

Mathletics NWEA Common Core - Measurement & Data

Skill Quests

RIT Score Band
May, 2022

Mathletics

NWEA Common Core

Measurement & Data 3–5

Skill Quests

May 2022

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RIT Score Band 189–200

1.1 Solve problems involving measurement and estimation

Outcome	Quests	Content
3.MD.A.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes.	Tell and write time to the minute	Telling time to the minute, digital and analog
		Calculating elapsed time
		Using timetables
3.MD.A.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units to represent the problem.	Liquid volume and mass	Estimating, comparing and measuring in liters
		Liquid volume: milliliters
		Solving word problems involving liquid volume
		Mass: kilograms
		Mass: grams
		Mass: measuring in grams and kilograms
Solving 1-step word problems involving mass		

1.2 Represent and interpret data

Outcome	Quests	Content
3.MD.B.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.	Scaled picture and bar graphs	Reading and representing data: scaled picture graph
		Reading and representing data: scaled bar graph
3.MD.B.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.	Representing and reading line plots	Representing and reading line plots

1.3 Geometric measurement: understand concepts of area and relate area to multiplication and to addition

Outcome	Quests	Content
3.MD.C.5.A A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.	Estimating area with tiles	Estimating area with tiles
3.MD.C.5.B A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.	Measuring area with unit squares	Measuring area with unit squares
3.MD.C.6 Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	Measuring area with formal units	Introducing formal units for area
		Measuring the area of rectangles: square cm/m
		Measuring the area of rectangles: square in/ft
3.MD.C.7.A Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.	Finding the area with repeated addition	Finding the area of rectangles, repeated addition
3.MD.C.7.B Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.	Solving area problems, multiplication	Solving area problems using multiplication
3.MD.C.7.C Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.	Finding the area using area models	Finding the area of rectangles, area models
3.MD.C.7.D Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.	Finding the area of rectilinear figures	Finding the area of rectilinear figures

1.4 Geometric measurement: recognize perimeter

Outcome	Quests	Content
3.MD.D.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	Solving perimeter problems	Finding the perimeter of squares and rectangles
		Relating perimeter and area
		Introducing perimeter
		Finding the perimeter of rectangles
		Finding a missing side length given the perimeter
		Finding the perimeter of polygons

RIT Score Band 201–210

1.1 Solve problems involving measurement and conversion of measurements

Outcome	Quests	Content
4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.	Converting units of measure	Units of length: mm/cm/m/km
		Units of mass: g/kg and oz/lb
		Units of time: sec/min/hr and day/week/year
		Units of volume and capacity: mL/L
4.MD.A.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	Word problems: units of measure	Length word problems
		Mass word problems
		Elapsed time word problems
		Volume and capacity word problems
		Money word problems
4.MD.A.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems.	Applying area and perimeter formulas	Finding the area of a rectangle, formula
		Finding the perimeter of a rectangle, formula

1.2 Represent and interpret data

Outcome	Quests	Content
4.MD.B.4 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots.	Fractions on a line plot	Fractions on a line plot
4.MD.C.5.A An angle is measured with reference to a circle with its center at the common endpoint of	Angle measurements in a circle	Using a circular protractor to measure angles

<p>the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a "one-degree angle," and can be used to measure angles.</p>		
<p>4.MD.C.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.</p>	<p>Measuring and estimating angles</p>	<p>Measuring and estimating angles</p>
<p>4.MD.C.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems.</p>	<p>Solving problems with adjacent angles</p>	<p>Solving problems with adjacent angles</p>

RIT Score Band 211–217

1.1 Convert like measurement units within a given measurement system

Outcome	Quests	Content
5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.	Converting measurement units	Converting between standard metric units of length
		Converting between standard metric units of mass
		Converting metric units of volume and capacity
		Converting between customary units of length
		Converting customary units of volume and capacity
		Converting between customary units of mass
		Word problems: measurement conversions

1.2 Represent and interpret data

Outcome	Quests	Content
5.MD.B.2 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots.	Fraction problems: line plots	Represent and interpret measurements: line plots
5.MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	Measuring volume with unit cubes	Measuring volume: unit cubes and cubic centimeters
5.MD.C.5.A Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.	Volume: rectangular prisms	Volume: additive and multiplicative strategies

<p>5.MD.C.5.B Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.</p>	<p>Volume formulas: rectangular prism</p>	<p>Applying volume formulas for rectangular prisms</p>
<p>5.MD.C.5.C Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.</p>	<p>Volume: composite rectangular prisms</p>	<p>Volume of composite rectangular prisms</p>



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