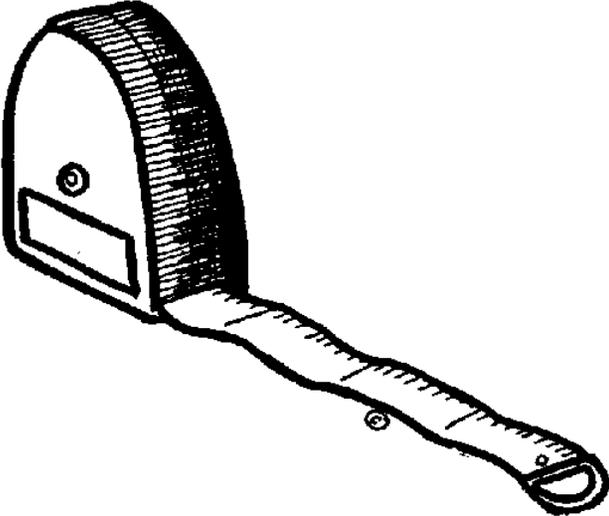


Measurement Expectations

1	2	3	4	5
<p><input type="checkbox"/> demonstrate an understanding of the use of non-standard units of the same size (e.g., straws, index cards) for measuring</p>	<p><input type="checkbox"/> 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</p>	<p><input type="checkbox"/> estimate, measure, and record length, height, and distance, using standard units</p>	<p><input type="checkbox"/> estimate, measure, and record length, height, and distance, using standard units</p>	<p><input type="checkbox"/> measure and record temperatures to determine and represent temperature changes over time</p>
<p><input type="checkbox"/> estimate, measure (i.e., by placing nonstandard 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)</p>	<p><input type="checkbox"/> estimate and measure length, height, and distance, using standard units (i.e., centimetre, metre) and non-standard units</p>	<p><input type="checkbox"/> draw items using a ruler, given specific lengths in centimetres</p>	<p><input type="checkbox"/> draw items using a ruler, given specific lengths in millimetres or centimetres</p>	<p><input type="checkbox"/> estimate and measure the perimeter and area of regular and irregular polygons, using a variety of tools</p>
<p><input type="checkbox"/> 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)</p>	<p><input type="checkbox"/> record and represent measurements of length, height, and distance in a variety of ways</p>	<p><input type="checkbox"/> estimate, read (i.e., using a thermometer), and record positive temperatures to the nearest degree Celsius</p>	<p><input type="checkbox"/> estimate, measure using a variety of tools (e.g., centimetre grid paper, geoboard) and strategies, and record the perimeter and area of polygons</p>	<p><input type="checkbox"/> select and justify the most appropriate standard unit (i.e., millimetre, centimetre, decimetre, metre, kilometre) to measure length, height, width, and distance, and to measure the perimeter of various polygons</p>

<p><input type="checkbox"/> 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.”)</p>	<p><input type="checkbox"/> select and justify the choice of a standard unit (i.e., centimetre or metre) or a nonstandard unit to measure length</p>	<p><input type="checkbox"/> identify benchmarks for freezing, cold, cool, warm, hot, and boiling temperatures as they relate to water and for cold, cool, warm, and hot temperatures as they relate to air (e.g., water freezes at 0°C; the air temperature on a warm day is about 20°C, but water at 20°C feels cool)</p>	<p><input type="checkbox"/> estimate, measure, and record the mass of objects (e.g., apple, baseball, book), using the standard units of the kilogram and the gram</p>	<p><input type="checkbox"/> solve problems requiring conversion from metres to centimetres and from kilometres to metres</p>
<p><input type="checkbox"/> 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.”)</p>	<p><input type="checkbox"/> estimate, measure, and record the distance around objects, using non-standard units</p>	<p><input type="checkbox"/> estimate, measure, and record the perimeter of two-dimensional shapes, through investigation using standard units</p>	<p><input type="checkbox"/> estimate, measure, and record the capacity of containers (e.g., a drinking glass, a juice box), using the standard units of the litre and the millilitre</p>	<p><input type="checkbox"/> create, through investigation using a variety of tools (e.g., pattern blocks, geoboard, grid paper) and strategies, two-dimensional shapes with the same perimeter or the same area</p>
<p><input type="checkbox"/> relate temperature to experiences of the seasons (e.g., “In winter, we can skate because it’s cold enough for there to be ice.”)</p>	<p><input type="checkbox"/> estimate, measure, and record area, through investigation using a variety of non-standard units</p>	<p><input type="checkbox"/> estimate, measure (i.e., using centimetre grid paper, arrays), and record area</p>	<p><input type="checkbox"/> estimate, measure using concrete materials, and record volume, and relate volume to the space taken up by an object</p>	<p><input type="checkbox"/> determine, through investigation using a variety of tools (e.g., concrete materials, dynamic geometry software, grid paper) and strategies (e.g., building arrays), the relationships between the length and width of a rectangle and its area and perimeter, and generalize to develop the formulas</p>

<p><input type="checkbox"/> compare two or three objects using measurable attributes (e.g., length, height, width, area, temperature, mass, capacity), and describe the objects using relative terms</p>	<p><input type="checkbox"/> estimate, measure, and record the capacity and/or mass of an object, using a variety of non-standard units</p>	<p><input type="checkbox"/> estimate, measure, and record the mass of objects using the standard unit of the kilogram or parts of a kilogram</p>	<p><input type="checkbox"/> describe, through investigation, the relationship between various units of length</p>	<p><input type="checkbox"/> solve problems requiring the estimation and calculation of perimeters and areas of rectangles</p>
<p><input type="checkbox"/> compare and order objects by their linear measurements, using the same non-standard unit</p>	<p><input type="checkbox"/> describe how changes in temperature affect everyday experiences</p>	<p><input type="checkbox"/> estimate, measure, and record the capacity of containers (e.g., juice can, milk bag), using the standard unit of the litre or parts of a litre (e.g., half, quarter)</p>	<p><input type="checkbox"/> select and justify the most appropriate standard unit (i.e., millimetre, centimetre, decimetre, metre, kilometre) to measure the side lengths and perimeters of various polygons</p>	<p><input type="checkbox"/> determine, through investigation, the relationship between capacity (i.e., the amount a container can hold) and volume (i.e., the amount of space taken up by an object), by comparing the volume of an object with the amount of liquid it can contain or displace</p>
<p><input type="checkbox"/> use the metre as a benchmark for measuring length, and compare the metre with non-standard units</p>	<p><input type="checkbox"/> use a standard thermometer to determine whether temperature is rising or falling</p>	<p><input type="checkbox"/> compare standard units of length (i.e., centimetre, metre, kilometre) (e.g., centimetres are smaller than metres), and select and justify the most appropriate standard unit to measure length</p>	<p><input type="checkbox"/> determine, through investigation, the relationship between the side lengths of a rectangle and its perimeter and area</p>	<p><input type="checkbox"/> determine, through investigation using stacked congruent rectangular layers of concrete materials, the relationship between the height, the area of the base, and the volume of a rectangular prism, and generalize to develop the formula</p>

<input type="checkbox"/> describe, through investigation using concrete materials, the relationship between the size of a unit and the number of units needed to measure length	<input type="checkbox"/> describe, through investigation, the relationship between the size of a unit of area and the number of units needed to cover a surface	<input type="checkbox"/> compare and order objects on the basis of linear measurements in centimetres and/or metres in problem-solving contexts	<input type="checkbox"/> pose and solve meaningful problems that require the ability to distinguish perimeter and area	<input type="checkbox"/> select and justify the most appropriate standard unit to measure mass
	<input type="checkbox"/> compare and order a collection of objects by mass and/or capacity, using non-standard units	<input type="checkbox"/> describe, through investigation using grid paper, the relationship between the size of a unit of area and the number of units needed to cover a surface	<input type="checkbox"/> compare and order a collection of objects, using standard units of mass	
	<input type="checkbox"/> compare and order a collection of objects, using standard units of mass (i.e., kilogram) and/or capacity (i.e., litre)	<input type="checkbox"/> determine, through investigation, the relationship between millilitres and litres		<input type="checkbox"/> select and justify the most appropriate standard unit to measure mass (i.e., milligram, gram, kilogram) and the most appropriate standard unit to measure the capacity of a container (i.e., millilitre, litre)
	<input type="checkbox"/> compare, using a variety of tools (e.g., geoboard, patterns blocks, dot paper), two-dimensional shapes that have the same perimeter or the same area	