



Bridging for Math Strength Resources

[Standards of Learning Curriculum Framework](#)

Standard of Learning (SOL) 2.15b Read and interpret data represented in pictographs and bar graphs.



Student Strengths	Bridging Concepts	Standard of Learning
Students can read and interpret data in object graphs, picture graphs, and tables. Students can count and compare numbers to 25 or more.	Students can read and interpret data displayed in tables, picture graphs, and object graphs, using the vocabulary more, less, fewer, greater than, less than, and equal to. Students can use the key to determine total numbers for data representations.	Students can read and interpret data represented in pictographs and bar graphs.

Understanding the Learning Trajectory

Big Ideas:

- Some questions can be answered by collecting and analyzing data.
- Categorical data are displayed in pictographs and bar graphs ([Common Core Progressions](#), p. 2)
- Pictographs and bar graphs are labeled with accurate titles, key or scale, and appropriate categories ([Common Core Progressions](#), p. 7).
- Data can be represented visually using objects, tables, charts, and graphs. The type of data to be collected often determines the best choice of visual representation.
- Data can be read and interpreted using categorically (number of categories) and numerically (more, fewer, less than, etc...) relationships.

[Math Strength Instructional Video 2.15b](#)

Formative Assessment:

- VDOE [Just in Time Mathematics Quick Check 2.15b \(PDF\)](#)

- VDOE [Just in Time Mathematics Quick Check 2.15b \(Desmos\)](#)

Important Assessment Look Fors:

- Student reads a table and pictograph correctly.
- Student identifies and makes comparisons based on data in a table or graph.
- Student interprets data that represents categorical and numerical relationships.
- Student uses the data represented on a table or graph to make predictions and generalizations.

Purposeful Questions:

- What information does the table or graph represent (show)?
- What do you notice or wonder about the data?
- Looking at the (pictograph or bar graph), which category has the least amount? The largest amount?
- Looking at the (pictograph or bar graph), are there any options with the “zero” as the amount? If so, what does that mean?
- What is the key of the pictograph? What is the scale of the bar graph? Explain how you know.

Bridging Activities to Support the Standard	Instructional Tips
Routine Notice and Wonder Henrico County Public Schools Slow Reveal Graphs: bar graph; Slow Reveal Graphs: pictograph	Complete this routine daily. You can talk about lining items up to compare, comparing similar items, or organizing items to find out how many you have. You could also take many of these slides and create a graph with what you’re looking at. Graphs and data tables from other pictures or magazines can be added as well. - Show the image but provide no additional information. - Students consider the prompt “What do you notice? What do you wonder?” Students may think quietly or engage in a quick write depending on the purpose for engaging in this routine. If students are keeping a personal list of noticings and wonderings they may add to the list as new ideas are shared. - Students turn and talk with a partner and take turns sharing their noticings and wonderings. Notice and Wonder Process and Resources Scroll down for prepared slide decks that slowly reveal the graphs and provide questions for discussion. The pictograph also has a Desmos version.
Rich Task Graphing Flowers Portsmouth Public Schools	Students should have access to counters to complete the task if needed. Encourage students to come up with more than one way to show the total amount of flowers. Students should be given the opportunity to share and observe other student flower combinations (gallery walk, etc...). Include whole group discussion of similarities and differences between flower total combinations and how it relates/connects to “fact families”.
Games Blooket “Graphing”	Log in with Google. Teachers will need to set up a free classroom account. Students log in to review concepts while competing to earn the most money.

Other Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - [2.15ab - Real Data!](#) (Word) / [PDF Version](#)
 - [2.15ab - What Does the Data Tell Us?](#) (Word) / [PDF Version](#)
 - [2.15b - The Graphing Gallery](#) (Word) / [PDF Version](#)
- VDOE Word Wall Cards: Grade 2 ([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 \(SOL\)](#)