Grade 7 Natural Science Worksheet

<u>Assessment Task: Physical Sciences: measurements</u>

Measurement of length

Part One: Do some measurements of length

What would you use to measure the following lengths?

How would you go about measuring them?

What units would your answer be in?

1.   The dimensions (length, breadth and height) of the room in which you sleep.

2.   The thickness of one page of this book.

3.   The distance from your bed to the door of your home.

4.   The distance the door of your home to the door of your friend's home.

5.   The circumference (length of a line which forms a circle) of one of your glasses in the kitchen.

6.   The diameter of one of your glasses in your kitchen.

Choose three of the above examples and measure them accurately. Remember to look directly down on your ruler or measuring tape, so that your do not introduce an error (error of parallax) into your reading.

Measure the lengths twice so that you check yourself.

[33 marks]

Grade 7 Natural Science Worksheet

Part Two:

The unit used to measure cell size is the micrometer. 1 000 micrometers = 1 millimetre.

1. A human red blood cell is 7 micrometers in diameter. Express this as a decimal fraction of a millimetre.

2. If a cell is 0.008 millimetres long, what is its length in micrometers?

3. Present the information given in the following table as a bar chart.

Cell type	Cell length (micrometers)
Onion epidermis (outer cell layer)	150
Yeast	8
Human egg	100
Bacillus bacterium	3
Paramoecium (unicellular alga)	50
Sea urchin egg	70
Human red blood cell	7
Human liver cell	20

[17 marks]

Grade 7 Natural Science Worksheet

Suggested Solutions

Question number	Possible marks	Solution
1	33	1. Use a tape measure ✓; hold one end of the tape measure against on wall, floor level. Measure across to other wall. Repeat for other dimension. Hold tape measure on floor and extend up to ceiling - in the corner of a room (to prevent leaning). You may need a helper for this one! ✓✓ Units – metres. ✓ 2. Measure the thickness of all the pages, using a ruler or tape measure. ✓ Count the number of pages. Divide the measurement by the number of pages. ✓✓ Units – centimetres or millimetres. ✓ 3. Using a tape measure. ✓ Lie the tape measure on the floor and measure to its full length. Make a note of how long you have measured (e.g. 2.5 m or 1 m – depending on length of tape measure). Once you get to the front door, add all the measurements together. ✓✓ Unit – metres. ✓ 4. This is, of course, a hypothetical question unless you are very committed to your activity and have a car or driver at your disposal! If your study partner lived next door, a trundle wheel ✓would be best. Start the counter on '0". Begin to walk from your door, slowly and in as straight a line as possible. Read the distance covered when you reach your partner's door. Units – metres. However, if your partner lives further than this, use another method. Tape measure the distance from your door to your motor car/taxi standing outside your house. Get in and take the reading on the odometer. Travel directly to your partner's home. Before you get out, take the reading on the odometer. Subtract the first reading from the second reading to get the distance from your house to partner's house. Tape measure the distance from the car to your partner's door. Add the three measurements together. ✓✓ Units – kilometres.✓ 5. Use a flexible tape measure✓ and wind it around the glass. If you do not have a flexible tape measure, use a piece of wool or string to wind around the glass. Straighten out and read against a ruler.✓✓ Units – centimetres. ✓ 6. Ruler. ✓ Stand the glass on its end. Measure across the end of the glass, making sure your ruler crosses the middle of the glass. ✓✓ Units – centimetres. ✓ Review learner actual calculations; check those you can; check to see that learner has measured the lengths twice for accuracy; check use of units. ✓✓✓ per item = 9
2	17	1. 0.007 ✓mm ✓ 2. 8 ✓micrometers ✓

3.

Lengths of various cells