



National Center and State Collaborative

Mathematics Instructional Families – Measurement

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View of Learning Targets and Families across Grades

Distribution of Instructional Families: Measurement

(K-4) Elementary School Learning Targets					(5-8) Middle School Learning Targets				(9-12) High School Learning Targets
Explore relationships among units, attributes, and measures within a system of measurement: <ul style="list-style-type: none"> Identify measurement attributes and units; Use measurement attributes to describe and compare objects, situations, or events. 					Extend understanding of attributes and units: <ul style="list-style-type: none"> Make conversions within measurement systems; Relate measurement attributes, measures, models, and formulas. 				Explore measurable attributes, measurement systems and processes of measurement of more complex or abstract quantities.
Apply appropriate techniques (iteration and tiling), tools (standard and non-standard), and formulas (area and perimeter) to determine or estimate measurements.					Apply appropriate techniques, strategies, and formulas to solve problems involving measurements (including derived measurements and rates).				Apply and analyze techniques at an appropriate level of precision and use formulas to quantify or interpret abstract events, objects, and situations.
K	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	HS

Sorting and Classifying	Measuring Using Tools	Problem Solving Using Measurement Process	Perimeter, Area and Volume Problems	Scaling and Unit Conversions
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View of Learning Targets, Families, and Access Points by Grade-band

Overview of Access Points: Measurement

(K-4) Elementary School Learning Targets				
<p><i>Explore relationships among units, attributes, and measures within a system of measurement:</i></p> <ul style="list-style-type: none"> • <i>Identify measurement attributes and units;</i> • <i>Use measurement attributes to describe and compare objects, situations, or events.</i> <p><i>Apply appropriate techniques (iteration and tiling), tools (standard and non-standard), and formulas (area and perimeter) to determine or estimate measurements.</i></p>				
Sorting and Classifying	Measuring Using Tools	Problem Solving Using Measurement Process	Perimeter, Area and Volume Problems	Scaling and Unit Conversions
K	Grade 1	Grade 2	Grade 3	Grade 4
MAFS.K.MD.1.AP.1a Describe objects in terms of measurable attributes (longer, shorter, heavier, lighter, etc.).	MAFS.1.MD.2.AP.3a Tell time in whole and half hours using a digital clock.	MAFS.2.MD.1.AP.1a Select appropriate tool and unit of measurement to measure an object (ruler or yard stick, inches or feet).	MAFS.3.MD.1.AP.2a Select the appropriate tool for the measurement of liquid volume and mass.	MAFS.4.MD.3.AP.6a Sketch angles of specific measures.
MAFS.K.MD.2.AP.3a Sort objects by characteristics (e.g., big/little, colors, shapes).	MAFS.1.MD.1.AP.1a Order up to three objects based on a measurable attribute (height, weight, length).	MAFS.2.MD.3.AP.7a Tell and write time in hours and half-hours using analog and digital clocks.	MAFS.3.MD.3.AP.7a Use tiling and repeated addition to determine area.	MAFS.4.MD.1.AP.2a Solve word problems involving distance using line plots.
	MAFS.1.MD.1.AP.1b Order three objects by length; compare the lengths of two objects indirectly by using a third object.	MAFS.2.MD.1.AP.2b Measure the attributes (length, width, height) of an object using two different size units.	MAFS.3.MD.3.AP.6a Measure area of rectangles by counting unit squares.	MAFS.4.MD.1.AP.3a Solve word problems involving perimeter and area of rectangles using specific visualizations/drawings and numbers.
	MAFS.1.MD.1.AP.aa Use a ruler to measure the length of an object with exact whole units.	MAFS.2.MD.1.AP.3a Estimate the length of an object using units of feet and inches.	MAFS.3.MD.1.AP.2b Select appropriate units for measurement involving liquid volume and mass.	MAFS.4.MD.1.AP.1a Complete a conversion table for length and mass within a single system.
	MAFS.1.MD.2.AP.3a Tell time in whole and half hours using a digital clock.	MAFS.2.MD.1.AP.3a Estimate the length of an object using units of feet and inches.	MAFS.3.MD.2.AP.4a Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch.	MAFS.4.MD.1.AP.3a Solve word problems involving perimeter and area of rectangles using specific visualizations/drawings and

(K-4) Elementary School Learning Targets

Explore relationships among units, attributes, and measures within a system of measurement:

- *Identify measurement attributes and units;*
- *Use measurement attributes to describe and compare objects, situations, or events.*

Apply appropriate techniques (iteration and tiling), tools (standard and non-standard), and formulas (area and perimeter) to determine or estimate measurements.

Sorting and Classifying	Measuring Using Tools	Problem Solving Using Measurement Process	Perimeter, Area and Volume Problems	Scaling and Unit Conversions
K	Grade 1	Grade 2	Grade 3	Grade 4
				numbers.
		<p>MAFS.2.MD.1.AP.4a Solve problems involving the difference in standard length units.</p> <p>MAFS.2.MD.3.AP.8a Solve word problems using dollar bills, quarters, dimes, nickels or pennies up to \$50.</p>	<p>MAFS.3.MD.1.AP.1a Solve word problems involving the addition and subtraction of time intervals of whole hours or within an hour (whole hours: 5:00 to 8:00, within hours: 7:15 to 7:45) on a number line.</p> <p>MAFS.3.MD.1.AP.2c Add to solve one-step word problems involving liquid volume and mass.</p> <p>MAFS.3.MD.4.AP.8b Draw different rectangles with the same area but different perimeters on graph paper.</p> <p>MAFS.3.MD.4.AP.8a Use addition to find the perimeter of a rectangle.</p> <p>MAFS.3.MD.1.AP.2d Estimate liquid volume and mass.</p> <p>MAFS.3.MD.1.AP.1b Determine the equivalence between the number of minutes and the number of hours (e.g., 60 minutes = 1</p>	

(K-4) Elementary School Learning Targets

Explore relationships among units, attributes, and measures within a system of measurement:

- *Identify measurement attributes and units;*
- *Use measurement attributes to describe and compare objects, situations, or events.*

Apply appropriate techniques (iteration and tiling), tools (standard and non-standard), and formulas (area and perimeter) to determine or estimate measurements.

Sorting and Classifying	Measuring Using Tools	Problem Solving Using Measurement Process	Perimeter, Area and Volume Problems	Scaling and Unit Conversions
K	Grade 1	Grade 2	Grade 3	Grade 4
			hour) on a number line.	

Overview of Access Points: Measurement

(5-8) Middle School Learning Targets			
<i>Extend understanding of attributes and units:</i> <ul style="list-style-type: none"> • <i>Make conversions within measurement systems;</i> • <i>Relate measurement attributes, measures, models, and formulas.</i> 			
<i>Apply appropriate techniques, strategies, and formulas to solve problems involving measurements (including derived measurements and rates).</i>			
Problem Solving Using Measurement Process		Perimeter, Area and Volume Problems	Scaling and Unit Conversions
Grade 5	Grade 6	Grade 7	Grade 8
MAFS.5.MD.1.AP.1a Convert standard measurements of time to solve real-world problems.	MAFS.6.G.1.AP.1b Decompose complex shapes (polygon, trapezoid, and pentagon) into simple shapes (rectangles, squares, triangles) to measure area.	MAFS.7.G.2.AP.4a Estimate the area of a circle using graph paper.	MAFS.8.G.2.AP.7a Find the hypotenuse of a two-dimensional right triangle using the Pythagorean theorem.
MAFS.5.MD.1.AP.1b Convert standard measurements of length to solve real-world problems.	MAFS.6.G.1.AP.1a Compose rectangles to find areas of right triangles using graph paper.	MAFS.7.G.2.AP.4b Measure the circumference of a circle using string.	MAFS.8.G.3.AP.9a Using a calculator, apply the formula to find the volume of three-dimensional shapes (i.e., cubes, spheres and cylinders).
MAFS.5.MD.1.AP.1c Convert standard measurements of mass to solve real-world problems.	MAFS.6.G.1.AP.2a Find the fractional length and volume of a rectangular prism with edges using models.	MAFS.7.G.2.AP.6b Solve one-step, real-world measurement problems involving area, volume or surface area of two- and three-dimensional objects.	MAFS.8.G.1.AP.4c Compare area and volume of similar figures.
	MAFS.6.RP.1.AP.3c Solve one-step real-world measurement problems involving whole number unit rates when given the unit rate (“Three inches of snow falls per hour, how much falls in six hours?”).	MAFS.7.G.1.AP.1a Draw pairs of proportional polygons on graph paper.	
		MAFS.7.G.1.AP.1b Draw a scale drawing of a real-world two-dimensional polygon on graph paper.	
		MAFS.7.RP.1.AP.1a Solve one-step problems involving unit rates associated with ratios of fractions.	

Overview of Access Points: Measurement

(9-12) High School Learning Targets		
<i>H.ME-1 Explore measurable attributes, measurement systems and processes of measurement of more complex or abstract quantities.</i>		
<i>H.ME-2 Apply and analyze techniques at an appropriate level of precision and use formulas to quantify or interpret abstract events, objects, and situations.</i>		
Problem Solving Using Measurement Process	Perimeter, Area and Volume Problems	Scaling and Unit Conversions
HS		
MAFS.912.N-Q.1.AP.1c Choose the appropriate units for a specific formula and interpret the meaning of the unit in that context.		
MAFS.912.N-Q.1.AP.1b When solving a multi-step problem, use units to evaluate the appropriateness of the solution.		
MAFS.912.N-Q.1.AP.3a Describe the accuracy of measurement when reporting quantities (you can lessen your limitations by measuring precisely).		
MAFS.912.G-MG.1.AP.1a Describe the relationship between the attributes of a figure and the changes in the area or volume when one attribute is changed.		
MAFS.912.G-C.2.AP.5c Apply the formula to the area of a sector (e.g., area of a slice of pie).		
MAFS.912.G-MG.1.AP.3a Apply the formula of geometric figures to solve design problems (e.g., designing an object or structure to satisfy physical restraints or minimize cost).		

View by Instructional Families and Florida Standard Domains

Instructional Families: Measurement

Florida Standards Domain Name: Measurement	
Sorting and Classifying	Measuring Using Tools
MAFS.K.MD.1.AP.1a Describe objects in terms of measurable attributes (longer, shorter, heavier, lighter, etc.).	MAFS.1.MD.1.AP.1b Order three objects by length; compare the lengths of two objects indirectly by using a third object.
MAFS.K.MD.2.AP.3a Sort objects by characteristics (e.g., big/little, colors, shapes).	MAFS.1.MD.1.AP.aa Use a ruler to measure the length of an object with exact whole units.
MAFS.1.MD.2.AP.3a Tell time in whole and half hours using a digital clock.	MAFS.1.MD.2.AP.3a Tell time in whole and half hours using a digital clock.
MAFS.1.MD.1.AP.1a Order up to three objects based on a measurable attribute (height, weight, length).	MAFS.2.MD.3.AP.7a Tell and write time in hours and half-hours using analog and digital clocks.
MAFS.2.MD.1.AP.1a Select appropriate tool and unit of measurement to measure an object (ruler or yard stick, inches or feet).	MAFS.2.MD.1.AP.2b Measure the attributes (length, width, height) of an object using two different size units.
MAFS.3.MD.1.AP.2a Select the appropriate tool for the measurement of liquid volume and mass.	MAFS.2.MD.1.AP.3a Estimate the length of an object using units of feet and inches.
	MAFS.3.MD.3.AP.7a Use tiling and repeated addition to determine area.
	MAFS.3.MD.3.AP.6a Measure area of rectangles by counting unit squares.
	MAFS.3.MD.1.AP.2b Select appropriate units for measurement involving liquid volume and mass.
	MAFS.3.MD.2.AP.4a Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch.

Florida Standards Domain Name: Measurement

Sorting and Classifying

Measuring Using Tools

MAFS.4.MD.3.AP.6a Sketch angles of specific measures.

Instructional Families: Measurement

Florida Standards Domain Name: Measurement		
Problem Solving Using Measurement Process	Perimeter, Area and Volume Problems	Scaling and Unit Conversions
MAFS.2.MD.1.AP.4a Solve problems involving the difference in standard length units.	MAFS.3.MD.4.AP.8a Use addition to find the perimeter of a rectangle.	MAFS.3.MD.1.AP.1b Determine the equivalence between the number of minutes and the number of hours (e.g., 60 minutes = 1 hour) on a number line.
MAFS.2.MD.3.AP.8a Solve word problems using dollar bills, quarters, dimes, nickels or pennies up to \$50.	MAFS.3.MD.1.AP.2d Estimate liquid volume and mass.	MAFS.4.MD.1.AP.1a Complete a conversion table for length and mass within a single system.
MAFS.3.MD.1.AP.1a Solve word problems involving the addition and subtraction of time intervals of whole hours or within an hour (whole hours: 5:00 to 8:00, within hours: 7:15 to 7:45) on a number line.	MAFS.4.MD.1.AP.2a Solve word problems involving distance using line plots.	MAFS.4.MD.1.AP.3a Solve word problems involving perimeter and area of rectangles using specific visualizations/drawings and numbers.
	MAFS.4.MD.1.AP.3a Solve word problems involving perimeter and area of rectangles using specific visualizations/drawings and numbers.	MAFS.5.MD.1.AP.1a Convert standard measurements of time to solve real-world problems.
MAFS.3.MD.1.AP.2c Add to solve one-step word problems involving liquid volume and mass.	MAFS.6.G.1.AP.1b Decompose complex shapes (polygon, trapezoid, and pentagon) into simple shapes (rectangles, squares, triangles) to measure area.	MAFS.5.MD.1.AP.1b Convert standard measurements of length to solve real-world problems.
MAFS.3.MD.4.AP.8b Draw different rectangles with the same area but different perimeters on graph paper.	MAFS.6.G.1.AP.1a Compose rectangles to find areas of right triangles using graph paper.	MAFS.5.MD.1.AP.1c Convert standard measurements of mass to solve real-world problems.
MAFS.8.G.2.AP.7a Find the hypotenuse of a two-dimensional right triangle using the Pythagorean theorem.	MAFS.6.G.1.AP.2a Find the fractional length and volume of a rectangular prism with edges using models.	MAFS.6.RP.1.AP.3c Solve one-step real-world measurement problems involving whole number unit rates when given the unit rate ("Three inches of snow falls per hour, how much falls in six hours?").
MAFS.912.N-Q.1.AP.1c Choose the appropriate units for a specific formula and interpret the meaning of the unit in that context.	MAFS.7.G.2.AP.4a Estimate the area of a circle using graph paper.	MAFS.7.G.2.AP.6b Solve one-step, real-world measurement problems involving area, volume or surface area of two- and three-dimensional objects.
MAFS.912.N-Q.1.AP.1b When solving a multi-step problem, use units to evaluate the appropriateness of the solution.	MAFS.7.G.2.AP.4b Measure the circumference of a circle using string.	MAFS.7.G.1.AP.1a Draw pairs of proportional polygons on graph paper.

Florida Standards Domain Name: Measurement

Problem Solving Using Measurement Process	Perimeter, Area and Volume Problems	Scaling and Unit Conversions
MAFS.912.N-Q.1.AP.3a Describe the accuracy of measurement when reporting quantities (you can lessen your limitations by measuring precisely).	MAFS.8.G.3.AP.9a Using a calculator, apply the formula to find the volume of three-dimensional shapes (i.e., cubes, spheres and cylinders).	MAFS.7.G.1.AP.1b Draw a scale drawing of a real-world two-dimensional polygon on graph paper.
	MAFS.8.G.1.AP.4c Compare area and volume of similar figures.	MAFS.7.RP.1.AP.1a Solve one-step problems involving unit rates associated with ratios of fractions.
	MAFS.912.G-MG.1.AP.1a Describe the relationship between the attributes of a figure and the changes in the area or volume when one attribute is changed.	MAFS.912.G-MG.1.AP.3a Apply the formula of geometric figures to solve design problems (e.g., designing an object or structure to satisfy physical restraints or minimize cost).
	MAFS.912.G-C.2.AP.5c Apply the formula to the area of a sector (e.g., area of a slice of pie).	