to solve the problem.

This problem has a missing middle part (change unknown). Students may not understand what each number in the story is representing. They will take the two numbers and add them to create 10 + 6 = 16. Students need to understand that 10 is the total and some part of 10 is given away; they need to realize that 6 is what Mrs. Smith is left with and not what was given away. They must understand that 10 - ___ = 6 can be solved with 10 – 6 = ____ (the number she gave to Caroline) or with 6 + __ = 10 because of the relationship of numbers in a fact family. Students may need to develop a better understanding of the context to solve the problem and would benefit from more experiences with the associated problem types. Refer to the Grade 1 Curriculum Framework for descriptions of problem types.

Students who struggle with any of the problem types will benefit from representing the information from the problem with a picture and/or words. This may help students understand the problem presented and the importance of attending to the full context in order to solve the problem. In addition, a graphic organizer, such as a part-part-whole mat may be a useful tool for many students. For students who have not yet developed fluency with numbers to 10 provide experiences that focus on composing and decomposing numbers in order to develop greater flexibility with strategies for solving addition and subtraction problems.