

VPK Education Standards ¹ VI. Mathematical and Scientific Thinking	Kindergarten Math ² Standards	Grade 1 Math ² Standards	Grade 2 Math ² Standards	Grade 3 Math ² Standards
Number and Operations	Algebra	Algebra	Algebra	Algebra
<p>Shows understanding of how to combine sets and remove from a concrete set (receptive knowledge) Benchmark a. Child indicates there are more when they combine (add) sets of objects together. Benchmark b. Child indicates there are less when they remove (subtract) objects from a set. VI.A.b.1</p> <p>Shows understanding of addition and subtraction using a concrete set of objects (expressive knowledge) or story problems found in everyday classroom activities Benchmark a. Child combines sets of objects to equal a set no larger than ten. Benchmark b. Child removes objects from a set no larger than ten. Benchmark c. Child uses concrete objects to solve complex problems (e.g., fingers, blocks). VI.A.b.2</p> <p>Begins to develop an understanding of separating a set into a maximum of four parts, with teacher support and multiple experiences over time VI.A.b.3</p>	<p>BIG IDEA 1: Represent, compare, and order whole numbers and join and separate sets. MA.K.A.1.3 - Solve word problems involving simple joining and separating situations.</p>	<p>BIG IDEA 1: Develop understandings of addition and subtraction strategies for basic addition facts and related subtraction facts. MA.1.A.1.1: Model addition and subtraction situations using the concepts of “part-whole,” “adding to,” “taking away from,” “comparing,” and “missing addend.” MA.1.A.1.2: Identify, describe, and apply addition and subtraction as inverse operations. MA.1.A.1.3: Create and use increasingly sophisticated strategies, and use properties such as Commutative, Associative and Additive Identity, to add whole numbers. MA.1.A.1.4: Use counting strategies, number patterns, and models as a means for solving basic addition and subtraction fact problems.</p>	<p>BIG IDEA 2: Develop quick recall of addition facts and related subtraction facts and fluency with multi-digit addition and subtraction. MA.2.A.2.1: Recall basic addition and related subtraction facts. MA.2.A.2.2: Add and subtract three digits with fluency by using a variety of strategies, including invented and standard algorithms and explanations of those procedures. MA.2.A.2.3: Estimate solutions to multi-digit addition and subtraction problems, through three digits. MA.2.A.2.4: Solve addition and subtraction problems that involve measurement and geometry.</p> <p>SUPPORTING IDEAS: Number and Operations MA.2.A.6.1: Solve problems that involve repeated addition.</p>	<p>BIG IDEA 1: Develop understandings of multiplication and division and strategies for basic multiplication facts and related division facts. MA.3.A.1.1: Model multiplication and division including problems presented in context: repeated addition, multiplicative comparison, array, how many combinations, measurement, and partitioning. MA.3.A.1.2: Solve multiplication and division fact problems by using strategies that result from applying number properties. MA.3.A.1.3: Identify, describe, and apply division and multiplication as inverse operations.</p> <p>SUPPORTING IDEAS: Number and Operations MA.3.A.6.1: Represent, compute, estimate and solve problems using numbers through hundred thousands. MA.3.A.6.2: Solve non-routine problems by making a table, chart, or list and searching for patterns.</p>

¹Florida Voluntary Prekindergarten Education Standards, 2008

²Florida Department of Education, Mathematics Standards, <http://www.fldoestem.org/center13.aspx>

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Number Sense (continued)	Algebra	Algebra	Algebra	Algebra
<p>Assigns and relates numerical representations among numerals (written), sets of objects, and number names (spoken) in the range of five to ten VI.A.a.4</p> <p>Counts and knows the sequence of number names (spoken) Benchmark a. Child counts and recognizes number names (spoken) in the range of 10 to 15. Benchmark b. Child counts up through 31 by understanding the pattern of adding by one, with teacher support and multiple experiences over time. VI.A.a.5</p> <p>Shows understanding of and uses appropriate terms to describe ordinal positions Benchmark a. Child demonstrates the concept of ordinal position with concrete objects (e.g., children or objects). Benchmark b. Child names ordinal positions (e.g., first, second, third, fourth, fifth). VI.A.a.6</p>				

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VPK Education Standards ¹ VI. Mathematical and Scientific Thinking	Kindergarten Math ² Standards	Grade 1 Math ² Standards	Grade 2 Math ² Standards	Grade 3 Math ² Standards
Geometry/Spatial Relations	Geometry	Geometry		Geometry
<p>Understands various two-dimensional shapes, including circle, triangle, square, rectangle, oval, and other less common shapes (e.g., trapezoid) Benchmark a. Child categorizes (sorts) examples of two-dimensional shapes. Benchmark b. Child names two-dimensional shapes. Benchmark c. Child constructs examples of two-dimensional shapes. Benchmark d. Child identifies the number of sides of two-dimensional shapes. VI.A.d.1</p> <p>Shows understanding that two-dimensional shapes are equivalent (remain the same) in different orientations Benchmark a. Child slides shapes, with teacher support and multiple experiences over time. Benchmark b. Child flips shapes, with teacher support and multiple experiences over time. Benchmark c. Child rotates shapes, with teacher support and multiple experiences over time VI.A.d.2</p>	<p>BIG IDEA 2: Describe shapes and space. MA.K.G.2.1 - Describe, sort and re-sort objects using a variety of attributes such as shape, size, and position. MA.K.G.2.2 - Identify, name, describe and sort basic two-dimensional shapes such as squares, triangles, circles, rectangles, hexagons, and trapezoids. MA.K.G.2.3 - Identify, name, describe, and sort three-dimensional shapes such as spheres, cubes and cylinders. MA.K.G.2.4 - Interpret the physical world with geometric shapes and describe it with corresponding vocabulary. MA.K.G.2.5 - Use basic shapes, spatial reasoning, and manipulatives to model objects in the environment and to construct more complex shapes.</p>	<p>BIG IDEA 3: Compose and decompose two-dimensional and three-dimensional geometric shapes. MA.1.G.3.1: Use appropriate vocabulary to compare shapes according to attributes and properties such as number and lengths of sides, and number of vertices. MA.1.G.3.2: Compose and decompose plane and solid figures, including making predictions about them, to build an understanding of part-whole relationships and properties of shapes.</p>		<p>BIG IDEA 3: Describe and analyze properties of two-dimensional shapes. MA.3.G.3.1: Describe, analyze, compare and classify two-dimensional shapes using sides and angles – including acute, obtuse, and right angles – and connect these ideas to the definition of shapes. MA.3.G.3.2: Compose, decompose, and transform polygons to make other polygons, including concave and convex polygons with three, four, five, six, eight, or ten sides. MA.3.G.3.3: Build, draw and analyze two-dimensional shapes from several orientations in order to examine and apply congruence and symmetry.</p>

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Geometry/Spatial Relations (continued)	Geometry	Geometry		Geometry
<p>Understands various three-dimensional shapes, including sphere, cube, cone, and other less common shapes (e.g., cylinder, pyramid) Benchmark a. Child categorizes (sorts) examples of three-dimensional shapes. Benchmark b. Child names three-dimensional shapes. VI.A.d.3</p> <p>Analyzes and constructs examples of simple symmetry and non-symmetry in two-dimensions, using concrete objects. VI.A.d.4</p> <p>Shows understanding of and uses several positional words (e.g., above, below, next to, beside, on top of, inside, outside)* Benchmark a. Child shows understanding of positional words (receptive knowledge). Benchmark b. Child uses the positional terms verbally (expressive knowledge) (e.g., above, below, next to, beside, on top of, inside, outside), with teacher support and multiple experiences over time. VI.A.e.1</p>				

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Geometry/Spatial Relations (continued)	Geometry	Geometry		Geometry
<p>Describes relative position from different perspectives (e.g. "I am on top of the climber and you are below me.") VI.A.e.2</p> <p>Understands and can tell the difference between orientation terms such as horizontal, diagonal, and vertical VI.A.e.3</p> <p>Uses directions to move through space and find places in space (e.g. obstacle courses, <i>Simon Says</i>, <i>Mother May I?</i>, hop scotch, giving simple directions) VI.A.e.4</p>				

*This document was developed under the auspices of the Florida Department of Education, Office of Early Learning, to disseminate the Florida Voluntary Prekindergarten (VPK) Education Standards, adopted by the Florida State Board of Education on August 19, 2008, consistent with the requirements of Section 1002.67, Florida Statutes.

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For further information, please contact:

Florida Department of Education
Office of Early Learning
325 West Gaines Street, Suite 1524
Tallahassee, FL 32399-0400
earlylearning@fldoe.org

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Measurement	Geometry	Geometry	Geometry	Geometry
<p>Compares continuous quantities using length, weight, and height Benchmark a. Child measures or compares the length of one or more objects using a non-standard reference (e.g., paper clips), with teacher support and multiple experiences over time. Benchmark b. Child measures or compares the weight of one or more objects using non-standard reference (e.g., beans), with teacher support and multiple experiences over time. Benchmark c. Child measures or compares the height of one or more objects using non-standard reference (e.g., pencils), with teachers support and multiple experiences over time. Benchmark d. Child uses measurement vocabulary (e.g., length, weight, height) and comparative terminology (e.g., more, less, shorter, longer, heaviest, lightest), with teacher support and multiple experiences over time. VI.A.f.1</p>	<p>BIG IDEA 3: Order objects by measurable attributes. MA.K.G.3.1 - Compare and order objects indirectly or directly using measurable attributes such as length, height, and weight. SUPPORTING IDEAS: Geometry and Measurement MA.K.G.5.1 - Demonstrate an understanding of the concept of time using identifiers such as morning, afternoon, day, week, month, year, before/after, and shorter/longer.</p>	<p>SUPPORTING IDEAS: Geometry and Measurement MA.1.G.5.1: Measure by using iterations of a unit and count the unit measures by grouping units. MA.1.G.5.2: Compare and order objects according to descriptors of length, weight and capacity.</p>	<p>BIG IDEA 3: Develop an understanding of linear measurement and facility in measuring lengths. MA.2.G.3.1: Estimate and use standard units, including inches and centimeters, to partition and measure lengths of objects. MA.2.G.3.2: Describe the inverse relationship between the size of a unit and number of units needed to measure a given object. MA.2.G.3.3: Apply the Transitive Property when comparing lengths of objects. MA.2.G.3.4: Estimate, select an appropriate tool, measure, and/or compute lengths to solve problems. SUPPORTING IDEAS: Geometry and Measurement MA.2.G.5.1: Use geometric models to demonstrate the relationships between wholes and their parts as a foundation to fractions. MA.2.G.5.2: Identify time to the nearest hour and half hour. MA.2.G.5.3: Identify, combine, and compare values of money in cents up to \$1 and in dollars up to \$100, working with a single unit of currency.</p>	<p>SUPPORTING IDEAS: Geometry and Measurement MA.3.G.5.1: Select appropriate units, strategies and tools to solve problems involving perimeter. MA.3.G.5.2: Measure objects using fractional parts of linear units such as 1/2, 1/4 and 1/10. MA.3.G.5.3: Tell time to the nearest minute and to the nearest quarter hour, and determine the amount of time elapsed.</p>

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Measurement (continued)	Geometry	Geometry	Geometry	Geometry
			MA.2.G.5.4: Measure weight/mass and capacity/volume of objects. Include the use of the appropriate unit of measure and their abbreviations including cups, pints, quarts, gallons, ounces (oz), pounds (lbs), grams (g), kilograms (kg), milliliters (mL) and liters (L).	

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Patterns and Seriation	Algebra	Algebra	Algebra	Algebra
<p>Recognizes patterns and non-patterns (e.g., red/blue, red/blue vs. rainbow) VI.A.c.1</p> <p>Duplicates identical patterns with at least two elements VI.A.c.2</p> <p>Recognizes pattern units (e.g., red/blue, dog/cat, red/blue/yellow, dog/cat/cow) VI.A.c.3</p> <p>Orders, compares, and describes objects according to a single attribute (seriation) Benchmark a. Child places objects in increasing order of size where the increasing unit is constant (ex: unit blocks). Benchmark b. Child verbalizes why objects were placed in order (e.g., describes process of how and why), with teacher support and multiple experiences over time. VI.A.c.4</p>	<p>SUPPORTING IDEAS: Algebra MA.K.A.4.1 - Identify and duplicate simple number and non-numeric repeating and growing patterns.</p>	<p>SUPPORTING IDEAS: Algebra MA.1.A.4.1: Extend repeating and growing patterns, fill in missing terms, and justify reasoning.</p>	<p>SUPPORTING IDEAS: Algebra MA.2.A.4.1: Extend number patterns to build a foundation for understanding multiples and factors – for example, skip counting by 2’s, 5’s, 10’s. MA.2.A.4.2: Classify numbers as odd or even and explain why. MA.2.A.4.3: Generalize numeric and non-numeric patterns using words and tables. MA.2.A.4.4: Describe and apply equality to solve problems, such as in balancing situations. MA.2.A.4.5: Recognize and state rules for functions that use addition and subtraction.</p>	<p>SUPPORTING IDEAS: Algebra MA.3.A.4.1: Create, analyze, and represent patterns and relationships using words, variables, tables and graphs.</p>

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Measurement	Nature of Science, Physical Science	Nature of Science, Physical Science	Physical Science	Statistics, Nature of Science, Physical Science
<p>Represents and analyzes data Benchmark a. Child assists with collecting and sorting materials to be graphed. Benchmark b. Child works, with teachers and small groups, to represent mathematical relations in charts and graphs. Benchmark c. Child analyzes, with teacher and small groups, the relationship between items/objects represented by charts and graphs. Benchmark d. Child predicts the results of a data collection, with teacher support and multiple experiences over time. VI.A.f.2</p>	<p>SC.K.N.1.1 Collaborate with a partner to collect information. SC.K.N.1.2 Make observations of the natural world and know that they are descriptors collected using the five senses. SC.K.N.1.3 Keep records as appropriate -- such as pictorial records -- of investigations conducted. SC.K.N.1.4 Observe and create a visual representation of an object which includes its major features. SC.K.N.1.5 Recognize that learning can come from careful observation. SC.K.P.8.1 Sort objects by observable properties, such as size, shape, color, temperature (hot or cold), weight (heavy or light) and texture.</p>	<p>SC.1.N.1.2 Using the five senses as tools, make careful observations, describe objects in terms of number, shape, texture, size, weight, color, and motion, and compare their observations with others. SC.1.N.1.3 Keep records as appropriate - such as pictorial and written records - of investigations conducted. SC.1.P.8.1 Sort objects by observable properties, such as size, shape, color, temperature (hot or cold), weight (heavy or light), texture, and whether objects sink or float.</p>	<p>SC.2.P.8.1 Observe and measure objects in terms of their properties, including size, shape, color, temperature, weight, texture, sinking or floating in water, and attraction and repulsion of magnets. SC.2.P.8.5 Measure and compare temperatures taken every day at the same time. SC.2.P.8.6 Measure and compare the volume of liquids using containers of various shapes and sizes.</p>	<p>SUPPORTING IDEAS: Data Analysis MA.3.S.7.1: Construct and analyze frequency tables, bar graphs, pictographs, and line plots from data, including data collected through observations, surveys, and experiments.</p> <p>SC.3.N.1.3 Keep records as appropriate, such as pictorial, written, or simple charts and graphs, of investigations conducted. SC.3.P.8.1 Measure and compare temperatures of various samples of solids and liquids. SC.3.P.8.2 Measure and compare the mass and volume of solids and liquids. SC.3.P.8.3 Compare materials and objects according to properties such as size, shape, color, texture, and hardness.</p>

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