



Bridging for Math Strength Resources

[Standards of Learning Curriculum Framework\(SOL\)](#)

Standard of Learning (SOL) K.4A Recognize and describe with fluency part-whole relationships for numbers to 5.



Student Strengths	Bridging Concepts	Standard of Learning
Recognize that a number is made up of parts, which equal the whole.	Recognize and describe the part-whole relationship for numbers up to 3.	Recognize and describe the part-whole relationship for numbers up to 5.

Understanding the Learning Trajectory

Big Ideas:

- Students come to understand that a whole is larger than its parts (ie. 5 is larger than 2 and 3).
- Students understand that numbers are nested inside of each other when counting and the next number is one more (ex. 9 is nested inside of 10, $9+1 = 10$). (Clements, D.H., & Sarama, J. 2009)
- Students learn to identify the size of a whole by composing its smaller parts. They develop intuitive understandings of commutativity (ie. 2 and 3 is the same as 3 and 2) and associativity (ie. 1 and 1 and 3 is the same as 2 and 3 and 1 and 4).
- Students subitize, or visually recognize the number of items in a collection, using spatial and numeric structures, such as common dot patterns (ie. 2x2 array).

Formative Assessment:

- VDOE [Math Strength Assessment K.4A \(Seesaw\)](#)
- VDOE [Mathematics Quick Check K.4A \(PDF\)](#)
- VDOE [Mathematics Quick Check K.4A \(Google Slides\)](#)

Important Assessment Look Fors:

- Student uses their knowledge of visual patterns (subitizes) to identify an unknown part of a set up to 5.
- Student uses a counting strategy to determine the unknown part of a set up to 5.

Purposeful Questions:

- What are all the ways you can make 5? Which combination could this be? How do you know?
- How can you figure out the unknown part?
- How can you show (with drawings, manipulatives, tens frame, number beads/board, etc.) this part-whole relationship?

Bridging Activity to Support Standard	Instructional Tips
Routine Same But Different , samebutdifferent.com (Early Numeracy)	This routine uses part-whole relationships for students to explain what is the same but different about the image presented. Students are presented with the whole and asked to identify the different parts presented in the image.
Rich Tasks Picking Apples Task (Word / PDF)	This task gives students parameters of numbers up to 5 for part-part-whole. The teacher might ask: 1. How many different ways could Tom's bag of apples look? 2. What if Tom had 10 apples? What could his bag of apples look like?
Games Shake and Spill , Illustrative Mathematics	The purpose of this game is for students to decompose a number into a sum of two numbers in multiple ways. The teacher will need to be sure students understand the meaning of the word sum. In addition, the teacher will need to model how to shake and spill the counters carefully and correctly. Be sure students understand that they represent the parts together and not separately. To ensure this is happening the teacher might ask: 1. How many red counters? 2. How many yellow counters? 3. How many in total?

Supporting Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - [K.4ab - Bears in Caves](#) (Word) / [PDF Version](#)
 - [K.4ab - Disappearing Parts](#) (Word) / [PDF Version](#)
 - [K.4ab - Fill, Shake, and Pour](#) (Word) / [PDF Version](#)
 - [K.4ab - Subitizing with Dot Cards](#) (Word) / [PDF Version](#)
- VDOE Word Wall Cards: Kindergarten ([Word](#)) | ([PDF](#))
 - Counting by ones
 - More than
 - Fewer than
- VDOE Rich Mathematical Tasks
 - [K.4ab – Picking Apples Task](#) (Word / [PDF](#))
- VDOE Instructional Videos for Teachers
 - [Developing Early Number Sense \(grades K-2\)](#)

Using A Beaded Number Line (grades K-2)

- [Bobbie's Bear Buttons](#) (Task)
- [Numberless Word Problems](#) (Routine)
- [The Pocket Game](#) (inclusion) (Game)

Learning Trajectory Resources:

- Charles, R. (2005). Big ideas and understandings as the foundation for elementary and middle school mathematics. *Journal of Mathematics Education Leadership*, 7(3), NCSM.
- Clements, D. H., & Sarama, J. (2019). Learning and teaching with learning trajectories [LT]2. Marsico Institute, Morgridge College of Education, University of Denver. <https://www.learningtrajectories.org/>
- Common Core Standards Writing Team. (2019). [Progressions for the Common Core State Standards for Mathematics](#). Tucson, AZ: Institute for Mathematics and Education, University of Arizona.
- Richardson, K. (2012). How Children Learn Number Concepts: A Guide to Critical Learning Phases. Bellingham: Math Perspectives Teacher Development Center.
- Van De Walle, J., Karp, K. S., & Bay-Williams, J. M. (2018). *Elementary and Middle School Mathematics: Teaching Developmentally*. (10th edition) New York: Pearson (2019:9780134802084)
- VDOE Curriculum Framework for All Grades - [Standard of Learning Curriculum Framework \(SOL\)](#)