



# Year 7 Science Sample Resources



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# Being a Scientist: Worksheet 1

Property of Prestige Tuition

1. List six of the main branches of science.

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2. Make a list of four safety DOs and four DON'Ts in the laboratory.

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3. Use your common sense to state whether the following rules are good ones or silly ones likely to cause injury:

a) It is OK to pour *all* substances down the sink after an experiment.

b) Running and pushing people in the laboratory is *never* allowed.

c) It is OK to eat and drink in the laboratory.

d) Spilt chemicals can be left unattended.

e) The teacher always must be told if something goes wrong.

f) Safety glasses are optional when we use chemicals in the laboratory.

g) Chemicals should never be tasted or smelled.

h) Always point test tubes away from yourself and others.

i) It is good science to mix unknown chemicals together.

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**Surface Area and Volume: Worksheet 3**

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4. Describe four dangers that you might have to deal with in a science laboratory.

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5. Eye injuries are common in science laboratories. Explain what could cause these injuries and describe what could be done to minimise the risk of them.

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6. The following scientists are working in different branches or disciplines of science. Identify which branch each is working in:

a) Johanna is studying the eating habits of a cheetah.

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b) Yianni is developing a new type of plastic.

\_\_\_\_\_

c) Lauren is studying the crystals embedded in a rock.

\_\_\_\_\_

d) Brigid is studying the movement of the planets.

\_\_\_\_\_

e) Gary is investigating what animals might be affected when a new dam is built.

\_\_\_\_\_

f) Ying is studying the flow of electricity through an electronic circuit.

\_\_\_\_\_

7. Within each branch of science are sub-branches. Identify whether the sub-branches below belong in astronomy, biology, chemistry or ecology.

a) Optics: the study of light

\_\_\_\_\_

b) Entomology: the study of insects

\_\_\_\_\_

c) Vulcanology: the study of volcanoes

\_\_\_\_\_

d) Zoology: the study of animals.

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**Surface Area and Volume: Worksheet 3**

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*Property of Prestige Tuition*

8. Identify five injuries that can happen in a science laboratory if simple safety rules are not obeyed.

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9. Identify another simple experiment in which the following senses would be too dangerous to use:

a) Sight

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b) Hearing

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c) taste.

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10. Sometimes it is too dangerous to use some of our senses. Complete this table by identifying which senses should and should not be used.

Experiment	Senses that you would use	Sense that would give the most information	Senses that you would NOT use
Testing the ability of strong acids to clean a sheet of metal			
Testing how long milk takes to go off			
Testing how long it takes for six tomatoes to ripen			
Studying lava flowing from a volcano			
Testing a new pesticide			

11. Inspect the safety signs shown in Figure 1.1.5 and propose what each one might be warning you about.



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12. Propose what you should do if:

a) You accidentally break something in the laboratory.

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b) You smell gas.

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c) A hissing sound is heard coming from a Bunsen burner that is not lit.

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d) You need to leave a Bunsen burner to collect some extra equipment?

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***Surface Area and Volume: Worksheet 3***

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**13.** Propose a reason why some of the safety rules in Science are different from those in other subjects, such as design and technology, food technology and PDHPE.

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# Forces

## Worksheet 1

Property of Prestige Tuition

1. A force is applied to an object. **List** four things that might happen to it.  
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\_\_\_\_\_
2. **State** what must be inside an instrument that can measure the force applied to an object.  
\_\_\_\_\_  
\_\_\_\_\_
3. **State** the unit used to measure forces, its symbol and who it was named after.  
\_\_\_\_\_
4. **State** other words or phrases that could be used instead of *acceleration* and *deceleration*.  
\_\_\_\_\_  
\_\_\_\_\_
5. **Specify** how forces are shown in diagrams.  
\_\_\_\_\_  
\_\_\_\_\_
6. Copy the statements below and **modify** any incorrect statements so that they become true.
  - a) Force is needed to change the direction of an object.  
\_\_\_\_\_  
\_\_\_\_\_
  - b) Things slow down naturally. No force is involved.  
\_\_\_\_\_  
\_\_\_\_\_
  - c) A force is required to change the shape of an object.  
\_\_\_\_\_  
\_\_\_\_\_
  - d) Objects speed up when they fall because there is a force involved.  
\_\_\_\_\_  
\_\_\_\_\_



e) Twisting is caused by a force.

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7. Identify five examples of contact forces.

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8. Identify three examples of non-contact forces.

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9. Identify three examples of situations in which the following forces are acting:

a) push forces

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b) pull forces

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c) twist forces.

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10. Identify three examples of situations in which an object:

a) speeds up

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b) slows down

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c) changes direction

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d) changes shape permanently

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e) changes shape for a short time but then bounces back to its original shape

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f) stops.

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**11. Identify** which of the situations, in the image below, show:

a) Acceleration

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b) Deceleration

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c) change in shape

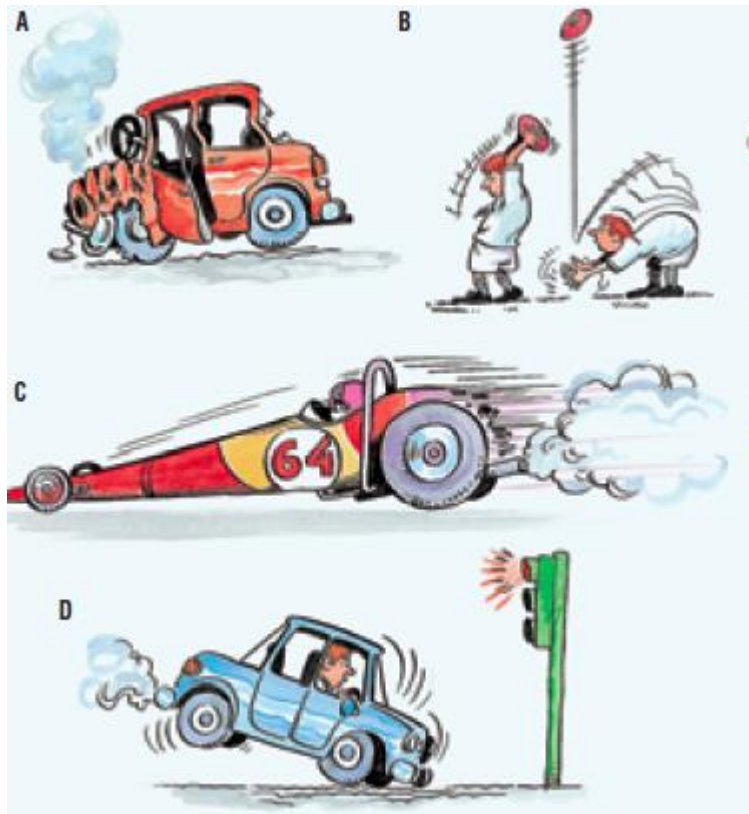
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d) change in direction.

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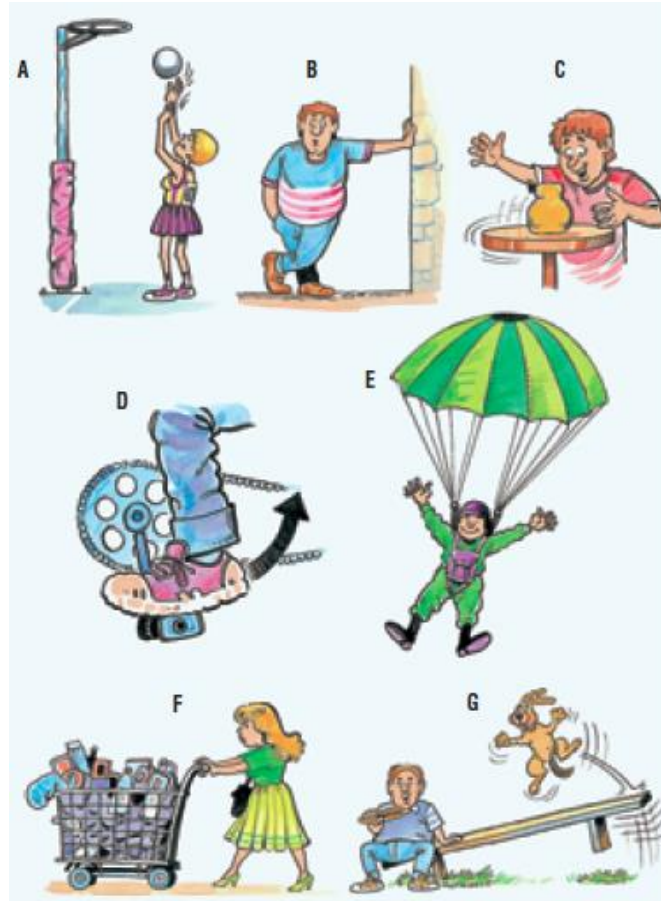


12. Identify which of the situations in the image below are showing:

a) push forces

b) pull forces

c) twist forces.



13. Elastic means that the material will bounce back to its original shape after the force is removed. Inelastic materials might bounce back a little but never regain their original shape or size. **Classify** the following materials as either elastic or inelastic:

a) an elastic band

b) a crumpled piece of paper

c) plasticine

d) a car wreckage

e) wet mud



f) a diving board

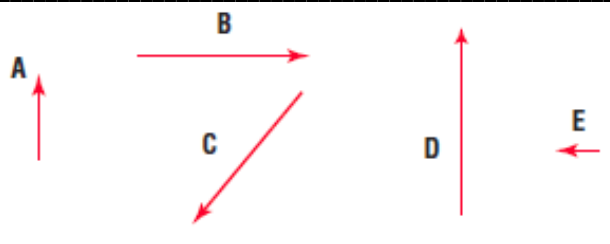
g) a drinking glass.

14. Compare the forces shown in image below.

a) Which is the biggest force?

b) Which forces are the same size?

c) Which forces are in the same direction?



15. Compare the size of a force needed to stop a truck to that of stopping a car.

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# Cells Exam

Property of Prestige Tuition

Name: \_\_\_\_\_ Class: \_\_\_\_\_

Instructions: Write answers in the right hand column. Score: \_\_\_\_\_ / 50 marks

## Section A – Multiple Choice (17 marks)

<b>1</b>	Which of the following is a commonly used type of microscope? A Monoscope. B Compound. C Bifocal. D Proton.		1
<b>2</b>	Which of the following scientists is known for inventing a type of microscope? A Thadius T. Cell. B Robert Hooke. C Howard Florey. D Louis Pasteur.		1
<b>3</b>	Which part of a microscope is the specimen placed on? A Platform. B Base. C Objective. D Stage.		1
<b>4</b>	A microscope has an eyepiece of magnification $\times 10$ . What magnification must the lower lens have to produce an image with an overall magnification of $\times 200$ ? A $\times 10$ . B $\times 20$ . C $\times 190$ . D $\times 2000$ .		1

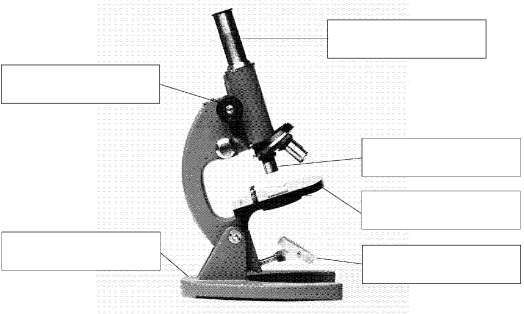


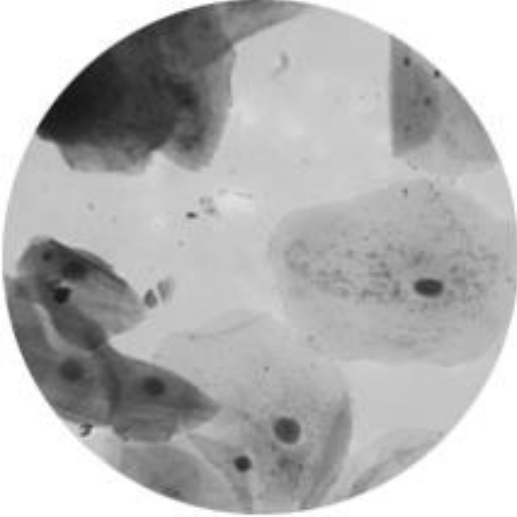
<b>5</b>	Which of the following is a type of electron microscope? A ELM. B TEM. C SCAN. D False colour.		1
<b>6</b>	The control centre of a cell is its: A cytoplasm. B mitochondrion. C nucleus. D vacuole.		1
<b>7</b>	Mitochondria contain: A several identical cells. B waste and food particles. C chlorophyll. D sugar and oxygen.		1
<b>8</b>	Which of the following are found in both plant and animal cells? A Mitochondria. B Cellulose. C Chloroplasts. D Algae.		1
<b>9</b>	Which of the following is a type of plant cell? A Imposing. B Fat. C Security. D Guard.		1
<b>10</b>	Water is lost from a plant mainly through: A root hair cells. B stomata. C photosynthetic cells. D sieve cells.		1



<b>11</b>	Which of the following statements concerning tiny organisms is correct? A Some organisms are made up of only one cell. B Even microscopic organisms contain a few hundred cells at least. C The only type of single-celled organism is the amoeba. D Single-celled organisms can only exist in other cells.		1
<b>12</b>	Which of the following is not a type of protist: A amoeba B ciliate C flag D sporozoan		1
<b>13</b>	A single celled organism is: A a microbe B a unicellular organism C A and B D none of the above		1
<b>14</b>	Where would you mostly find protists? A in a body of water B in blood C in a microbe D all of the above		1
<b>15</b>	Which of the following is not a type of system? A Endocrine system B Reproductive system C Nervous system D Heart system		1
<b>16</b>	A flagellum is: A a microscopic organism. B part of a plant cell. C a cell that is able to change shape. D a whip-like tail attached to a cell.		1
<b>17</b>	Which of the following is a plant system? A Stoma. B Chlorophyll. C Flower. D Bulb.		1

Section B – Written answers (42 marks)

<p><b>1</b></p>	<p>Label the following diagram of a microscope.</p> 		<p>3</p>
<p><b>2</b></p>	<p><b>Explain</b> how to use a microscope.</p>		<p>3</p>

<p><b>3</b></p>	<p>Draw a diagram of the following microscopic view.</p> 	<p style="text-align: right; color: red;">3</p>																		
<p><b>4</b></p>	<p>Copy and complete the following table by <b>calculating</b> the magnifications.</p> <table border="1" data-bbox="328 1059 1015 1413"> <thead> <tr> <th style="background-color: #d3d3d3;">Eyepiece magnification</th> <th style="background-color: #d3d3d3;">Objective lens magnification</th> <th style="background-color: #d3d3d3;">Total magnification</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">×10</td> <td style="text-align: center;">×10</td> <td></td> </tr> <tr> <td style="text-align: center;">×5</td> <td style="text-align: center;">×100</td> <td></td> </tr> <tr> <td style="text-align: center;">×20</td> <td style="text-align: center;">×40</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">×100</td> <td style="text-align: center;">×300</td> </tr> <tr> <td style="text-align: center;">×30</td> <td></td> <td style="text-align: center;">×600</td> </tr> </tbody> </table>	Eyepiece magnification	Objective lens magnification	Total magnification	×10	×10		×5	×100		×20	×40			×100	×300	×30		×600	<p style="text-align: right; color: red;">5</p>
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×20	×40																			
	×100	×300																		
×30		×600																		
<p><b>5</b></p>	<p>Copy and <b>identify</b> the missing words about cell theory.</p> <p><b>a</b> All _____ things, or organisms are made up of _____.</p> <p><b>b</b> New cells are created by _____ cells _____ in two.</p> <p><b>c</b> All cells are _____ to each other but are not _____.</p>	<p style="text-align: right; color: red;">3</p>																		



<p>6</p>	<p>Label A-E in the animal cell below.</p>	<p>5</p>
<p>7</p>	<p>Label the plant cell below.</p>	<p>8</p>



<p><b>8</b></p>	<p><b>Identify</b> the cell parts that match the following brief description.</p> <p>List of cell parts: Cell membrane, cellulose, vacuole, cytoplasm, cell sap, mitochondrion, cell nucleus, chloroplast</p> <p><b>a</b> Thin outer layer. <b>b</b> Energy capsule. <b>c</b> Control centre. <b>d</b> Chemical factory. <b>e</b> Trap light energy. <b>f</b> Storage area. <b>g</b> Strong material which supports plant cells. <b>h</b> Found in large vacuole in plant cell.</p>		<p>8</p>
<p><b>9</b></p>	<p><b>Explain</b> the relationship between cells, tissue, organs and systems.</p>		<p>4</p>