



Bridging for Math Strength Resources

Standards of Learning Curriculum Framework

Standard of Learning (SOL) 3.13 Identify and describe congruent and noncongruent figures.



Student Strengths	Bridging Concepts	Standard of Learning
Students can identify, trace, describe, and sort plane figures according to vertices and angles, regardless of shape orientation.	Students can use attributes of plane figures to determine whether two figures are the same shape. Students have experience with estimation and measurement to distinguish if the figures are the same size.	Students can identify and describe congruent and noncongruent figures.

Understanding the Learning Trajectory

Big Ideas:

- Congruent figures have the same size and shape. Noncongruent figures do not have the same size and shape. Opportunities for exploring figures that are congruent and/or noncongruent can best be accomplished by using physical models. (VDOE Grade 3 Curriculum Framework)
- Congruent plane figures remain congruent even if they are in different spatial orientations. (VDOE Grade 3 Curriculum Framework)
- Figures that are congruent or noncongruent may be identified by using direct comparisons and/or tracing procedures. (VDOE Grade 3 Curriculum Framework)

Formative Assessment:

- VDOE Just in time Quick Check SOL 3.13 [PDF](#) / [Desmos](#)

Important Assessment Look Fors:

- Students can identify figures with the same shapes and the same sizes.
- Students can recognize shapes as congruent when their orientations are different.
- Students can describe what makes shapes congruent to each other.

Purposeful Questions:

- How can you determine whether two figures are congruent or noncongruent?
- What do you notice about congruent figures?
- What do you notice about noncongruent figures?
- What attributes of the figures did you need to compare to determine whether they were congruent or noncongruent?
- How can you prove that congruent figures are congruent if their orientations are different?
- How can you prove that noncongruent figures are not congruent if their orientations are different?

Bridging Activity to Support Standard	Instructional Tips
Routine Math in Our World: Street Art Math in Our World: Block Towers	Display the image (either Block Towers or Street Art) and ask, “What do you notice? What do you wonder?” If no one mentions the terms “congruent” or “noncongruent,” guide students into thinking about these terms by asking questions like: - Does anyone notice any shapes that are the same shape? The same size? If so, where do you see them? How could you tell they were the same? - Does anyone notice any shapes that are different? If so, how were they different?
Rich Tasks Street Art Task Block Tower Task	Street Art Task <i>(Note: This task works best as a follow up to the Math in Our World: Street Art Routine)</i> Mateo said that shapes A and B are congruent to each other because they are the same size and the same shape. Mateo’s brother Juan said that shapes A and B are noncongruent because they are facing different directions which means that they cannot be the same. Which brother is correct? Use pictures, words and symbols to explain your reasoning. Block Tower Task <i>(Note: This task works best as a follow up to the Math in Our World: Block Towers Routine. In order to ensure that students use congruent shapes, have students cut apart these shapes.)</i> Hayden and Charlotte decided to build another block tower. What could the new block tower look like? Use these shapes to design your block tower. After you build your block tower- - find shapes that are congruent to each other and color them the same color. - Use pictures, words and symbols to explain how you know that the shapes that have the same color are congruent. - Use pictures, words and symbols to explain how you know that the shapes that have a different color are noncongruent. - Did knowing shapes were congruent help in designing your tower? Did you use them to make your tower look a certain way?
Games/Tech Desmos 3.13 Congruent Figures	Students will explore congruent and noncongruent figures.

Other Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - [3.13 - Fit to Be Congruent](#) (Word) / [PDF Version](#)
- [VDOE Word Wall Cards: Grade 3](#) (Word) and [\(PDF\)](#)
- Desmos Activity:
 - [3.13 Vocabulary Review](#)
- Virtual Manipulatives:
 - [Geoboard](#)
 - [Pattern Shapes](#)
 - [Tangrams](#)

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 \(SOL\)](#)