

NAME:	SCIENCE TEACHER:	9B
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SCIENCE

Year 9 Examination 2006

9B – 80 marks

Make sure that you have answered all the questions in this paper before you start paper 9A or 9C

Time allowed for both examinations: 2 hours

Answer all questions in the spaces provided on the paper.

You may use a calculator.

Show all your working in calculations; marks are awarded for it.

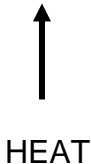
Give units for all answers (eg kg or m) unless they are already provided.

For Teacher Use

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Marks gained																	
Marks available	8	5	6	3	3	9	7	3	6	3	3	4	3	5	7	5	80

Question One [8 marks]

a) In the boxes below draw the named pieces of equipment as scientific 2D diagrams. The Bunsen has been done as an example.

Bunsen burner	Beaker	Conical flask	Filter funnel
			

Evaporating dish/basin	Test tube	Gauze mat	Tripod

b) List the piece or pieces of equipment you would use to do the following task. These may include equipment not listed above.

(i) filter muddy water

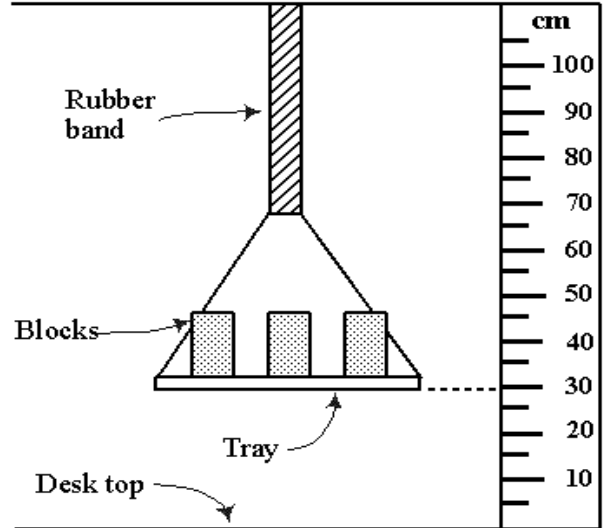
(ii) measure the volume of a small stone

(iii) burn a piece of magnesium ribbon in a Bunsen flame

Question Two [5 marks]

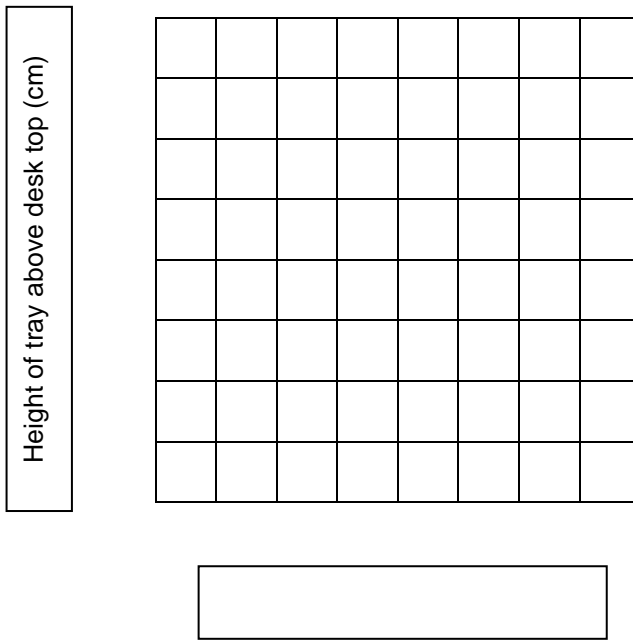
A tray is hanging by a thick rubber band. When John adds blocks to the tray, the rubber band stretches and the tray moves closer to the desk top. His results are shown on the chart below.

Number of blocks	Height of tray above desk top (cm)
0	60
1	50
2	40
3	30



a) Graph John's results below. You must label and number each axis.

The Amount of Stretch in a Rubber Band



b) What can you say about the relationship between the number of blocks and the stretch of the rubber band?

c) How many blocks will be needed to make the tray just touch the desk top?

Question Three [6 marks]



Andie wanted to do a fair test to find out if the colour of a cup had any effect on how fast the water in it would heat up in it when it was left outside on a sunny day.

a) What is Andie trying to find out?

b) Write a list of all the laboratory equipment Andie would need so that she could carry out her fair test.

c) When you are doing fair tests some parts of the test need to be kept the same. What are 4 main things that Andie would need to keep the same?

1
2
3
4

d) What data would Andie use to come to a conclusion?

Question Four [3 marks]

a) Choose a word from the box below to complete each sentence so that it is correct. NOTE that two of the words will not be needed.

Boil	Condense	Freeze	Melt	Settle	Sublime
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i) Liquids _____ to turn into solids.

ii) Solids _____ to turn into liquids.

iii) Liquids _____ to make gases.

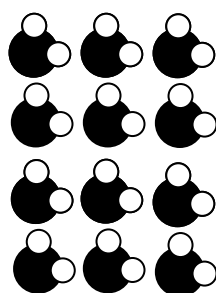
iv) Gases _____ to make liquids.

Water particle H ₂ O



b) Explain what happens to the particles when ice changes to water.

You may find it helpful to complete this diagram as part of your answer

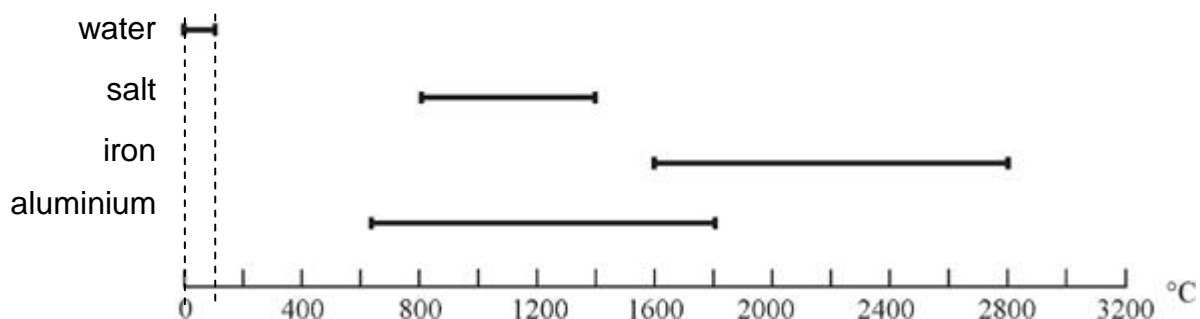


ice

Question Five [3 marks]

Each bar shows the range of temperatures in which the substance is a liquid. Water is a liquid between 0°C and 100°C.

The Liquid Range for Common Substances



Use this table to answer these questions.

- a) Which substance has the highest melting point? _____
- b) Which substance boils at 1400°C? _____
- c) Which substance(s) would be liquid at 1700°C? _____
- d) In which state is iron, at 2900°C? _____
- e) Explain how you worked out the answer to part d).



Question Six [9 marks]

Martin wrote down all the food he ate one day and the energy content of each item. His results are listed below.

Breakfast		Lunch		Dinner	
3 weetbix, milk, sugar	900kJ	2 chicken sandwiches	1200kJ	Jacket potatoes	400 kJ
Cup of coffee	400kJ	Can of Cola	600kJ	Peas	200 kJ
		Apple	250kJ	Meat	1000 kJ
				Corn	400 kJ
				Ice-cream	600 kJ
				Fruit	300 kJ

- a) Calculate how much energy Martin would gain from food at lunch time?

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- b) Is Martin's diet for the day an example of a balanced diet? Why or why not?

- c) A food company carried out laboratory tests on some of its products. The results are recorded below. Fill in the gaps to complete the report.

Product	Food type being tested	Chemicals added	Positive result
(i) Honey		Benedicts solution	
(ii) Bread			Change to a blue-black colour

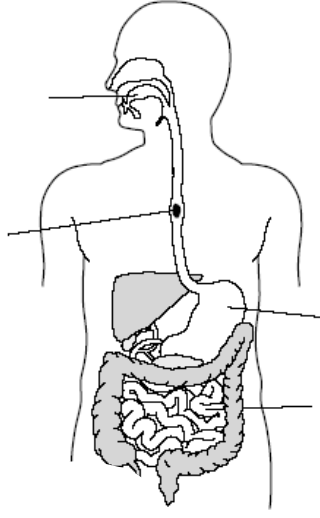
d) Why do we need to eat protein?

e) If you bought a packet of food labelled "Energy food", what food type would it probably contain most of? (Circle answer)

fat fibre protein sugar vitamins

f) When starch is broken down in the digestive system, what is the name of the small nutrient molecule it makes?

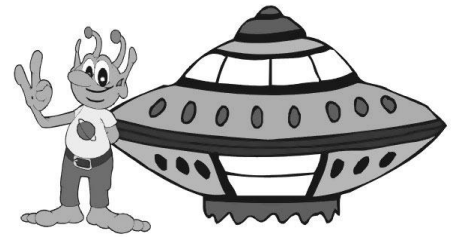
g) You eat a piece of bread (carbohydrate mainly starch). Describe the journey this piece of bread makes as it passes through your body. Include names of the organs it passes through and what happens at each stage. Use some of the words in the box and the unlabelled diagram to help you.

	absorbed anus blood broken down ingestion chew digested enzymes faeces ingestion	food large intestine mechanically mouth rectum small intestine small pieces stomach teeth egestion
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Question Seven [7 marks]

Read this story and answer the questions in it.

I was having my breakfast before going to school, when – CRASH! There in our backyard was an alien getting out of his flying saucer. Not again!! This was the third time this month these disorientated pilots had messed up my lawn; I bet they will ask the same old questions!



“Have I landed on Earth?” enquired this alien.

“Yes you have, and you’ve wrecked the glasshouse.” I said. (I was learning to be direct with these guys.)

“Could you explain to me where planet Earth fits in your solar system?” he asked.

- a) Which two planets does planet Earth fits between in the solar system?

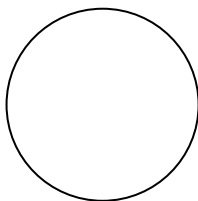
_____ Earth _____

“Well, I had best repair my spacecraft, where I come from we have no darkness, just light all the time.” the alien said.

- b) Explain to the alien how long one Earth day is and how we get light and dark on the Earth. Include a labelled diagram in your answer.

Length of one Earth day :
How we get light & dark on Earth:

Diagram NOT to scale



“Well, I will have to get on with the repair job, won’t I?” The alien looked down at his tool kit, then screeched; “What’s that?” he said as he looked at his shadow.



c) Tell the worried alien why we have shadows. Include a labelled diagram in your answer.

	Diagram

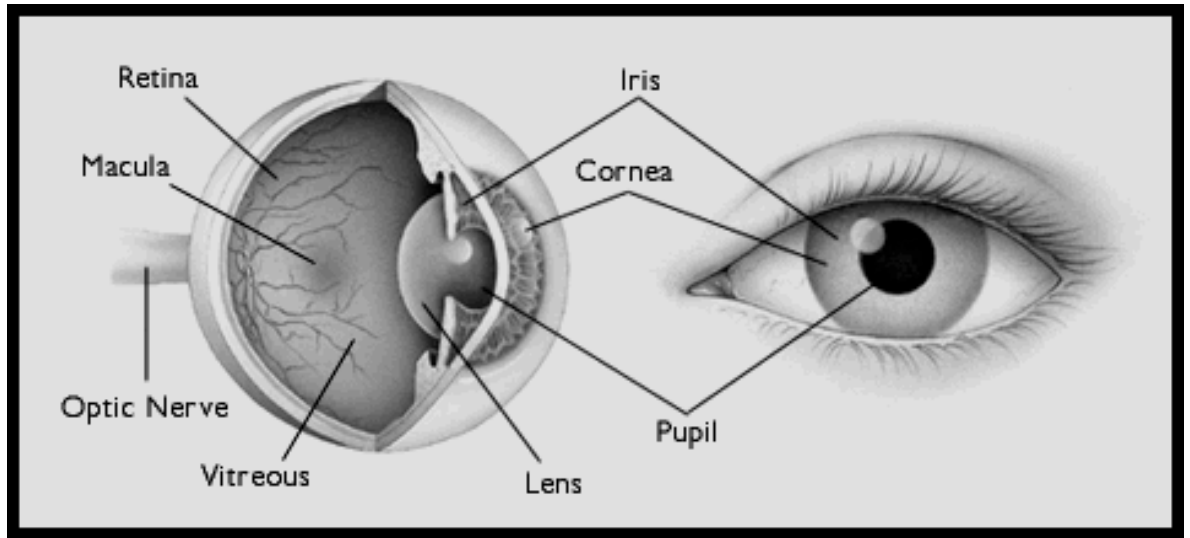
“I must say, that this Earth is nice and warm,” said the alien.

“That’s because we’re in the middle of the season called summer,” I replied, and before he could open his mouth I explained what causes seasons and the weather we get with each one.

d) Explain what it is about the Earth that causes seasons. Refer to the diagram in your answer.

Question Eight [3 marks]

The human eye as shown in the diagram below has several labelled features.



Explain the function (purpose) of:

a) the lens

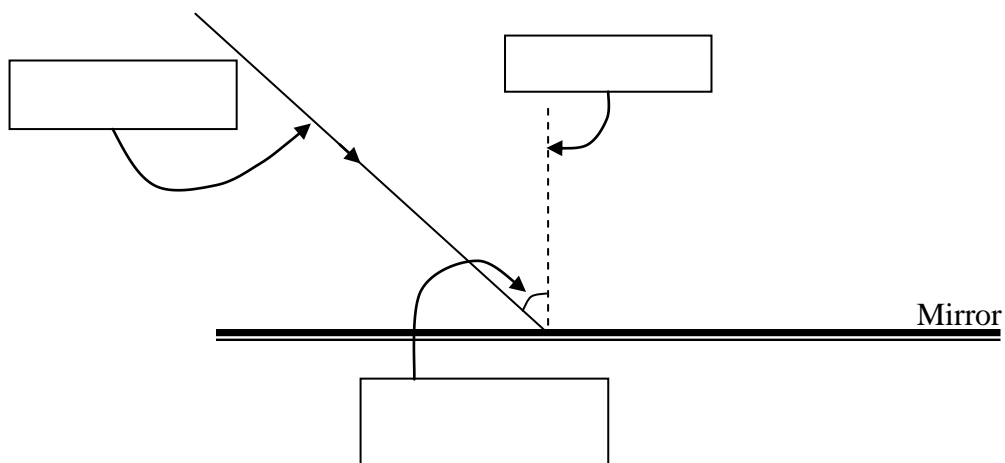
b) the optic nerve

c) the iris

Question Nine [6 marks]

The diagram below shows a ray of light hitting a mirror.

- a) Complete the three empty label boxes.
- b) Draw in the reflected ray and clearly label it.

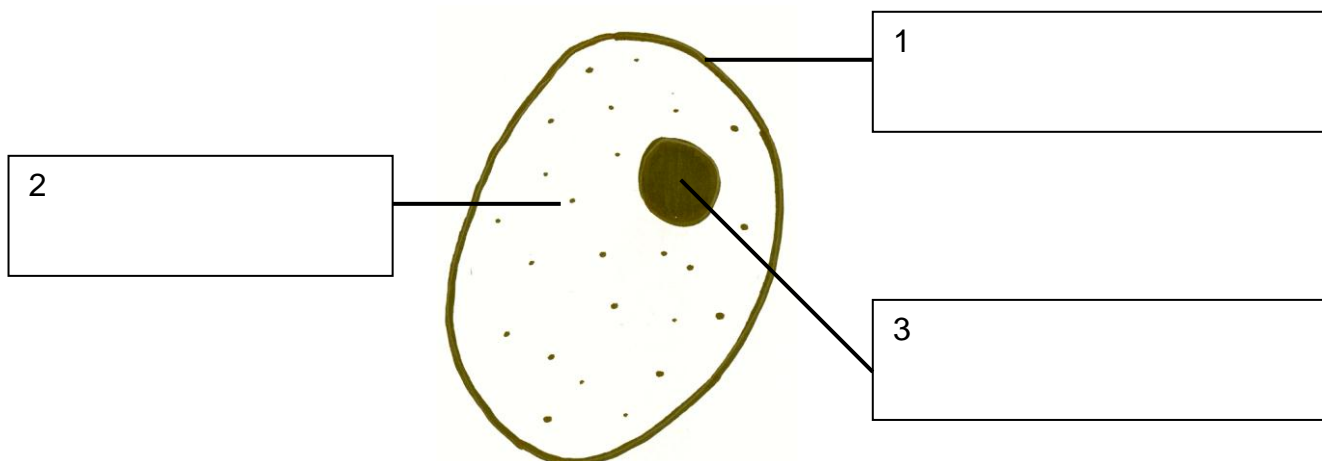


- c) State the law of reflection that helped you to draw in the reflected ray at the correct angle.

- d) Complete the diagram to show how the rabbit would appear in the mirror.

Question Ten [3 marks]

a) On the diagram below name the different parts of the cell.



b) Is this cell a plant cell OR an animal cell? Explain what feature(s) helped you to decide.

Animal / plant (circle correct answer)
Reason:



Question Eleven [3 marks]

A plant has three main parts: the leaves, the stem and the roots.

Describe one main function of each part.

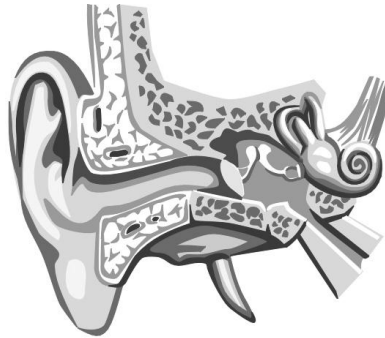
a) The leaves.

b) The stem.

c) The roots.



Question Twelve [4 Marks]



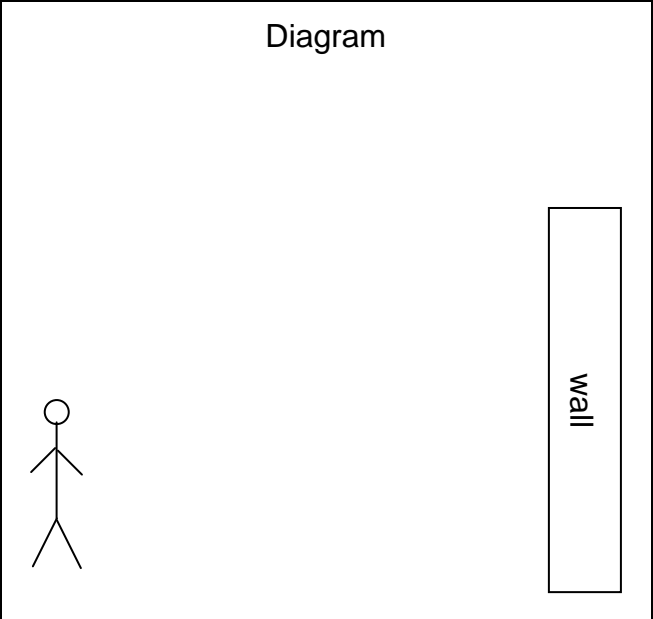
a) The human ear has two main functions. What are they?

1
2

b) What are the units used to measure the volume of sound?

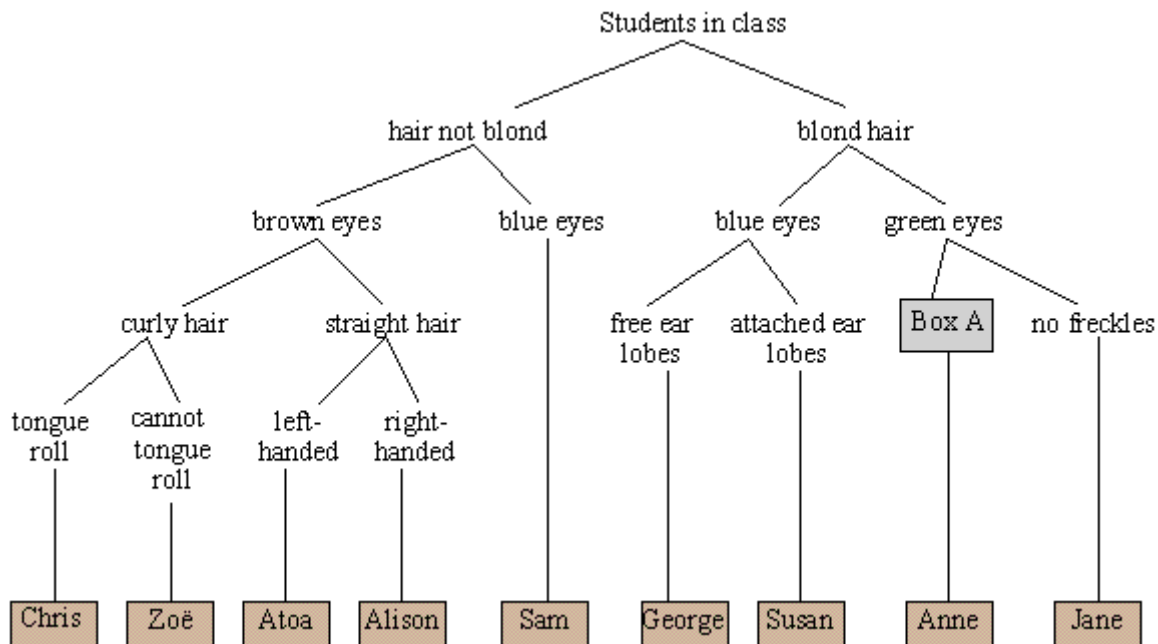
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c) Explain how a person hears an echo. Use a diagram help you explain.

	<p>Diagram</p> 

Question Thirteen [3 marks]

This is a key of some Wanganui High School students and their characteristics.



Use the key to answer the following questions.

- a) What are all Atoa's characteristics as shown in the diagram?

- b) How many students either have blue or green eyes?

- c) Who has curly hair and brown eyes?

- d) What should be written in Box A?

Question Fourteen [5 marks]



a) What are three living things you can see in this photo?

1	2	3
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b) What are two non-living things in this photo?

1	2
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c) List the seven characteristics shown by all living organisms. (Hint: MRSGREN)


1	5
2	6
3	7
4	

Question Fifteen [7 marks]

New Zealand, because of its location and its shape, has a very varied climate from North to South, and from West to East.

a) What is the difference between “climate” and “weather”?

b) Discuss why Wellington ● is known as “Windy Wellington”. You might like to add “geographical features” to the map to help you explain your answer and arrows to show wind directions.

c) What are some of the problems experienced by travellers to Wellington who travel by:

Boat between the islands	
Air	

- d) The Water Cycle (also known as the hydrologic cycle) is the journey water takes as it circulates from the land to the sky and back again in a never-ending cycle.

Condensation happens when the water vapour in the air turns back into a liquid in the sky. When this falls to the ground as rain, hail or snow, the cycle starts again.

Once water reaches the earth, water can soak into the ground. This is known as **infiltration**.

One stage of the cycle is **precipitation**. This is when water falls from the sky as rain, hail or snow.

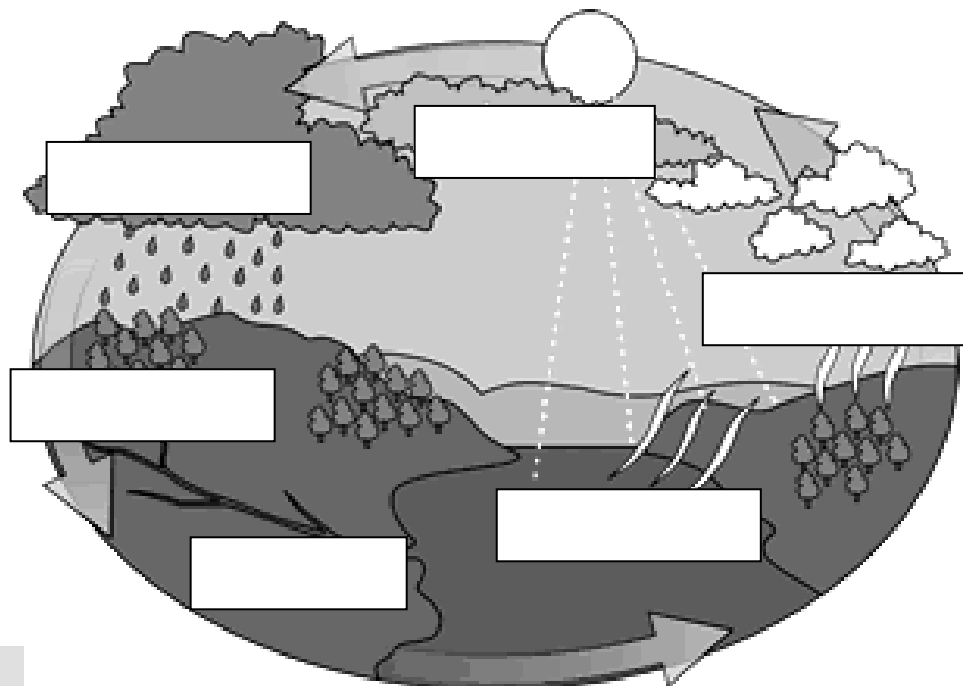
Runoff is the water that does not soak in. It flows into our creeks, rivers, lakes and oceans.

When the sun heats up water in rivers, lakes or the ocean it turns into vapour or steam. This is called **evaporation**. The water vapour or steam leaves the river, lake or ocean and goes into the air.

Plants also release water into the air through their leaves. This is called **transpiration**.

Use the information above to label the Water Cycle.

condensation evaporation infiltration precipitation runoff transpiration



Question Sixteen [5 marks]

You are given 5 statements which are the beginnings of sentences. To each statement you have to add a “middle” and an “end” to form a complete sentence which is correct and makes sense.

The first one is done for you below as an example.

Start	Middle	End
<i>Another problem with coal and oil in particular is that they....</i>	2	X
We are very dependent on fossil fuels in this country...		
Fossil fuels are considered to be non-renewable energy...		
Burning fossil fuels poses significant environmental problems...		
Sulfur dioxide reacts with oxygen and water in the air...		
Higher air temperatures could cause a catastrophic rise in...		

COMPLETE the statements below writing the correct number (middle part) and letter (end part) in each box. You can only use a statement once.

CHOOSE a “middle” part from the list below

Middle parts of sentences

1. resources as they are not being replaced as quickly
2. **contain trace amounts of sulfur**
3. as we are a nation of car owners and we burn
4. because carbon dioxide contributes to global warming
5. sea levels by melting the polar ice caps and causing
6. making dilute sulfuric acid, which falls to earth as

CHOOSE an “end” part from the list below

Endings of sentences

- U...as we are using them up.
- V... coal, oil and gas in power stations.
- W...or the greenhouse effect.
- X...**which reacts with oxygen when it burns, making sulfur dioxide.**
- Y...acid rain, eroding buildings, killing trees, and poisoning fish.
- Z...water in the oceans to expand, causing severe flooding.

There is no need to copy out the middle & end into the boxes – just give the number or letter!

THE END.