

Length 1			
Outcome	Teaching and Learning Activities	Notes/ Future Directions/Evaluation	Language / Date
<p>A student:</p> <ul style="list-style-type: none"> › describes mathematical situations and methods using everyday and some mathematical language, actions, materials, diagrams and symbols MA1-1WM › supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM › measures, records, compares and estimates lengths and distances using uniform informal units, metres and centimetres MA1-9MG <p>Syllabus Content Note:</p> <p>1st content outcome relates to measuring and comparing lengths using informal units 2nd content outcome relates to recording informal lengths and measuring curved lengths</p> <p>Syllabus reference: Hard copy: page 90 Digital: page page 95</p>		<p>Background information</p> <p>In Stage 1, measuring the lengths of objects using uniform informal units enables students to develop some key understandings of measurement. These include that: units should be repeatedly placed end-to-end without gaps or overlaps, units must be equal in size, identical units should be used to compare lengths, some units are more appropriate for measuring particular objects</p> <p>there is a relationship between the size of the chosen unit and the number of units needed.</p> <p>Using the terms 'make', 'mark' and 'move' assists students in understanding the concept of repeated units. By placing a unit on a flat surface, marking where it ends, moving it along and continuing the process, students see that the unit of measurement is the space between the marks on a measuring device and not the marks themselves.</p> <p>Recognising that a length may be divided and recombined to form the same length is an important component of <i>conserving</i> length.</p> <p>It is important that students have had some measurement experiences before being asked to estimate lengths and distances, and that a variety of estimation strategies is taught.</p> <p>Students will have an informal understanding of measurement prior to school, although this may not align to Western concepts of measurement. In particular, Aboriginal students often have developed a sense of measurement based on their self and their environment.</p>	<p>length distance, end, end-to-end, side-by-side, gap, overlap, measure, estimate, handspan.</p>

Activities		
<p>Explicit Mathematical Teaching</p> <p>At this Stage, measuring the length of objects using informal units enables students to develop some key understandings of measurement. These include understanding:</p> <ul style="list-style-type: none"> – that units are repeatedly placed end-to-end without gaps or overlaps – that units must be equal in size – that identical units should be used to compare lengths – that some units are more appropriate for measuring particular objects, and – the relationship between the size of the unit and the number of units needed. <p>It is important that students have had some measurement experiences before being asked to estimate and that a variety of estimation strategies are taught. Students should be given opportunities to apply their understandings of measurement, gained through experiences with informal units, to experiences with the centimetre and metre. Students could make a measuring device using informal units before using a ruler. This will assist students in understanding that the distances between marks on a ruler represent unit lengths and that the marks indicate the end points of each of the units.</p>		
<p>Ignition Activity</p> <p>Select appropriate informal unit to:</p> <ul style="list-style-type: none"> - Measure the length of your desk using informal unit (paddle pop sticks). <p>Record. Measure width of desk using same unit. Record and compare length to width.</p> <ul style="list-style-type: none"> - Use a different informal unit. Will we get same result? Why not? Why do we have to use same informal unit? <p>Year 2:</p> <ul style="list-style-type: none"> - Compare findings using different informal units. - Discuss how gaps/overlaps will give incorrect result. 		
<p><u>Whole Class Teaching Activities</u>-some suggestions</p> <p>Longer Than but Shorter Than . Sample Units of work page 67</p> <p>Students are asked to find as many objects as they can that are longer than three popsticks but shorter than four popsticks.</p>		

The teacher observes students' methods. Students record their methods and findings.

Possible questions include:

- can you show me how long you think the object will be?
- can you make something that will help you to measure the objects quickly?

Straw toss

Who can throw a straw the furthest; how much further is it than the next best throw?

Measure and record the distance thrown, using a 10 cm strip. Find the difference between the longest and shortest throw.

1. measure precisely by repeating one unit
2. know that lengths (not marks or spaces) are counted
3. use a 10 cm strip as a unit to measure length.

Curves

Students use chalk to draw a variety of curves on the ground. They measure the length of each curve using student-selected informal units. Students record and compare results.

Possible questions include:

- what can you use to measure the length of these curves?
- why did you choose that unit?
- which was the best unit to measure with and why?
- did you have any part left over when you measured the length?
- how would you describe the part left over?

Body Parts

In small groups, students use body parts as units of length. They record the results in a table and compare different students' measures of the same dimension.

<p>eg</p> <p>Possible questions include:</p> <ul style="list-style-type: none"> ■ were your measurements the same? Why not? ■ what could you use to measure more accurately? 		
<p>How Many Hands? Sample units of work pg 67</p> <p>In small groups, students make a tape measure that is calibrated using a handprint as a repeated unit. This is done by tracing the hand of one group member. The teacher uses a photocopier to make multiple copies of the print for students to lay end-to-end and glue onto a long strip of paper.</p> <p>Students use this tape to measure objects in the room eg a desk, the window, a chair, the bookcase.</p> <p>Students record measurements on a large class chart.</p> <p>As a whole class, students discuss their findings and explain:</p> <ul style="list-style-type: none"> ■ why different groups obtained different measurements for the same object ■ their method for measuring ■ how measurements were determined if the length of the object involved fractional parts eg 4 handprints. 		
<p>Longer Than but Shorter Than</p> <p>Students are asked to find as many objects as they can that are longer than three popsticks but shorter than four popsticks. The teacher observes students' methods. Students record their methods and findings.</p> <p>Possible questions include:</p> <ul style="list-style-type: none"> & can you show me how long you think the object will be? & can you make something that will help you to measure the objects quickly? 		

<p>Class Standard Students discuss units that are more uniform than body measurements. Students select a uniform unit such as a chalkboard duster. In groups of four or five, students are provided with a duster and long strip of paper to make a tape calibrated with the informal unit. Students decide on a name for this unit. Students could use their tape to measure various objects and compare results with other groups.</p> <p>Hopping Students work in groups of five. They use centimetres to measure the length of one hop for each student. Students record and compare measurements and repeat for other types of jumps. Students discuss their results. Possible questions include: & who can jump the furthest? & does the tallest student jump the furthest? & how accurate does your measuring need to be? & how did you record your results to make comparison easy?</p>		
<p>Snakes Alive Students make snakes from plasticine or playdough and measure them to the nearest centimetre using a tape measure. A partner then checks their measurement. Students compare results. Variation: Students select a length and use estimation to make a snake of this length. Students check by measuring with a tape measure and record their results. Possible questions include: & was there a difference in length when your partner measured your snake? Why? & how close was your estimation to the actual length? & how did you estimate your length?</p>		

