

Curriculum Correlation

Measurement Cluster 2: Using Uniform Units

ON

Kindergarten

16.1 select an attribute to measure (e.g., capacity), determine an appropriate non-standard unit of measure (e.g., a small margarine container), and measure and compare two or more objects (e.g., determine which of two other containers holds the most water)

16.2 investigate strategies and materials used when measuring with non-standard units of measure (e.g., why feet used to measure length must be placed end to end with no gaps and not overlapping, and must all be the same size; why scoops used to measure water must be the same size and be filled to the top)

Curriculum Correlation

Measurement Cluster 2: Using Uniform Units

ON (con't)

Grade 1**Measurement****Attributes, Units, and Measurement Sense**

- demonstrate an understanding of the use of non-standard units of the same size (e.g., straws, index cards) for measuring (Sample problem: Measure the length of your desk in different ways; for example, by using several different non-standard units or by starting measurements from opposite ends of the desk. Discuss your findings.) (Activities 9, 11–15)
- estimate, measure (i.e., by placing non-standard units repeatedly, without overlaps or gaps), and record lengths, heights, and distances (e.g., a book is about 10 paper clips wide; a pencil is about 3 toothpicks long) (Activities 9, 11, 12, 15)
- construct, using a variety of strategies, tools for measuring lengths, heights, and distances in non-standard units (e.g., footprints on cash register tape or on connecting cubes) (Activity 8)
- estimate, measure (i.e., by minimizing overlaps and gaps), and describe area, through investigation using non-standard units (e.g., “It took about 15 index cards to cover my desk, with only a little bit of space left over.”) (Activities 13, 15)
- estimate, measure, and describe the capacity and/or mass of an object, through investigation using non-standard units (e.g., “My journal has the same mass as 13 pencils.” “The juice can has the same capacity as 4 pop cans.”) (Activities 14, 15)

Measurement Relationships

- compare two or three objects using measurable attributes (e.g., length, height, width, area, temperature, mass, capacity), and describe the objects using relative terms (e.g., taller, heavier, faster, bigger, warmer; “If I put an eraser, a pencil, and a metre stick beside each other, I can see that the eraser is shortest and the metre stick is longest.”) (Activities 7, 15)
- compare and order objects by their linear measurements, using the same non-standard unit (Sample problem: Using a length of string equal to the length of your forearm, work with a partner to find other objects that are about the same length.) (Activity 7)
- use the metre as a benchmark for measuring length, and compare the metre with non-standard units (Sample problem: In the classroom, use a metre stick to find objects that are taller than one metre and objects that are shorter than one metre.) (Activities 8, 10)
- describe, through investigation using concrete materials, the relationship between the size of a unit and the number of units needed to measure length (Sample problem: Compare the numbers of paper clips and pencils needed to measure the length of the same table.) (Activities 8, 11, 13)

Cross Strand:**Number****Quantity Relationships**

- represent, compare, and order whole numbers to 50, using a variety of tools (e.g., connecting cubes, ten frames, base ten materials, number lines, hundred charts) and contexts (e.g., real-life experiences, number stories)

Curriculum Correlation

Measurement Cluster 2: Using Uniform Units

ON (con't)

Grade 2**Measurement****Attributes, Units, and Measurement Sense**

- choose benchmarks – in this case, personal referents – for a centimetre and a metre (e.g., “My little finger is about as wide as one centimetre. A really big step is about one metre.”) to help them perform measurement tasks
- estimate and measure length, height, and distance, using standard units (i.e., centimetre, metre) and non-standard units
- record and represent measurements of length, height, and distance in a variety of ways (e.g., written, pictorial, concrete) (Sample problem: Investigate how the steepness of a ramp affects the distance an object travels. Use cash-register tape for recording distances.)
- select and justify the choice of a standard unit (i.e., centimetre or metre) or a nonstandard unit to measure length (e.g., “I needed a fast way to check that the two teams would race the same distance, so I used paces.”)
- estimate, measure, and record the distance around objects, using non-standard units (Sample problem: Measure around several different doll beds using string, to see which bed is the longest around.)
- estimate, measure, and record area, through investigation using a variety of non-standard units (e.g., determine the number of yellow pattern blocks it takes to cover an outlined shape) (Sample problem: Cover your desk with index cards in more than one way. See if the number of index cards needed stays the same each time.)
- estimate, measure, and record the capacity and/or mass of an object, using a variety of non-standard units (e.g., “I used the pan balance and found that the stapler has the same mass as my pencil case.”)

Measurement Relationships

- describe, through investigation, the relationship between the size of a unit of area and the number of units needed to cover a surface (Sample problem: Compare the numbers of hexagon pattern blocks and triangle pattern blocks needed to cover the same book.)
- compare and order a collection of objects by mass and/or capacity, using non-standard units (e.g., “The coffee can holds more sand than the soup can, but the same amount as the small pail.”)

Curriculum Correlation

Measurement Cluster 2: Using Uniform Units

BC/YT

Kindergarten
<p>Direct comparative measurement (e.g., linear, mass, capacity)</p> <ul style="list-style-type: none"> • understanding the importance of using a baseline for direct comparison in linear measurement • linear-height, width, length (e.g., longer than, shorter than, taller than, wider than) • mass (e.g., heavier than, lighter than, same as) • capacity (e.g., holds more, holds less)
Grade 1
<p>Direct measurement with non-standard units (non-uniform and uniform)</p> <ul style="list-style-type: none"> • Non-uniform units are not consistent in size (e.g., children's hands, pencils); uniform units are consistent in size e.g., interlocking cubes, standard paper clips. (Activities 8, 11, 13, 15) • understanding the importance of using a baseline for direct comparison in linear measurement (Activities 7, 9, 10) • using multiple copies of a unit (Activities 8, 9, 11, 13, 15) • iterating a single unit for measuring (e.g., to measure the length of a string with only one cube, a student iterates the cube over and over, keeping track of how many cubes long the string is) (Activities 12, 15) • tiling an area (Activities 13, 15) • rope knots at intervals (Activity 11) • using body parts to measure (Activity 8) • book: An Anishnaabe Look at Measurement, by Rhonda Hopkins and Robin King-Stonefish (http://www.strongnations.com/store/item_display.php?i=3494&f=) (Activity 11) • hand/foot tracing for mitten/moccasin making (Activity 8) <p>Cross Strand: Number concepts to 20 – Ordering and comparing numbers to 20</p>
Grade 2
<p>Direct linear measurement, introducing standard metric units</p> <ul style="list-style-type: none"> • centimetres and metres • estimating length • measuring and recording length, height, and width using standard units