Bridging for Math Strength Resources

Standards of Learning Curriculum Framework

Standard of Learning (SOL) 2.7a Count and compare a collection of pennies, nickels, dimes, and quarters whose total value is $2.00 or less.

Student Strengths	Bridging Concepts	Standard of Learning
Students can recognize the attributes of a penny, nickel, dime, and quarter. Students can identify the number of pennies equivalent to a nickel, a dime, and a quarter.	Students can determine the value of a collection of like coins (pennies, nickels, or dimes) whose total value is 100 cents or less. Students can compare number up to three digits.	Students can count and compare a collection of pennies, nickels, dimes, and quarters whose total value is $2.00 or less.

Understanding the Learning Trajectory

Big Ideas:

- Coins have unique values and physical attributes. The size of a coin does not indicate its value. The value of some coins and bills can be represented as a combination of other coins.
- Skip counting can be used to determine the value of a set of like coins and can serve to build the foundation for multiplication.
- The ability to switch between different types of skip counting (i.e., 1, 5, 10, and 25) allows students to see patterns in numbers.

Formative Assessment:

- VDOE Just in Time Mathematics Quick Check 2.7a (PDF)
- VDOE Just in Time Mathematics Quick Check 2.7a (Desmos)

Important Assessment Look Fors:

- Student identifies and describes attributes of a penny, nickel, dime and quarter.
- Student identifies the number of pennies equivalent to a nickel, dime and quarter.
- Student determines the value of a collection of coins using the skill of skip counting.

- Student determines the value of a collection of coins by counting the highest valued coin first, adding the values of the individual coins, or other efficient strategies (i.e., combining two or more coins by utilizing benchmark numbers).
- Student compares the values of two sets of coins and a dollar bill using the terms greater than, less than or equal to.

Purposeful Questions:

- Can you tell me what coins you have?
- What's the value of each coin? Of this collection of coins?
- Are there any coins that you can use to make 25? Are there other ways to make that same amount?
- What would be an effective way to count a combination of coins?
- Can you use skip counting to help you could these coins?
- Which combination of coins has the greatest value/least value?

Bridging Activities to Support the Standard	Instructional Tips
Routine Would You Rather? Henrico County Public Schools	In this routine, students are given a scenario with two choices and use their number sense to make a choice and justify their reasoning. Teachers should take answers from multiple students. Teachers should create a t-chart to track student responses for both choices. As students share their answers, teachers should facilitate discussion among their class. Possible questions to facilitate discussion are: ● Does anyone have a question or comment for . . .? ● How are these two similar or different? ● What if (teacher makes a change to one or both of the choices)? HCPS Number Sense Routine Would You Rather
Rich Task Coins in Madison's Pocket VDOE Rich Mathematical Task Template	In this task, students will explore selecting coins for a given amount in order to develop mathematical understanding of the idea that different combinations of coins can result in the same amount of money.
Games/Tech "Coin Box" NCTM Illuminations Desmos 2.7a Polygraph: Collections of Money	In this game students learn how to count, collect, exchange, and make change for coins. The coin tiles help students count as they learn the value of each coin. The main purpose of this Desmose Polygraph is to have students use language to describe sets of coins and the value of the sets.

Other Resources:

- Focused reading on skip counting by Wilkins, J. L. M., & Ulrich, C. (2017). The role of skip counting in children's reasoning. *Virginia Mathematics Teacher, 43*(2), 8-14.
- Counting by Money Math Learning Center
- VDOE Mathematics Instructional Plans (MIPS):
  - 2.7ab - Cool Coin Comparisons (Word) / PDF Version

- 2.7ab - Race to a Dollar or Two! (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)