

Approach: One to one **Level:** Year 4 and year 8

Focus: Estimating measurements.

Resources: Ruler; measuring tape; objects: bolt, pencil, stick, ribbon.

Questions/instructions:

Do not let the student see a ruler or the measuring tape until it is time to make the actual measurements.

In this activity I am going to ask you to estimate or guess the length of some things. After that, you can measure them to check your estimates. I'll write down the measurements you tell me. Each time, tell me if the measurement is in millimetres, centimetres or metres.

One at a time, introduce each of the objects in the order given. Ask student to estimate all of the objects before they are measured. Write student's answers for each measure.

Hand student the bolt. [70mm]

	% responses	
	2001 ('97) year 4	2001 ('97) year 8
1. How long do you think this is? <i>PROMPT: What are the units of measurement?</i>		
56–84mm	26 (27)	42 (38)
42–55mm or 85–98mm	20 (25)	29 (32)

Record student answer.

Hand student the pencil. [144mm]

	% responses	
	2001 ('97) year 4	2001 ('97) year 8
2. How long do you think this is? <i>PROMPT: What are the units of measurement?</i>		
115–173mm	20 (26)	36 (38)
89–114mm or 174–203mm	35 (35)	41 (40)

Hand student the stick. [302mm]

	% responses	
	2001 ('97) year 4	2001 ('97) year 8
3. How long do you think this is? <i>PROMPT: What are the units of measurement?</i>		
240–360mm	33 (34)	63 (63)
180–239 or 361–420mm	19 (23)	20 (23)

Hand student the ribbon. [400mm]

	% responses	
	2001 ('97) year 4	2001 ('97) year 8
4. How long do you think this is? <i>PROMPT: What are the units of measurement?</i>		
320–480mm	23 (24)	50 (44)
260–319 or 481–560mm	20 (24)	28 (35)

	% responses	
	2001 ('97) year 4	2001 ('97) year 8
5. Now how tall do you think you are? <i>PROMPT: What are the units of measurement?</i>		
Closeness to teacher's measurement in question 6:		
within 20%	45 (39)	74 (78)
within 20–40%	14 (10)	7 (9)
Give the student the ruler (not the measuring tape).		
Now I want you to use this ruler to measure the length of each of the four things. As you measure them, tell me what the length is, and I'll write it down. Remember to tell me the unit of measurement.		
• bolt	65–75mm	79 (79) 95 (97)
• pencil	130–150mm	87 (88) 98 (98)
• stick	290–310mm	91 (93) 98 (99)
• ribbon	390–410mm	51 (56) 89 (93)
Now let's see how tall you are.		
Have student stand against a wall. Place a piece of tape on the wall to show the height. Give student the measuring tape.		
6. Now measure your height and tell me how tall you are so I can write it down. Remember to tell me the unit of measurement.		
Record student answer. Check student's measurement and record actual height.		
within 3cm	69 (76)	73 (77)

Commentary

Both year 4 and year 8 students were quite inaccurate in estimating the lengths of four objects. Most year 8 students measured accurately, except where the length to be measured was greater than the length of the measuring device. There was little change in performance between 1997 and 2001.