

NAME:	SCIENCE TEACHER:	9B
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SCIENCE

YEAR 9 EXAMINATION 2005

Total time allowed for both examinations: 2 hours

(80 marks)

Answer all questions in the spaces provided on the paper.

You may use a calculator.

Show all your working, marks are awarded for it.

Give the units for all answers (e.g. kg or metres) unless they are already provided.

Question.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total	
Mark																			/80

Question 1

- a. Draw the correct symbol that is used to represent the following equipment.

a. Test tube	b. Conical flask	c. Tripod
d. Gauze mat	e. Bunsen burner	f. Evaporating basin

- b. Draw using the correct scientific symbols how you would heat a beaker of water. Don't forget to include labels.

Question 2

Plan a fair test to find out if dissolving salt in water will affect the time it takes for the salt solution to freeze.

Equipment:

Beaker, stopwatch, balance, thermometer, glass rod, freezer, masses of salt (**5 g, 10 g, 15 g**), distilled water and any common equipment that you would have in a science lab.

a. What is the aim of this investigation?

b. What variable will you alter?

c. What will you need to measure to collect some data?

d. What variables will you need to keep the same?

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-
-
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e. Write a step-by-step method of how you would do this investigation (*more space on following page*).

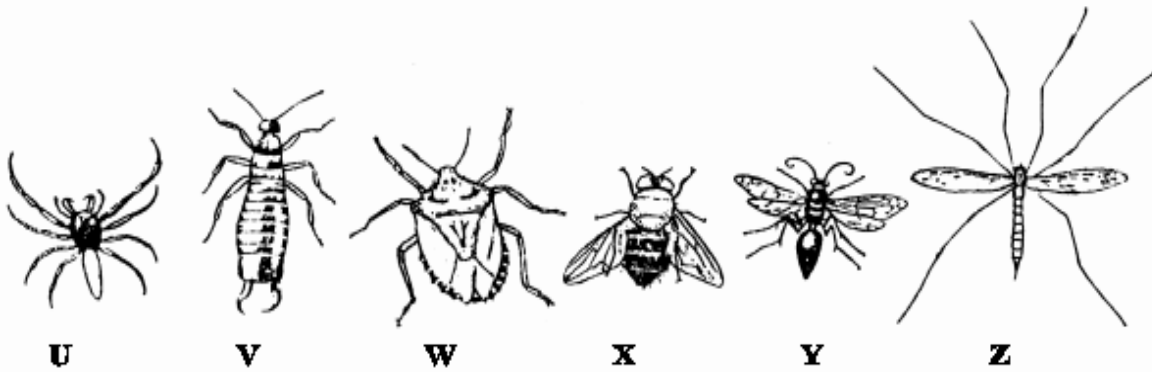
- f. Below are the results that two students collected for this experiment. Calculate the average time it took the salt solution to dissolve and write it in the result table.

Mass of salt in solution (g)	Time for the salt solution to freeze (seconds)			
	Test 1	Test 2	Test 3	Average
5	2330	2475	2461	
10	3000	3003	3009	
15	6063	6033	6012	

Space for working if needed.

- g. Write a conclusion for this investigation.

Question 3.



These are all New Zealand native creatures. Use the identification key below to answer the questions.

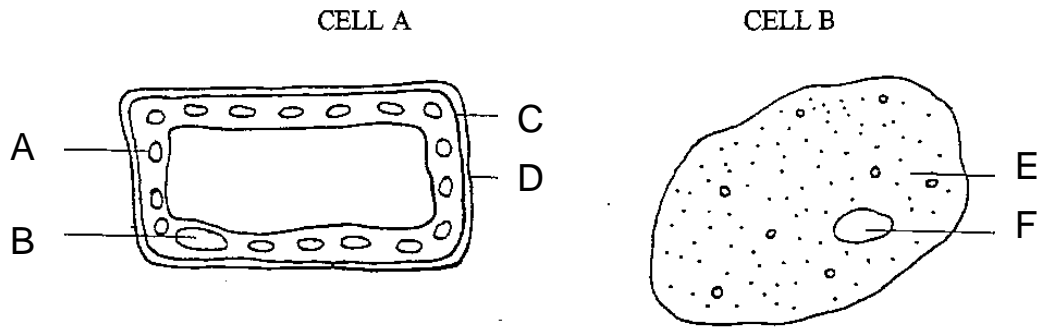
STEP 1	(i) wings (ii) no wings	Go to Step 2 Go to Step 5
STEP 2	(i) wings project sideways (ii) wings do not project sideways	Go to Step 3 Go to Step 4
STEP 3	(i) hind legs extend beyond body (ii) hind legs do not extend beyond body	Cranefly Hunter wasp
STEP 4	(i) wings cover abdomen completely (ii) wings do not cover all of abdomen	Shield-bug Bluebottle
STEP 5	(i) six legs (ii) eight legs	Earwig Leaping spider

- a) What is Creature V? _____
- b) Which creature is a Hunterwasp? _____
- c) **From the key** work out how many creatures have wings. _____
- d) Which creature has wings that cover the whole abdomen and wings that do not project sideways? _____
- e) What are the characteristics of a leaping spider?

Question 4.

- a. Name the parts of the cell using the words from the box below (not all will be needed)

cell wall	nucleus	cytoplasm	comcordia
cell membrane	vacuole	chloroplasts	ectoplasm

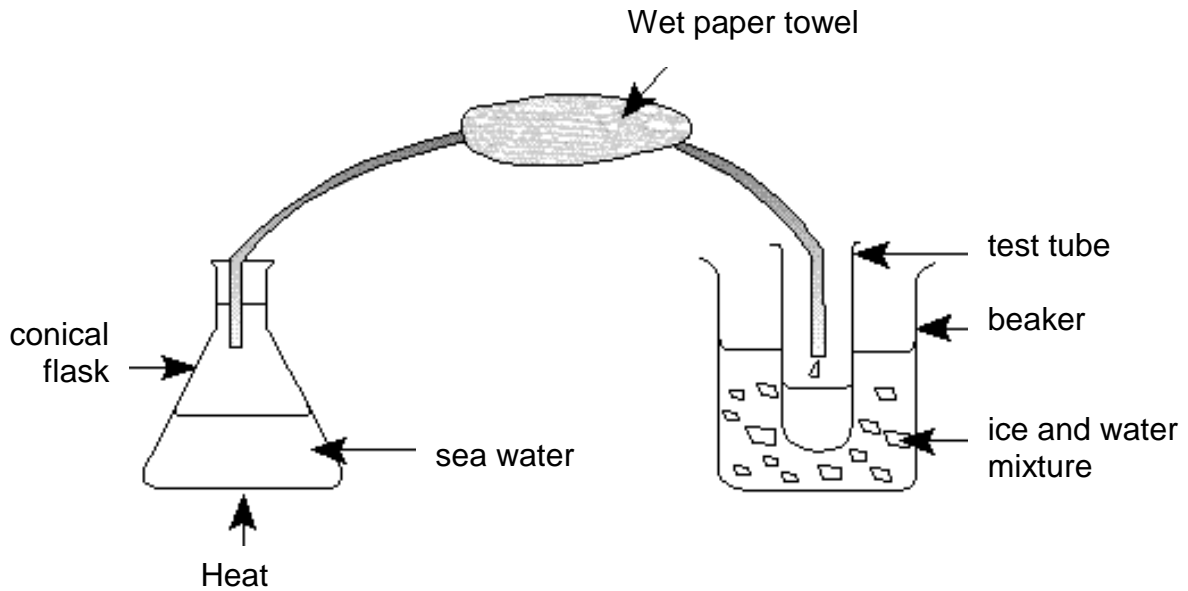


Letter	Name of cell part
A	
B	
C	
D	
E	
F	

- b. Which cell, A or B, is a plant cell? _____
- c. Describe in detail how you would prepare a slide of onion cells ready to be viewed under the microscope. (*You don't have to include details of how to focus the microscope etc*).

Question 5.

Study the diagram below. This experiment was set up to separate the water from sea water.



a. Name the pieces of equipment where the following things are:

- i. pure water _____
- ii. salt is left _____

There are three changes of state (e.g., solid → liquid) occurring in this diagram. What are these changes, and where are they occurring?

Change of state	Where the change is occurring
solid → liquid	

b. This method of separation is called _____

Question 7.

A pupil has used marker pens to write on the laboratory wall. Mr Standley has discovered two pupils with marker pens. He is going to use a technique to find out whose pens were used.

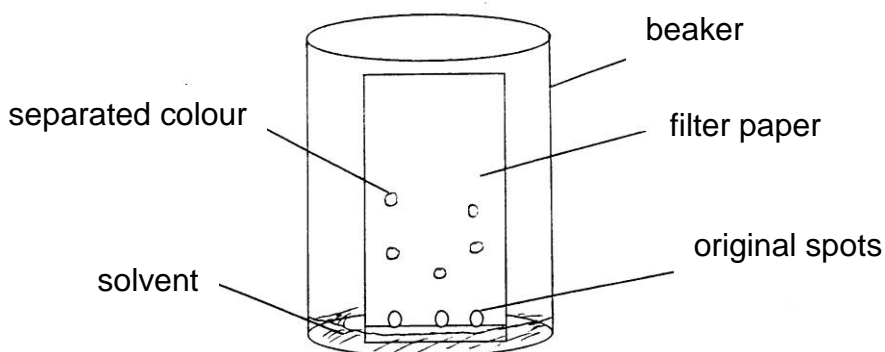
He obtained samples of three coloured inks by wiping the writing on the laboratory wall with cotton wool dipped in different solvents. The table below shows his results.

Solvent	Red ink	Green ink	Blue ink
<i>Water</i>	<i>No effect</i>	<i>No effect</i>	<i>No effect</i>
<i>Meths</i>	<i>Some traces left</i>	<i>Removed the ink</i>	<i>Some traces left</i>
<i>Petrol</i>	<i>Removed the ink</i>	<i>Removed the ink</i>	<i>Removed the ink</i>

a. Which solvent would be the best to investigate the inks? _____

b. Explain why you would choose this solvent?

Mr Standley used this apparatus to separate the dyes in the inks.



c. What is this technique called? _____

Question 8.

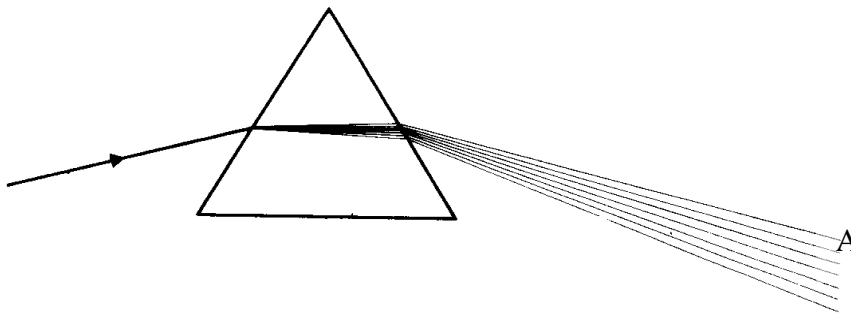
white	dispersion	prism	rainbow
spectrum	refraction	reflection	diffraction

a. Fill in the gaps below using words from the box above.

Sunlight looks white but it is made up of many different colours. If a ray of _____ light passes through a _____, the light splits into a range of colours. The effect is called _____. The colour range is known as a _____. The colours are the same as those that appear in a _____.

This shows that white light is not one colour but a mixture of colours. It also shows that the rays of different colours are bent (_____) by different amounts. So some colours of light change their direction more than other colours.

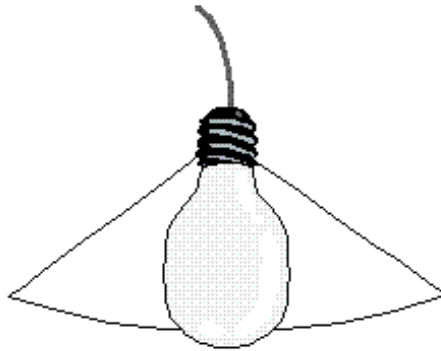
Below is a prism, use this to answer the following questions.



b. What colour is A? _____

c. What colour would be next, after A? _____

Question 9.



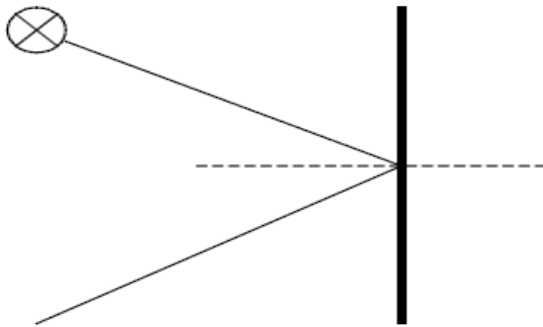
a) Julie's room didn't have a light shade. She bought a white plastic light shade and found that now she had more light for reading. In what two ways does a light shade give more light for reading?

i) _____

ii) _____

b) Why was white the best choice of colour for the light shade?

Question 10.



a) Label the above diagram using the following words

angle of incidence	angle of reflection	normal
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b) Draw arrows on the ray diagram to show the direction of the ray.

c) If the angle of incidence is 30° , what is the angle of reflection? _____

Question 11.

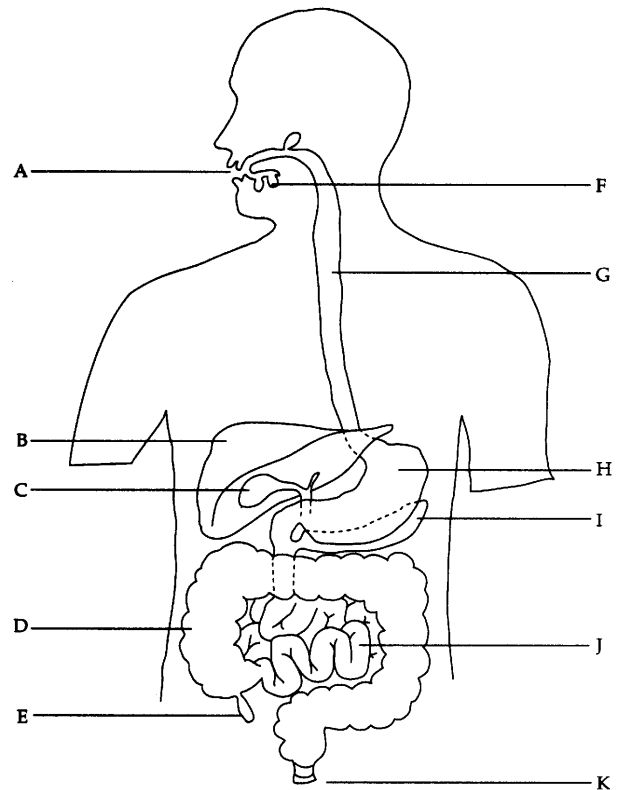
Draw a line to join the words in the first column with those in the second column to give 4 sentences explaining how sound travels.

- | | | |
|-----------------------------|---|--|
| When a bell is hit | • | • through the air |
| The vibrations in the metal | • | • the metal of the bell vibrates |
| The vibrations travel | • | • get to our ears and we will hear the bell ring |
| The vibrations in the air | • | • are passed on to the air round the bell |

Question 12.

a. Use this information to identify A – K, place the letter from the diagram to match the name of the parts in the space below.

- Food enters through the mouth.
- Undigested material leaves through the anus.
- The large intestine is a short fat tube.
- The small intestine is very long and thin.
- The largest organ is the liver.
- The oesophagus is a tube that links the mouth and stomach.
- The appendix – a small branch off the large intestine – may be removed in an operation.
- Salivary glands are on either side of the mouth.



Mouth	Appendix	Gallbladder	Large intestine	Small intestine	Anus	Pancreas	Liver	Oesophagus	Salivary glands	Stomach
		C				I				

b. Testing for food.

Complete this summary of two food tests below:

To test for simple sugars:

To a mixture of food and water add 1 mL of _____ solution and _____ gently over a Bunsen flame. The mixture starts off a _____ colour but if simple sugars are present it will turn _____.

To test for starch:

To a mixture of food and water add 1 mL of _____ solution. If the food contains starch it will turn _____. If there is no starch the food will remain _____ (the colour of the _____ solution).

- c. Andrew tested six foods for protein, simple sugars, starch and fat. Here are his results.

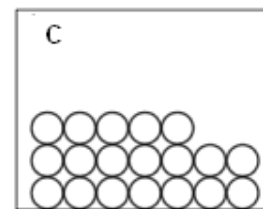
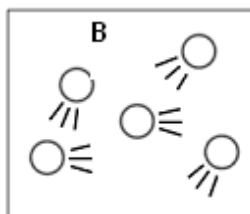
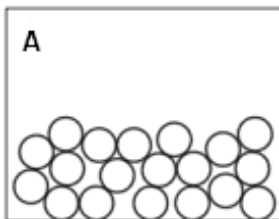
Results of tests on food				
FOOD	PROTEIN	SIMPLE SUGARS	STARCH	FATS
A	✓	x	x	✓
B	x	✓	✓	✓
C	x	x	✓	x
D	✓	✓	x	not tested
E	x	x	x	x
F	x	✓	x	x

Match these food results with the samples. F is done as an example.

orange	yoghurt	lettuce	milk	biscuit	pasta
F					

Question 13.

The three states of matter are represented in the diagrams below.



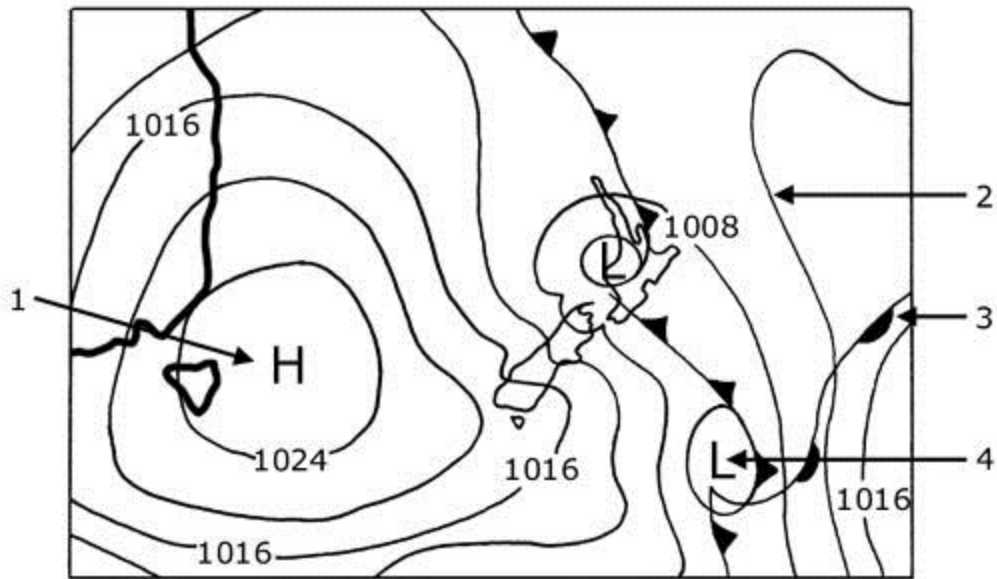
- a. Write down the letter of the diagram that represents.

Solid _____

Gas _____

- b. Name a substance that could be represented by diagram B.

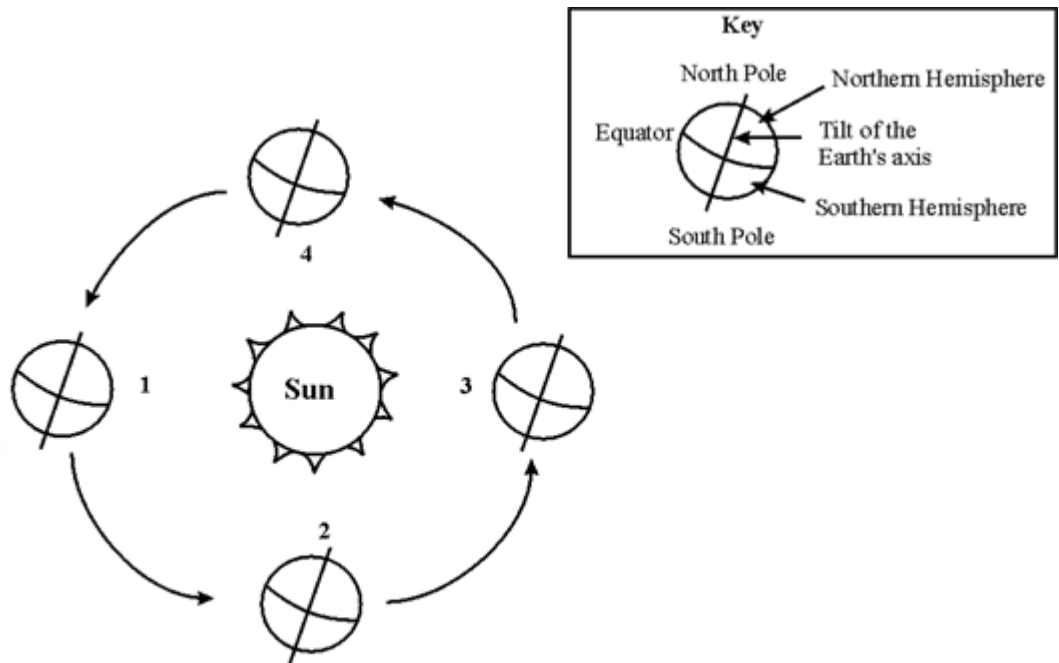
Question 15.



- a. Draw the symbol for a cold front: _____
- b. What does the letter H stand for on the map? _____
- c. What do the numbers (eg 1008 to 1024) on the map refer to



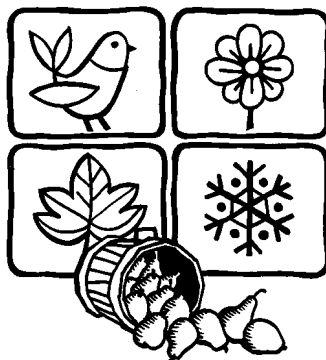
Question 16.



The diagram above shows the position of the Earth for each of the four seasons.

- a. For New Zealand (a country in the Southern Hemisphere), write down the name of the season we would have at each position of the Earth.

Position	Season
1	
2	
3	
4	



Question 17.



On Ninety-Mile Beach sand is blown from the dune area across to fertile farmland. Suggest two acceptable actions that could be taken to slow down or stop this process. For each example state what you would do and what the expected result would be.

a. Action 1: _____

Expected results:

b. Action 2: _____

Expected results:
