

Just In Time Quick Check
Standard of Learning (SOL) 3.3a

Strand: Computation and Estimation

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The student will estimate and determine the sum or difference of two whole numbers.

Grade Level Skills:

- Determine whether an estimate or an exact answer is an appropriate solution for practical addition and subtraction problems involving single-step and multistep problems.
- Estimate the sum of two whole numbers with sums to 9,999.
- Estimate the difference of two whole numbers, each 9,999 or less.
- Apply strategies, including place value and the properties of addition, to add two whole numbers with sums to 9,999.
- Apply strategies, including place value and the properties of addition, to subtract two whole numbers, each 9,999 or less.

Just in Time Quick Check

Just in Time Quick Check Teacher Notes

Supporting Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - [Addition and Subtraction](#) (Word) | [\(PDF Version\)](#)
- VDOE Word Wall Cards: Grade 3 [\(Word\)](#) | [\(PDF\)](#)
 - Addition
 - Subtraction
 - Regroup/Rename
 - Related Facts: Addition/Subtraction
 - Equation: Number Sentence
 - Place Value Position
- VDOE Rich Mathematical Tasks
 - [Money in the Piggy Bank Task Template](#) (Word) | [\(PDF Version\)](#)
 - [Money in the Piggy Bank Student Version of Task](#) (Word) | [\(PDF Version\)](#)
 - [Money in the Piggy Bank Anchor Papers](#) (Word) | [\(PDF Version\)](#)
 - [Money in the Piggy Bank Anchor Papers Scoring Rationales](#) (Word) | [\(PDF Version\)](#)
- VDOE Instructional Videos for Teachers
 - [Strategies for Learning Basic Facts \(grades K-3\)](#)

Supporting and Prerequisite SOL: [2.5a](#), [2.5b](#), [2.6a](#), [2.6b](#), [1.6](#), [1.7a](#), [1.7b](#)

SOL 3.3a - Just in Time Quick Check

1. There are 355 students who attend Elm Street School. The number of students who attend Oak Lane School is 464.

- a. About how many students attend these schools altogether?

- b. Exactly how many students attend these two schools?

2. Estimate and find the difference between 887 and 439.

3. Estimate and then solve.

$$5,652 + 376 = ?$$

4. Estimate and then solve.

$$7,401 - 670 = ?$$

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Common Errors/Misconceptions and their Possible Indications

1. There are 355 students who attend Elm Street School. The number of students who attend Oak Lane School is 464.

- a. About how many students attend these schools altogether?
- b. Exactly how many students attend these two schools?

Students who find an estimate by rounding the exact sum after calculating may benefit from more experiences that allow them to consider estimation strategies shared by their peers. Students benefit from practice with multistep estimation strategies that apply understanding of place value and benchmark numbers. For this example, students might use partial sums, first using the values in the hundreds ($300 + 400 = 700$). Then students may use the understanding that both 55 and 64 are close to 50, so the sum of 55 and 64 is close to (but more than) 100, yielding an overall estimate of 800 and the knowledge that the actual sum will be more than this estimate. Another strategy may be to round the two numbers differently, using $350 + 500 = 850$. Students who also recognize that the exact sum of 455 and 464 will be less than the estimate of 850, since 500 is almost 40 more than 464, have a deep understanding of the process they are using to estimate and its relationship to the exact sum.

Students who use partial sums to find the exact sum ($300 + 400 = 700$, $50 + 60 = 110$, $5 + 4 = 9$, $700 + 110 + 9 = 819$) may have difficulty adding the sums together. Students using the traditional algorithm may have difficulty regrouping. In both of these instances, students would benefit from using concrete materials that are both proportional and “regroupable” to illustrate the process.

2. Estimate and find the difference between 887 and 439.

Students who do not find an estimate, who find an estimate that is unreasonable, or who find the exact difference and then round that number to produce an estimate, would benefit from further exposure to a variety of estimation strategies. Opportunities for students to use valid estimates to determine the reasonableness of the result of computation may also be beneficial.

Students who find the sum rather than the difference would benefit from more experiences modeling the use of the language associated with addition and subtraction during instruction and discussions with peers. For example, when asking students to share strategies used during problem solving, a teacher might say, “Joe found the difference of these numbers to solve this problem. Joe, can you tell us how you decided you would subtract and find the difference?” Regularly incorporating the language of mathematics into instruction reinforces meaning and encourages students to use this language themselves.

3. Estimate and then solve.

$$5,652 + 376 = ?$$

Students who find the exact sum to be 9,412 have not aligned the digits according to place value when rewriting the problem vertically and using the traditional algorithm. Students who recognize that the exact answer must be greater than 5,900 (estimate: a value more than 5,600 + a value more than 300 = a value more than 5,900) will be able to identify that they have made an error.

Students using the traditional algorithm may have difficulty regrouping. These students may benefit from using concrete materials (i.e., base-ten blocks) to model and solve the problem. Students may also benefit from more

opportunities to learn different computation strategies used by peers, such as partial sums, which can be efficient alternatives to the traditional algorithm.

4. Estimate and then solve.

$$7,401 - 670 = ?$$

Students who solve using the traditional algorithm may have difficulty regrouping to subtract, particularly across a zero. Regrouping errors may result in a variety of incorrect responses, including but not limited to:

- “flipping” the digits, subtracting 0 from 7 in the tens and 4 from 6 in the hundreds, producing an incorrect answer of 7,271.*
- changing the 0 tens in 7,401 to 10 tens without changing the 4 hundreds to 3 hundreds, resulting in an incorrect answer of 6,831. Students might make a similar mistake when dealing with the hundreds place, or they may inconsistently make mistakes with regrouping.*

Students who use the traditional algorithm but have difficulty with regrouping may benefit from using base-ten blocks or diagrams to build conceptual understanding. Additional experiences with a variety of computation strategies shared by peers may also expose students to efficient alternatives to the traditional algorithm that are less reliant on regrouping.