



## 2011 Sec 1 Science (Physics) Worksheet 1.1

### Measurement and Units

Name: \_\_\_\_\_ ( ) Class: 1/ \_\_\_\_ Date: \_\_\_\_\_

1. **S.I. units** refer to the International System of Units (abbreviated S.I. from the French *Le Système International d'Unités*).

Fill in the S.I. units for the following quantities:

Quantity	S.I. unit	Symbol
Length		
Mass		
Time		
Temperature		

2. Prefixes are commonly used to express larger or smaller quantities. For example, instead of writing 1000 m, we write 1 km where k represents kilo or  $10^3$  or 1000.

Complete the table below on some commonly used S.I. prefixes.

Prefix	Symbol	Multiplying Factor
mega	M	
kilo		$10^3$ or 1000
	d	
centi		
	m	$10^{-3} = \frac{1}{1000}$ or 0.001

3. Conversion of Units

Examples:

$$1 \text{ mm} = 1 \times 0.001 \text{ m} = 0.001 \text{ m}$$

$$1 \text{ cm} = 1 \times 0.01 \text{ m} = 0.01 \text{ m}$$

$$1 \text{ m}^2 = (100 \text{ cm})(100 \text{ cm}) = 10000 \text{ cm}^2 = 10^4 \text{ cm}^2$$

$$1 \text{ cm}^3 = (0.01 \text{ m})(0.01 \text{ m})(0.01 \text{ m}) = 0.000001 \text{ m}^3 = 10^{-6} \text{ m}^3$$

3. Convert the following quantities into their basic units

(a) 11.5 dm = \_\_\_\_\_ m

(b) 545 mg = \_\_\_\_\_ kg

(c) 235 km = \_\_\_\_\_ m

(d) 190 ms = \_\_\_\_\_ s

4. Conversion of units

(a) Express 224 cm<sup>2</sup> in mm<sup>2</sup>

(b) Express 52 m<sup>2</sup> in cm<sup>2</sup>

(c) Express 320 cm<sup>3</sup> in m<sup>3</sup>

(d) Express 45 dm<sup>3</sup> in cm<sup>3</sup>

5. Complete the table below on the measurement of some common physical quantities using some laboratory instruments.

	Physical Quantity	Appropriate instrument to use in the laboratory	Precision of measurement
a.	The volume of fruit juice in a cup.		0.5 cm <sup>3</sup>
b.	The depth of a test tube.		0.01 cm
c.	The mass of a book.		0.1 g
d.	The diameter of a coin.		0.1 mm
e.	The time to run 100 m.		0.01 s
f.	The circumference of your head.		0.1 cm
g.	The temperature of a room.		0.5 °C

6. The diagram below shows a rectangle.



Use your ruler to measure the length and breadth of the rectangle.  
Record your reading in centimetres (cm) below.

Length = \_\_\_\_\_

Breadth = \_\_\_\_\_

7. State the readings of the vernier calipers in each of the diagram below.

<p>(a)</p> <p>Ans: _____</p>	<p>(b)</p> <p>Ans: _____</p>
<p>(c)</p> <p>Ans: _____</p>	<p>(d)</p> <p>Ans: _____</p>
<p>(e)</p> <p>Ans: _____</p>	<p>(f)</p> <p>Ans: _____</p>

The End