



Bridging for Math Strength Resources

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

[Bridging Standards of Learning \(SOL\) for Grade 7](#)

Bridging Standard of Learning (SOL) 7.8b Investigate and describe the difference between the experimental probability and theoretical probability of an event



Student Strengths	Bridging Concepts	Standard of Learning
Students can predict the probability of an event and also run trials to compare their guesses with actual trial results.	Students can determine the theoretical and experimental probabilities of an event.	Students can investigate and describe the difference between the experimental probability and theoretical probability of an event.

Understanding the Learning Trajectory

Big Ideas:

- CHANCE: The chance of an event occurring can be described numerically by a number between 0 and 1 inclusive and used to make predictions about other events.
- Probability can provide a basis for making predictions. Some probabilities can only be determined through experimental trials. An event that is certain to happen will always happen (the probability is 1.) and an event that is impossible will never happen (the probability is 0.)
- The theoretical probability is what SHOULD happen and experimental probability is the actual RESULT (outcome) of a trial and probability of an event can be represented as a ratio or equivalent fraction, decimal, or percent.
- In experimental probability, as the number of trials increases, the experimental probability gets closer to the theoretical probability (Law of Large Numbers).(VDOE, Curriculum Framework)

Formative Assessment:

- [Just in Time Mathematics Quick Check 7.8b Word](#)
- [Just in Time Mathematics Quick Check 7.8b PDF](#)
- [Just in Time Mathematics Quick Check 7.8b Desmos](#)

Important Assessment Look Fors:

- The student can determine the difference between theoretical and experimental probability given an event.
- The student can describe changes in the experimental probability as the number of trials increases.
- The student can investigate and describe the difference between the probability of an event found through experiment or simulation versus the theoretical probability of that same event.

Purposeful Questions:

- What is the theoretical probability for this event to occur?
- What is the experimental probability for this event to occur?
- What do you think would happen to the experimental probability if you increased your number of trials? How would it compare to the theoretical probability?
- How is experimental probability different from theoretical probability? Provide an example.

Bridging Activity to Support Standard	Instructional Tips
Routine Two Bags of Jelly Beans	Use page 14 as a routine or warm-up
Rich Tasks Comparing Theoretical & Experimental Probability Performance Task	Radford University Math---Kelly Day This task takes students step-by-step to actually reach the SOL 7.8b goal of comparing the probabilities and how increasing the trials gets the experimental probability closer to theoretical probability. This task is discovery based.
Games/Tech Probability---Rags to Riches Theoretical & Experimental Probability Theoretical & Experimental Probability Desmos 7.8ab Last Taco	Quia Game : Be sure to review the “fundamental counting principle” from previous learning. Variety of probability questions. Blooket Game : Students tend to love the competitive option. Quizizz Game : Can be used as HW, in-class competition, teacher paced In this activity, the student uses experimental probability to determine if a game is free.
Other Resources: • Experimental Probability Simulator: Great way to do different experimental probability simulations where students can use spinners/dice. • VDOE Mathematics Instructional Plans (MIPS) - o 7.8ab - What are the Chances? (Word) / PDF • VDOE Algebra Readiness Remediation Plans - o Experimental vs. Theoretical (Word) / PDF - o Rock Paper Scissors (Word) / PDF • VDOE Word Wall Cards: Grade 7 (Word) (PDF) - o Probability - o Theoretical Probability - o Experimental Probability • Other VDOE Resources - o Beat the Odds [eMediaVA] - o Probability and the Law of Large Numbers [eMediaVA] • Desmos Activity	

- o [Last Taco](#)

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.

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.

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 \(SOL\)](#)