



## Bridging for Math Strength Resources

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

**Standard of Learning (SOL) K.9** Compare two objects or events, using direct comparisons, according to one or more of the following attributes: length (longer, shorter), height (taller, shorter), weight (heavier, lighter), temperature (hotter, colder), volume (more, less), and time (longer, shorter).



Student Strengths	Bridging Concepts	Standard of Learning
<p>Student can compare objects using a variety of attributes such as length, height, weight, temperature, or time.</p> <p>Student can count using one-to-one correspondence.</p>	<p>Student can choose one object that is longer/shorter, taller/shorter, heavier/lighter, hotter/colder, more/less, or longer/shorter when given two objects.</p>	<p>Students can compare two objects or events, using direct comparisons, according to one or more of the following attributes: length (longer, shorter), height (taller, shorter), weight (heavier, lighter), temperature (hotter, colder), volume (more, less), and time (longer, shorter).</p>

### Understanding the Learning Trajectory

#### **Big Ideas:**

- This standard is heavy in vocabulary. Be especially mindful of students with limited vocabulary as you teach this standard. Use explicit vocabulary teaching strategies, giving students hands-on experiences with each term. Explicit definitions can be found in the [Curriculum Framework](#).
- Volume, length, height, and weight are attributes that can be separated from size (big/small).
- There are strategies and tools used to compare objects to one another.

#### **Formative Assessment:**

- VDOE Just in time Quick Check SOL K.9 [PDF](#) / [Google Slides](#)

#### **Important Assessment Look Fors:**

- Physically aligns two objects to determine which is longer or if they are the same length.
- Student is using appropriate vocabulary to describe the comparison (The cow is heavier than the milk carton).
- Comparing time may be challenging for students, as it is an abstract concept. Student may act out the events in

order to make a conjecture about which is longer or shorter.

**Purposeful Questions:**

- How were you able to tell that one object is (longer/shorter/heavier/lighter/more/less)?
- What do you know about that object that helps you compare it?
- Can you act out the event to try to figure out how to compare?

Bridging Activity to Support Standard	Instructional Tips
<b>Routine</b> <a href="#">Which One Doesn't Belong?</a>	Shape 18 - Allows students to use comparing vocabulary, but is also an early foray into area and volume. Shape 31 - Low barrier to entry, but allows students to practice comparing vocabulary.
<b>Rich Tasks</b> <a href="#">Taller and Shorter</a>	A fun activity to have students act out and record. They may use their classmates or even family members.
<b>Games/Tech</b> Desmos <a href="#">K.9 Comparing objects: length, height, weight, temperature, volume, and time</a>  <a href="#">Comparing Centers</a>	Students will drag images to match the correct description read aloud by the teacher.   There are few different games here. In "Comparing Towers", students are given sentence frames to work together to build longer and shorter towers of blocks.

**Other Resources:**

- VDOE Mathematics Instructional Plans (MIPS)
  - [K.9 - Heavier or Lighter?](#) (Word) / [PDF Version](#)
  - [K.9 - Hot or Cold?](#) (Word) / [PDF Version](#)
  - [K.9 - How Long Is It?](#) (Word) / [PDF Version](#)
  - [K.9 - Taller or Shorter?](#) (Word) / [PDF Version](#)
  - [K.9 - Time: Longer or Shorter?](#) (Word) / [PDF Version](#)
  - [K.9 - Volume: More or Less?](#) (Word) / [PDF Version](#)
- VDOE Word Wall Cards: Grade K [\(Word\)](#) | [\(PDF\)](#)

**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)