



Bridging for Math Strength Resources

[Standards of Learning Curriculum Framework](#)

Standard of Learning (SOL) 2.14 Use data from probability experiments to predict outcomes when the experiment is repeated.



Student Strengths	Bridging Concepts	Standard of Learning
The student can collect, organize, and represent various forms of data using tables, picture graphs, and object graphs	Students can collect, organize, and represent data in pictographs and bar graphs. Students learn terms like likely, equally likely, unlikely, certain and impossible by using ideas around $\frac{1}{2}$ using visuals or concrete materials like a number spinner, coin or color spinner.	Students can use data from probability experiments to predict outcomes when the experiment is repeated.

Understanding the Learning Trajectory

Big Ideas:

- Probability is used to make informed predictions and inferences.
- Probability requires the development of the concept of chance through exploration of possible outcomes of situations and predict results. (VDOE Grade 2 Curriculum Framework)
- The probability that a future event will occur can be characterized along a continuum from impossible to certain.
- Chance has no memory. The outcome for one trial of a simple experiment has no impact on the outcome of future trials. (Van de Walle, 2018)

Formative Assessment:

- VDOE Just in time Quick Check SOL 2.14 [PDF](#) / [Desmos](#)

Important Assessment Look Fors:

- Student can make a prediction that is supported by the data provided.
- Student can use vocabulary of the concept of chance (more likely, least likely, etc.)
- Student can use reasoning with data to predict outcomes of future experiments.
- Student can make a reasonable prediction of an outcome based on data.
- Student uses the language of probability when describing outcomes (more likely, least likely)
- Student can use reasoning to justify a possible outcome of a future experiment.

Purposeful Questions:

- What are all the possible outcomes? How do you know you have all the possible outcomes?
- Of all the possible outcomes, which is least likely? How do you know?
- What would be an impossible outcome? Why?

Bridging Activity to Support Standard	Instructional Tips
Routine Same But Different-Spinners	Have students notice similarities and differences between two spinners. This will promote student discourse and critical thinking of mathematical ideas.
Rich Tasks It's in the Bag! Is It Fair- Spinners	It's in the Bag!: Prepare paper bags with 4 color tiles in each bag. Label the bags A, B, C, etc. to allow students to tell them apart as they work with different bags during the task. Students make predictions based on the data they collect (see slide 2 for directions). Is It Fair - Spinners: Students use paper clip spinners to conduct probability experiments and record data in a tally chart. Focus classroom discussion about what it means to be "fair".
Games Roll and Record Climber Probability Game	Roll and Record uses dice to explore probability. Consider having students predict which number would be rolled the most and why.

Other Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - [2.14 - We Are Spinning In Second Grade](#) (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)