

Unit #5: Math - Measurement and Data (Grade 3)

Content Area: **Mathematics**
Course(s): **Math 3**
Time Period: **Marking Period 4**
Length: **April-June**
Status: **Published**

Established Goals/Standards

Please choose the appropriate Goals/Standards from the Standards tab above.

MA.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, e.g., by representing the problem on a number line diagram.
MA.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, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.
MA.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.
MA.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.
MA.3.MD.C.5	Recognize area as an attribute of plane figures and understand concepts of area measurement.
MA.3.MD.C.5a	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.
MA.3.MD.C.5b	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.
MA.3.MD.C.6	Measure areas by counting unit squares (square cm, square m, square in, square ft, and non-standard units).
MA.3.MD.C.7	Relate area to the operations of multiplication and addition.
MA.3.MD.C.7a	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.
MA.3.MD.C.7b	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.
MA.3.MD.C.7c	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.
MA.3.MD.C.7d	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.
MA.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.

Essential Questions

Please add your Essential Questions by clicking on the Lists tab above.

- How can data be represented, interpreted, and analyzed?
- How can lengths of time be measured and found?
- How can perimeter be measured and found?
- What are different ways to find the area of a shape?
- What are the customary units for measuring capacity and weight?
- What are the metric units for measuring capacity and mass?
- What does area mean?

Enduring Understanding

Please add your Enduring Understandings by clicking on the Lists tab above.

- Capacity is a measure of the amount of liquid a container can hold. Different units (mL and L) can be used to estimate or measure capacity. The weight of an object can be measured using weight, ounce, pound, and ton.
- Line plots, pictographs, and bar graphs allow data to be compared more easily than in a list or table. Each are appropriate for certain kinds of data.
- Mass is the measure of the quantity of matter in an object. Mass can be measured in grams and kilograms.
- Square units or standard measurements units are used for consistency in finding and communicating measurements. Formulas exist for finding the area of some polygons. Areas of rectangles can be used to model the Distributive Property. There are relationships between the perimeter and area of a polygon.
- The amount of space inside a shape is its area.
- Time can be expressed using different units that are related to each other. Time can be found to the nearest half hour, quarter hour, or hour. Time can be expressed in minutes, hours, days, and weeks.
- To find the perimeter of a polygon, add the lengths of the sides. The a given measurement situation, the type of measuring tool and the measurement units it contains determine the appropriateness of the tool.

Content

Students will be able to:

- tell time to the nearest half hour and quarter hour using analog and digital clocks, and identify times as A.M. or P.M.
- tell time to the nearest minute using analog and digital clocks.
- perform simple conversions for units of time.
- find elapsed time in intervals of minutes.
- use the strategy work backward to solve problems.
- use standard units to find the perimeter of a shape.
- select appropriate tools and units to find perimeter.
- match shapes to a given perimeter and learn that different shapes can have the same perimeter.
- solve a problem through the process of try, check, and revise.

- use standard units of area and counting to measure the area of a shape.
- use square units to make figures with given areas.
- find the area of rectangles by counting squares units or by using a formula.
- use the areas of rectangles to model the Distributive Property.
- solve complex problems asking for the area of irregular shapes.
- compare different rectangles with the same area to discover the change in perimeter.
- use equal areas of parts of figures to model unit fractions.
- select appropriate units and tools for measuring the area of given items.
- choose an appropriate unit and tool, estimate, and measure in cups, pints, quarts, gallons, milliliters, liters, gram, kilograms, ounces, pounds, and tons.
- identify objects which hold about a cup, a pint, a quart, a gallon, a liter, a milliliter or weigh a gram, a kilogram, an ounce or a ton.
- draw a picture to solve a problem involving units of capacity and mass.
- use a line plot to organize the results of an experiment.
- generate data by measuring lengths to the nearest fourth of an inch and make line plots to organize their data and draw conclusions.
- make a pictograph and bar graph to represent the data in a table or tally chart
- solve problems by using tables and graphs to draw conclusions.

Vocabulary students will know:

hour

half hour

quarter hour

minute

seconds

A.M.

P.M.

elapsed time

perimeter

mile

area

square unit

capacity

cup (c)

pint (pt)

quart (qt)

gallon (gal)

milliliter (mL)

liter (L)

mass

gram (g)

kilogram (kg)

weight

ounce (oz)

pound (lb)

ton (T)

line plot

pictograph

key

bar graph

scale

Resources

Envision Resources

- www.pearsonsuccessnet.com
- textbook
- student online resources
- Daily Common Core Review
- Quick Checks
- Reteaching/Practice
- Math Centers

Unit lesson flipcharts

Online Games from teacher website