

Vertical Progression:

TS Gold	<p>20. Uses number concepts and operations</p> <p>20b. Quantifies</p> <p>8. Uses a variety of strategies (counting objects or fingers, counting on, or counting back) to solve problems with more than 10 objects.</p>
Kindergarten	<p>K.OA.A. Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.</p> <ul style="list-style-type: none"> ○ K.OA.1 Represent addition and subtraction with objects, fingers, mental images, drawings, sound, acting out situations, verbal explanations, expressions or equations. ○ K.OA.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawing to represent the problem. ○ K.OA.3 Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by drawing or equation (e.g. $5 = 2+3$ and $5=4+1$).
1st Grade	<p>1.OA.B Understand and apply properties of operations and the relationship between addition and subtraction.</p> <ul style="list-style-type: none"> ○ 1.OA.B.3 Apply properties of operations as strategies to add and subtract. <i>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.)</i> ○ 1.OA.B.4 Understand subtraction as an unknown-addend problem. <i>For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8.</i>
2nd Grade	<p>2.OA.A Represent and solve problems involving addition and subtraction.</p> <ul style="list-style-type: none"> ○ 2.OA.A.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. ○ 2.OA.B Add and subtract within 20. ○ 2.OA.B.2 Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.

Students will demonstrate command of the ELG by:

- Applying properties of operations as strategies to add and subtract within 20.
- Explaining the strategy used to add and subtract.
- Writing a subtraction number sentence and its related addition number sentence.
- Identifying patterns in the writing of number families.
- Rewriting a subtraction equation as an addition equation with a missing addend.

Vocabulary:

- add
- addend
- addition
- fact family
- strategy
- subtract
- subtraction
- unknown

Sample Instructional/Assessment Tasks:

1) Standard: 1.OA.B.3

Source: Illustrative Mathematics

<https://www.illustrativemathematics.org/content-standards/1/OA/B/tasks/1612>

Item Prompt: Write as many equations for each picture as you can.

A. Use the numbers 4, 1, and 5.



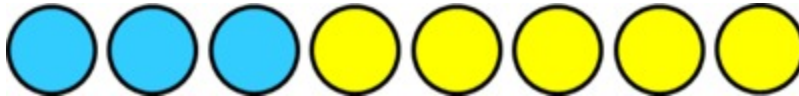
Here are some equations for this picture.

$$4+1=5; 5=4+1$$

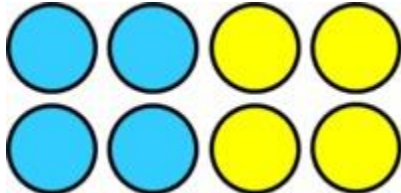
$$5-1=4; 4=1-5$$

Can you find more equations?

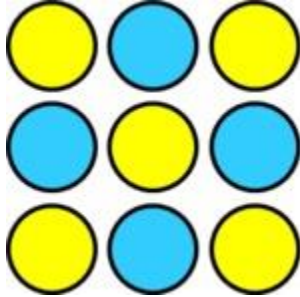
B. Use the numbers 3, 5, and 8.



C. Use the numbers 4, 4, and 8.



D. Use the numbers 4, 5, and 9.



E. Draw your own picture and write all the equations you can think of to describe it.

Correct Answers:

A. $4+1=5$; $5=4+1$
 $1+4=5$; $5=1+4$
 $5-4=1$; $1=5-4$
 $5-1=4$; $4=5-1$

B. $3+5=8$; $8=3+5$
 $5+3=8$; $8=5+3$
 $8-3=5$; $5=8-3$
 $8-5=3$; $3=8-5$

C. $4+4=8$; $8=4+4$
 $8-4=4$; $4=8-4$

D. $4+5=9$; $9=4+5$
 $5+4=9$; $9=5+4$
 $9-4=5$; $5=9-4$
 $9-5=4$; $4=9-5$

2) Standard: 1.OA.B.4

Source: <https://grade1commoncoremath.wikispaces.hcpss.org/Assessing+1.OA.4>

Materials: Unifix Cubes, plastic bowl, digit cards, number line (0-20)

Directions:

- 1) Show the student 12 cubes. Have the student count all of the cubes.
- 2) Cover up 3 cubes using the plastic bowl.
- 3) Have the student count the cubes that are visible and place the corresponding digit card under the cubes (9).
- 4) Ask the student "How many cubes are under the bowl?"
- 5) The student should count on from 9 and realize 3 are under the bowl.

Correct Answer/Considerations: Does the student count all the cubes that are visible again? Does the student remember there are 12 cubes all together? Does the student count on their fingers or use the number line?