Virginia Department of Education

Explanation of Testing Accommodations for Students with Disabilities

Math Aids – Accommodation Code 19

Revised January 27, 2020

Accommodations provided to students with disabilities as part of the instructional and assessment process should allow equal opportunity to access the assessments in the Virginia Assessment Program. Accommodations based solely on the potential to enhance performance beyond providing equal access are not allowed.

Accommodations used on the state assessments must be documented in the student’s Individualized Education Program (IEP) or 504 Plan and used in daily instruction. Using new or unfamiliar accommodations on a state assessment is inappropriate. The IEP team or 504 committee should consider the need for each student to use each accommodation separately.

This document contains examples of math aids which are either allowed or not allowed for use by a student with a disability participating in the Virginia Assessment Program. The allowed items pictured in this document are examples of acceptable math aids that may provide some students with disabilities equal access to a state mathematics test.

A math aid does not have to be identical in appearance to the pictured example in order to be used as an accommodation. The math aid should be identical in concept and purpose to the approved math aid included in this document, but the specific attributes of a math aid may vary. For example, the number of rows of beads on an abacus or other counting tool may differ and the number of factors or fractions represented on a multiplication chart or a fraction chart may extend beyond the pictured examples.

Math aids may be laminated. If a student will write on a laminated math aid, the Additional Markers, Highlighters, Colored Pens, and/or Pencils accommodation must be documented in the IEP or 504 Plan.

**Note**: Math aids may not be held up to the screen of the testing device.

| **Examples of allowed math aids that may provide equal access to mathematics assessments for some students with disabilities** | **Explanation of the allowed math aid accommodations** |
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| **Arithmetic Tools**  Image of a multiplication chart with factors to 7 on the vertical ege and factors to 10 on the horizontal edge. Addition machine with factors to 9.Picture of an addition chart with factors to 10Photo of an Addition and Subtraction Machine with factors to 9. | *Arithmetic Tools are defined as arithmetic tables/charts, or machines, which serve the same, function as a four-function calculator. The range of addition, subtraction, multiplication or division factors represented on an arithmetic table/chart, or machine may vary.*  *The Calculator Accommodation Criteria Form, effective beginning in 2017-2018, must be used to find a student eligible to use a calculator, arithmetic charts/table(s), and/or machine(s).* |
| **Hundreds Chart**  **Image of a number chart to 100.** | *A hundreds chart math aid must be limited to 100. Students may not use expanded charts, which include numbers beyond 100.* |
| **Number Lines**  **Numberline is hand drawn with arrows at each end and the numbers 1 to 10 listed with their corresponding tick marks.**  **Printed numberline with arrows at both ends and the numbers (-6) to (7) with corresponding tick marks.Printed numberline with arrows at both ends and the numbers 0 to 10 listed with corresponding tick marks.Printed number line with arrows at both ends and 11 tick marks but no numbers.** | *The number line should be a graduated straight line with arrowheads on both ends of the line to indicate that real numbers continue indefinitely in the positive and negative directions. There may be multiple number lines on a single page. A number line may be blank or printed with whole numbers.*  *A number line may have a slider to mark the student’s place on the number line.* |
| **Counting Strips**  **Printed counting strip reproduced three times on one page.  Each counting strip is titled Numbers 1 - 20 and has the numbers 1 - 10 in the top row and the numbers 11 - 20 in the lower row.  The numbers are dotted rather than solid lines.   A photo of three strips with the printed numbers 1 - 10, 11-15 and 16-20.  Yellow square sliders are pictured.** | *A student may use a single counting strip of whole numbers or multiple counting strips may be printed on a page.* |
| **Number Alignment Aids**  **Grid of 12 squares with three on the horizontal edge and four on the vertical edge.  A bold line separates the bottom two rows of squares.Image of a grid of 12 squares with three on the vertical side and four on the horizontal side.  Each square is divided in half diagonally with the diagonal lines extending above the upper and right edges of the grid.Grid of squares and rectangles with four squares on the left, one rectangle in the middle and four squares on the right.Irregular grid of varying size rectangles with lines of varying thicknesses separating the rows.  Top row of three rectangles, next two rows of four rectangles, bottom two rows of 5 rectangles.** | *Number alignment aids may only be used to assist students in correctly lining up numbers when writing a math problem. Number alignment aids may not contain text, mathematical signs, shaded or colored areas.* |
| **Graph Paper**  **Grid of lines without a coordinate plane. Image of a grid of lines with a coordinate plane with arrows at the ends of the x and y axis.** | *Graph paper with or without a coordinate plane may be used.* |
| **Fraction Circles and Bars**  **A black on white image of a printed sheet of fraction circles ranging from a circle divided in halves to a circle divided in twelfths.   Photo of colored wedge shaped manipulatives.  Varying size wedges are arranged to represent whole circles while other wedges are scattered.  All wedges of a certain size are the same color.**  **Image of a sheet of fraction bars representing 1/1 to 1/12 printed on a single sheet of paper.  Paper is white with black lines delineating the rows of fraction bars. Image of a colored sheet of fraction bars.  Each row is colored in roygbiv order with red in the 1/1 row and violet in the 1/12 row.  Each row is separated by a white line with a black line separating each fraction bar.** | *Fraction circles must be blank without text. Each piece of a fraction circle must be one solid color. Fraction circles may be cut apart or on a whole page.*  *Fraction bars must be blank without text. Each piece of a fraction bar must be one solid color. Fraction bars may be cut apart or on a whole page.* |
| **Cuisenaire Rods**  **Photo of colored rectangular prisms of varying lengths mixed in a random pile. Photo of colored rectangular prisms of varying lengths mixed in a random pile.** | *Cuisenaire rods are blank three-dimensional manipulatives of varying lengths and colors, which may be used for counting and calculation.* |
| **Representation Units**  **Blue manipulative set including a large cube marked with grid lines to indicate 100 units on each of it's 6 sides, squares marked with grid lines to create 100 units, rods marked into 10 even units and cubes equal in size to one of the units on the larger manipulatives. Algebra tiles are square and rectangle shaped tiles or tiles that represent numbers and variables.** | *Representation units are manipulatives composed of various sized units used for counting or calculating.*  *Base 10 blocks provide a visual presentation of base 10 and must be blank other than the scoring used to indicate the various units.*  *Algebra Tiles offer a visual presentation of variables and constants. Algebra Tiles must be blank and no accompanying materials may be provided.* |
| **Counting Tools**  **Photo of an Abacus, an oblong rectangular frame with six vertical rows of wires or sticks along which beads are slid for calculations. Rekenrek - Oblong rectangular frame with ten beads - five white on the left and five red on the right side - of each of two horizontal wires or sticks to be used for calculations.**  **Bin filled with string and beads in a variety of shapes and colors and beads on strings. Photo of golf beads - colored beads that can be slid along a thread for calculations.** | *Abacus, Golf Beads, and Rekenrek math aids are examples of manual aids for counting or calculating that consist of beads or disks that can be moved up or down on a string or stick.* |
| **Colored Shapes**  **Cubes in a variety of colors** | *Colored shapes are blank and may be two- or three-dimensional.* |
| **Blank Clocks**  **Blank clock face with 60 tick marks including 12 bold tick marks Blank clock face with 12 tick marks and a center dot.** | *Blank clock math aids may have tick marks but may not have hands or numbers.* |
| **Money**  **Image of US currency including one, five, ten and twenty dollar bills and a penny, two nickels, two dimes and a dollar coin.** | *A student may use coins and bills as a manipulative for calculating money amounts. Play money that does not resemble US currency may not be used.* |

| **Place Value Chart**  **Labeled place value chart with colored horizontal and vertical spaces. Blank place value chart with horizontal columns in colored bands .** | **Fraction Chart**  **Black and white fraction chart with a whole row at the top and incrementally decreasing fractions so that the bottom row is composed of 1/12 units. Colored fraction chart with a whole horizontal row at the top and incrementally decreasing fractions to 1/12 on the bottom row.** |
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| **Table of Measures**  **Chart titled Liquid (Fluid or Volume) Measurements.  Four columns list conversion amounts. Table with foot, inch, mile and yard listed in the far left column and in the top row.  75% of the values are filled in to indicate the conversion value.** | **Measurement Conversion Charts**  **Colorful poster listing measurement categories, units of measurement and their equivalent amount in another unit of measurement. Titled "Liquid (Fluid or Volume) Measurements (approximate):"  Four column chart listing equivalent metric and US customary unit measurements.** |
| **Temperature Conversion Charts**  **Image of a colored thermometer with formulas and a chart for termperature conversions. Two columns listing Celsius and Fahrenheit conversions.** | **Rounding Charts**  **Titled "Rounding Rules for Whole Numbers".  Written step by step instructions for rounding with examples. Titled "Rounding to the Tens & Hundreds".  Gives step by step instructions with numberline illustrations on how to round.**  **Colored chart with arrows and written cues to guide rounding.** |

| **Money Equivalency Charts**  **Chart with horizontal images of equivalent amounts of coins on both sides of an equals sign.Chart with labeled images of coins and bills arranged as an equation to give total amount.** | **Vocabulary Charts**  **Two column chart with the headings "Word" and "Definition".  Math vocabulary words are listed in the left column and definitions are provided in the right column.**  **Chart with the following headings:  Word, Plus, Divide, Subtract, Example and Definition.  Examples and definitions of Associative, Commutative and Distributive Properties or Laws are provided.** |
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| **Time Conversion or Equivalency Charts**  **Titled "Time Conversion Chart".  Left column lists equivalent units of time on each side of an equals sign.  The right column lists units of measurement for time.  Titled "Time Converion Chart".  Three columns of units of time and their equivalent amounts in other units.** | **Charts of formulas and/or symbols**  **Titled "Area Formulas".  Formulas and labeled image of shape provided for rectangle, triangle, trapezoid and square. Titled "Math Symbols".  Four square chart with four groups of symbols and their names or definitions.** |
| **Shape Charts**  **Image of a chart titled Geometric Shapes.  Fourteen shapes, each in a different color, are labeled.** | **Tally Mark Chart**  Two colums of numbers 1-10 and the corresponding number of tally marks |

| **Problem Solving Charts ( Key Words)**  **Chart with five columns headed with symbols for addition, subtraction, mulitplication, division and equals and lists of associated words beneath. Titled "The Key Word in Word Problems".  Four square chart with the addition, multiplication, subtraction and division symbols and associated key words.** | **Problem Solving Charts**  **(Steps to Solve a Mathematics Problem)**  **Titled "Conquer The Problem!!!".  Three columns of steps and questions provided under the headings:  Before - Plan During - Solve and After - Check. Titled "Steps for Solving Word Problems".  Steps numbered 1 - 6 with instructions and illustrations.** |
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| **Elapsed Time Ruler**  **Image of an Elapsed Time Line tool.  Yellow plastic with red and blue markings to indicate AM and two rows of numbers running from left to right with 12 and then in order from 1 - 11 with 15 minute increments in between.    Blue Start and red End slider provided. Image of two time rulers on a single page.  Labeled am and pm with 12 am on left, 12 pm in center and 12 am on right of ruler.  Numbers run from left to right: 12, 1 - 12 and 1-12 with 30 minute increments.** | **Multi-Layer Rulers**  **Ruler hinged with clear colored plastic overlays marked incrementally.**  **Ruler hinged with clear plastic overlays marked incrementally.** |
| **Clocks**  **Image of Instructional clock set.  One large clock with movable minute and hour hands each paired with a window which shows the number corresponding to the hand's position.  Four similar smaller clocks without windows.** | **Gallon Man**  **Colored image of robot with body parts representing the relationship between gallon, quart, pint and cup measurements.Black and white image of robot with body parts representing the relationship between gallon, quart, pint and cup measurements.** |
| **Scissors**  **Image of an adapted scissor.Image of safety scissors.** | **Set of Weights**  **Image of incrementally sized brass weights.** |