

## Math Resources for Students Accessing the Adapted Curriculum

This document provides resources and activities for use at home.

### 1) Number and Number Sense:

**Number and number sense** is the ability to make sense of what numbers mean, to perform mental mathematics, and to look at the world and make comparisons. This may include concepts like counting, place value, comparing and ordering sets of objects, ordinal positions, ordering numbers, etc.

### 2) Computation and Estimation:

**Estimation** is finding an approximate answer to math problems without actually computing the exact answer. **Computation** is calculating the answers to given math problems. This may include concepts like addition, subtraction, fractions, making a prediction about what the answer might be and then solving the problem, etc.

### 3) Measurement and Geometry:

**Geometry** is a branch of mathematics that deals with the properties of shapes, points, space, positions or angles, and patterns that we can **measure**. The concepts may include identifying shapes, comparing figures, measuring the length, weight, or area of an object, etc.

### 4) Probability and Statistics:

**Probability** is the study of chance and is a very fundamental subject that we apply in everyday living. **Statistics** is concerned with how we handle data using different analysis techniques and collection methods. The concepts may include sorting objects, making graphs, answering questions about graphs, etc.

### 5) Patterns, Functions, and Algebra:

**Patterns, Functions, and Algebra** explores the “big ideas” in algebraic thinking, such as finding, describing, and using patterns; using functions to make predictions; understanding linearity and proportional reasoning; understanding non-linear functions; and understanding and exploring algebraic structure.

## **Resources that cover multiple strands/skills**

### **Math Instant Centers**

See attached PDF of websites to practice skills in Counting, Sequencing and Patterns, Addition, Subtraction, Multiplication, Division, Greater/Less Than, Place Value, Telling Time, Measurement, Fractions, and Money Skills.

### **Math e-Books**

Premade e-books that can be used to support instruction towards specific math concepts. (Covers Addition, Counting/Cardinal Numbers, Decomposing Numbers, and Shapes.) <http://www.clarkness.com/Math%20eBooks.htm>

### **Visual Math Dictionaries**

Provides easy to understand definitions and visuals for math words.

<http://www.rpd.net/mathdictionary/english/vmd/system/grd-k12-index.htm>

<https://www.mathsisfun.com/definitions/letter-f.html>

### **National Library of Virtual Manipulatives**

A digital library containing activities for K-12 mathematics. Topics covered include number and operations, algebra, geometry, measurement, data-analysis and probability. <http://nlvm.usu.edu/en/nav/vlibrary.html>

### **Cool Math Games**

This website provides fun and challenging games that help children practice specific math concepts. (Covers Number Sense, Addition/Subtraction, and Multiplication/Division.) <https://www.coolmathgames.com/1-number-games>

### **Illustrations**

This website provides interactive activities to teach different math concepts. It is organized by grade level and math concepts. Topics covered include numbers and operations, algebra, geometry, measurement, data analysis and probability.

<https://illustrations.nctm.org/>

### **Math Vocabulary Cards**

Mathematics vocabulary word wall cards provide a display of mathematics content words and associated visual cues to assist in vocabulary development. Words are organized by grade level and include topics like numbers, fractions, time, etc.

[http://www.doe.virginia.gov/instruction/mathematics/resources/vocab\\_cards/index.shtml](http://www.doe.virginia.gov/instruction/mathematics/resources/vocab_cards/index.shtml)

### **Free Math Apps**

Free Math apps to develop specific math skills. Available in two or more versions: a web app for all modern browsers, and downloadable versions for specific operating systems and devices (such as Apple iOS for iPad). *(Covers Number Sense, Fractions, Time, Money, Geometry, Computation, and Patterns.)*

<https://www.mathlearningcenter.org/resources/apps>

### **VDOE Mathematics Instructional Plans**

Mathematics Instructional Plans (MIPs) help align instruction with the Mathematics Standards of Learning (SOL) by providing examples of how the knowledge, skills, and processes found in the SOL and curriculum framework can be presented to students. *(Covers Number and Number Sense, Computation and Estimation, Measurement and Geometry, Probability and Statistics, and Patterns, Functions, and Algebra skills from Grades K-12.)*

[http://www.doe.virginia.gov/testing/sol/standards\\_docs/mathematics/2016/mip/index.shtml](http://www.doe.virginia.gov/testing/sol/standards_docs/mathematics/2016/mip/index.shtml)

### **Rich Mathematical Tasks**

These resources are provided to support implementation of the Mathematics Standards of Learning. Detailed information is provided in the task implementation templates. *(Covers Number and Number Sense, Computation and Estimation, Measurement and Geometry, Probability and Statistics, and Patterns, Functions, and Algebra skills from Grades K-12.)*

[http://www.doe.virginia.gov/testing/sol/standards\\_docs/mathematics/2016/rich/index.shtml](http://www.doe.virginia.gov/testing/sol/standards_docs/mathematics/2016/rich/index.shtml)

## **Additional Math Activities to Support Learning at Home**

**Count objects in everyday contexts.** Count the number of buttons on your child's shirt as you button them, the number of oranges he/she helps you put in the grocery bag at the supermarket, the number of forks needed to set the table, or the number of stairs you go up to the front door. Start with small numbers (no more than five) and add a few as your child is ready for a challenge.

**Put small objects in a row.** Gather some coins and have your child count them. After they have counted them, rearrange them in a circle, in a row, or spread them out, and ask them again to count the objects.

**Find objects that go together.** If your child is having difficulty with one-to-one correspondence, find objects that pair well, such as spoons and forks, cups and saucers, horse and cowboy figurines, and ask them to pair them together. Have them count each set of objects to help reinforce the idea that each pair consists of the same number.

**Play board games that involve counting.** Simple games like Chutes and Ladders, etc. are great for helping kids recognize numbers on a dice and count moves. Other, more complex games involve two dice instead of one or doubling the number that comes up for each move. Play the card game War using a deck of cards; make it easy at the start by including only cards up to five, and then gradually make it more complex by having each player put out two cards. The highest sum of the two cards wins!

**Measure while you cook or bake.** Fill measuring cups with water or flour and measuring spoons with extract to introduce your child to the concept of whole numbers and fractions. Ask questions such as, "Can you fill a half cup? Can you fill one teaspoon?"

**Guess weight at the supermarket.** The next time you visit the grocery store, pull two different items from the shelves and ask your child which one is heavier: "Is it the can of soup or the box of crackers?" Children will learn how to understand the concepts of heaviness and lightness.

**Compare feet sizes.** Place your foot next to your child's foot and ask her which is longer or bigger. Have a ruler or tape measure on hand to compare the sizes and help her differentiate between long and short, large and small.

**Identify shapes in your home.** Play a simple game of finding basic shapes around the home, such as rectangles in light switches, squares in window panes, circles in clocks, and so forth. Ask your child to explain how she differentiates each shape by their defining features (for instance, a triangle has three connected sides) and non-defining features (such as the position or size of the triangle).

**Talk about picture placement in a book.** When reading a storybook, use spatial language to talk about the placement of pictures. Ask related questions such as "Where is the moon? Is it above the tree? Is it under the tree?" Or reference sizes by asking, "Is the hippopotamus bigger than the monkey? Which animal is bigger? Which animal is smaller?"

**Make a map of your home.** Practice more spatial language by helping your child make a map of his bedroom or the backyard. As they place and space out furniture, windows, and closets, or gardens, trees, and bushes, ask them questions about where they're located and how close together they are.

**Set Up a Store.** Create a pretend store that sells some of her favorite things. Give her a budget and some real money to "spend" (you want her to learn the relative value of coins and bills too). Set prices, and if you want to make it even more interesting throw some coupons into the mix. Challenge her to stay within budget while shopping. When she's done, swap places and let her be the cashier.

**Get Cooking.** Ask your junior chef for help with dinner, but instead of scooping out a cup of rice, show him how three one-third cups equal one cup. Use a measuring cup to explain that three-eighths is less than one half, even if it sounds like more. Showing him how to follow recipes will also help with math literacy -- and feeling comfortable with numbers will help make abstract concepts more concrete.

**Time.** It also gets him involved with addition, subtraction, and fractions. Make sure you have at least one clock in the house that isn't digital. Turn practice into a game: Call out times -- asking your child to move the hands to their correct position, then add or subtract minutes and hours. To raise the stakes, swap places and let him call out the times, warning him that you're going to make mistakes on purpose that he has to catch.

**Count by Clusters.** Adding by fives and tens to 100 helps your child develop a sense of number relationships and multiplication. At the supermarket, count cans of soup by groups of four and when you're waiting at a restaurant add and subtract sugar packets by threes. And don't forget about patterns either. Look for things like geometric wallpaper, tiles -- even bricks.

**Adapted from** (<https://www.parents.com/kids/education/math-and-science/making-math-fun/>)

**The Concrete-Representational-Abstract Sequence** of instruction can be used to teach any math concept. You can use any of these to teach math to your child. They don't need to be used in order. Some students move from concrete straight to abstract, however, some might need all the three steps. It can vary from student to student.

**Concrete.** The concrete level of understanding is the most basic level of mathematical understanding. It is also the most crucial level for developing conceptual understanding of math concepts/skills. Concrete learning occurs when students have ample opportunities to manipulate concrete objects to problem-solve. For example, students can use straws and other objects to count out objects.

**Representational.** At the representational level of understanding, students learn to problem-solve by drawing pictures. The pictures students draw represent the concrete objects students manipulated when problem-solving at the concrete level. For example, the students can draw the pictures of the straw.

**Abstract.** A student who problem-solves at the abstract level, does so without the use of concrete objects or without drawing pictures. Understanding math concepts and performing math skills at the abstract level requires students to do this with numbers and math symbols only. For example,  $2+5=7$ .

