NAME: Form Class:	SCIENCE TEACHER: (circle code)	**9A**

SCIENCE

Year 9 Examination 2012

9A – 40 marks

Make sure that you have answered all the questions in paper 9B before you start this paper

Time allowed for both examinations: 2 hours

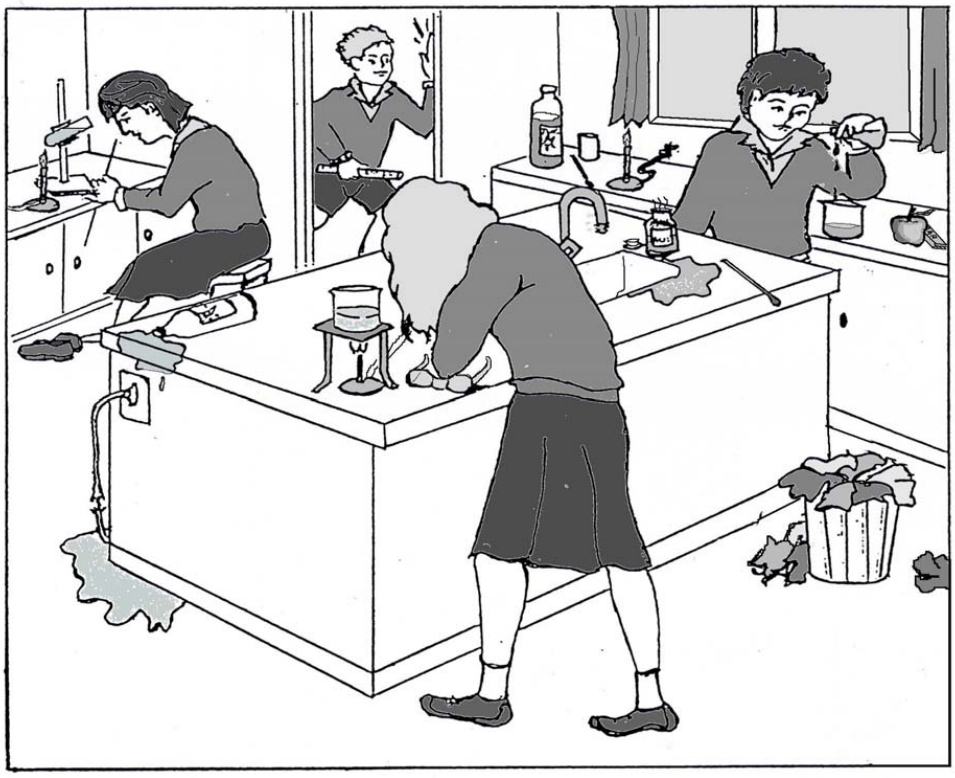
Answer all questions in the spaces provided on the paper.
You may use a calculator.
Show all your working in calculations; marks are awarded for it.
Give units for all answers (eg kg or m) unless they are already provided.

For Teacher Use

Question	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*Total*
Marks gained										
Marks available	*3*	*3*	*6*	*4*	*6*	*5*	*7*	*4*	*2*	***40***

Question One: In the laboratory [3 marks]

Look carefully at the drawing of a science lesson. The students are not carrying out their experiment in a safe way.



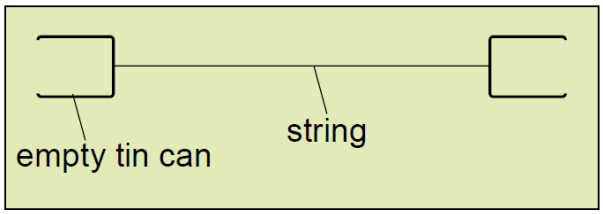
(a) Neatly circle <u>three</u> dangerous things they are doing.

(b) For <u>one</u> thing you circled, explain

(i)why it is NOT safe :
(ii) what the student should do instead:

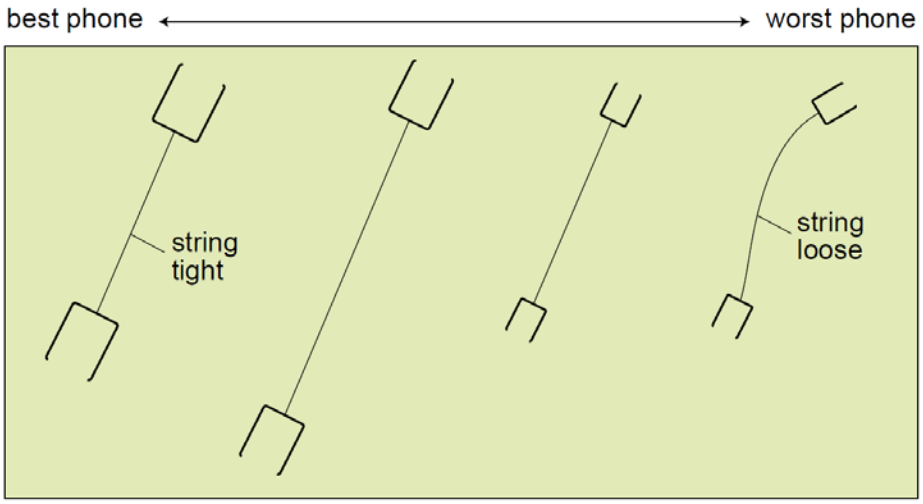
Question Two: Fair testing [3 marks]

Some students made phones from a ball of string and empty tin cans.

One student listened with her ear against this end.		One student spoke with her mouth against this end.

They tested the phones by comparing the loudness of the voice heard at the listening end.

The diagram below shows phones, in order, from best phone to worst phone.



(a) Which 3 variables (things) did the students change?

Variable 1
Variable 2
Variable 3

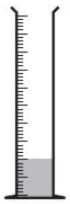
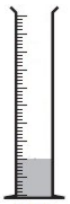
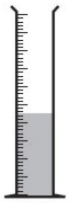
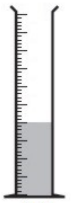
(b) Which phone worked the best? Circle your answer. **1** **2** **3** **4**

(c) Complete the conclusion to show the three best features

The string phone which worked the best had ….
and ..
and..

Question Three: Measurement and graphs [6 marks]

(a) Kelvin makes dough using yeast, flour and water. He wants to find out how much the dough rises. He set up five experiments in 50 mL measuring cylinders at different temperatures. The table shows his results.

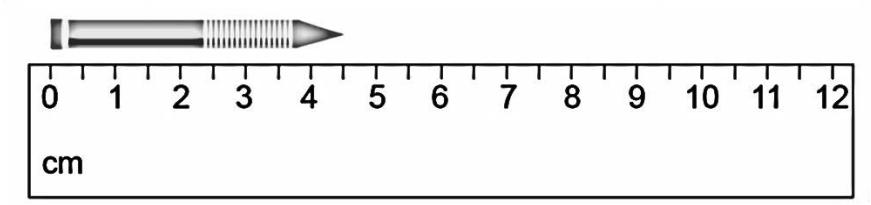
Temperature in °C	20	30	40	50	60
Start volume in mL	 20	 20	 20	 20	 20
Volume after 10 minutes in mL	 25	 45	 65	 40	 20

(i) At which temperature does the dough rise the most?

(ii) What was the increase in volume of the dough at 30°C?

Start volume = 20 mL	Volume at 30°C = 45 mL	Increase in volume at 30°C = _____

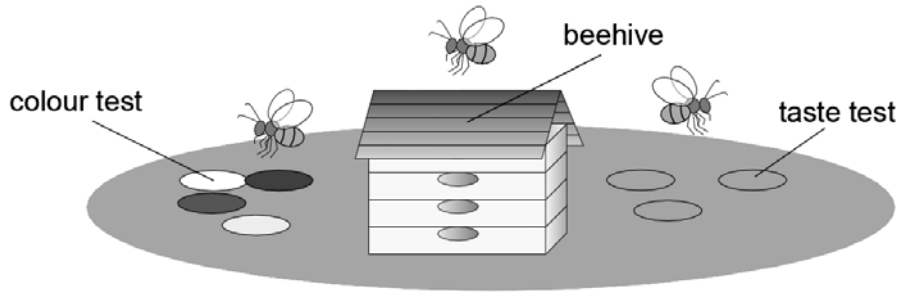
(b) Rick measured a nail as shown in the diagram.



How long is the pencil:

in cm:	in mm:

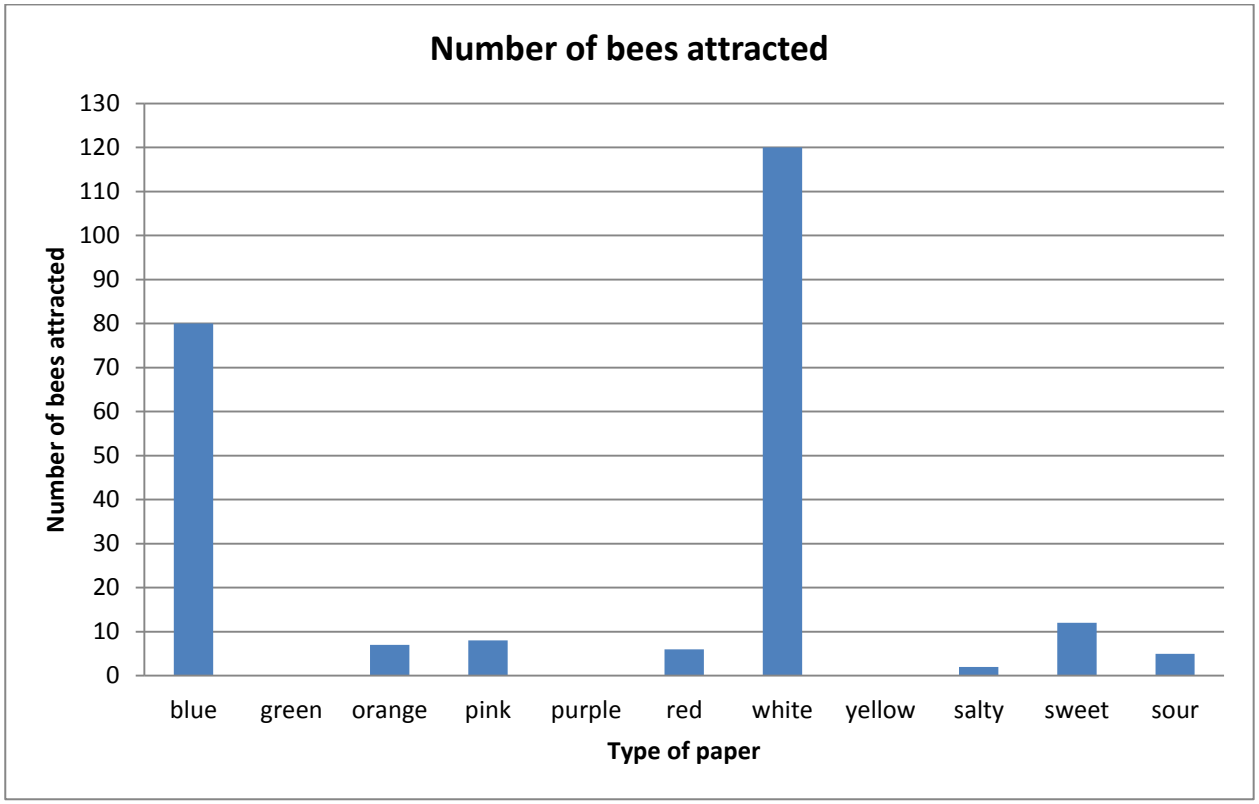
(c) Some students wanted to know what attracts honeybees to flowers.



The students placed circles of coloured paper and circles of brown paper soaked in different solutions (salty, sweet and sour) around a beehive. All the circles were the same size. The number of bees that visited each paper circle is shown in the table.

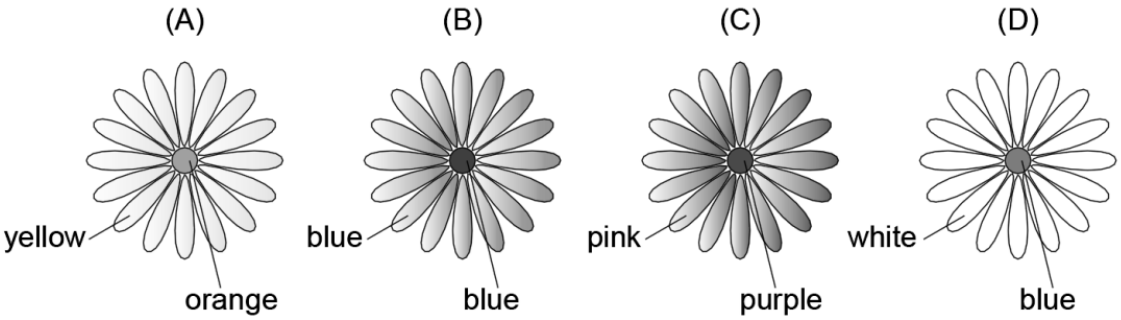
Type of paper	Number of bees attracted
blue	80
green	10
orange	7
pink	8
purple	75
red	6
white	120
yellow	50
salty (salt and water)	2
sweet (sugar and water)	12
sour (lemon juice)	5

(i) Complete the bar chart using the results from the table.



(ii) Complete the conclusion from their experiment by circling the correct statement.
The honey bees were mainly attracted by smell /colour / shape / taste.

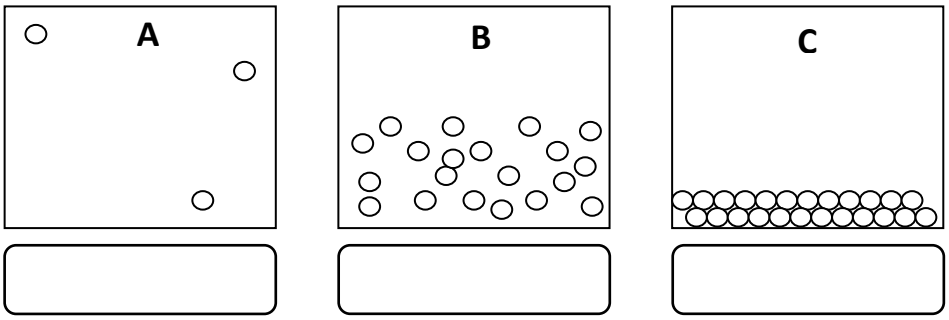
(iii) Which flower would be likely to attract the most bees? Circle your answer.



Question Four: Particles [4 marks]

The three diagrams below shows water in three states of matter.

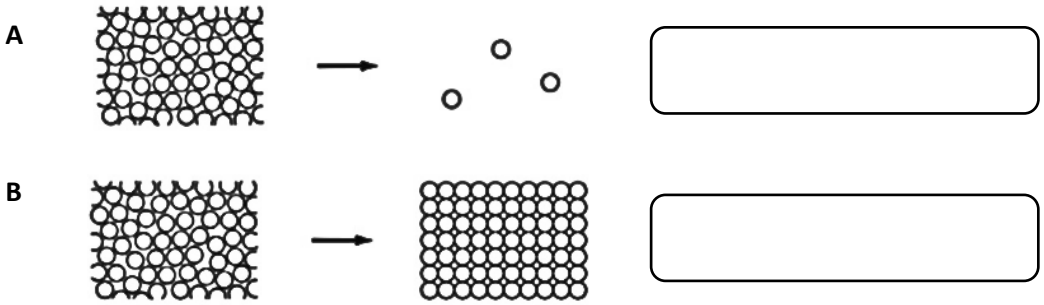
(a) Label the correct diagram for ice, water and steam.



(b) Label each picture to show the state of matter changes.

Choose from:

● solid to liquid ● liquid to solid ● liquid to gas ● gas to liquid ●

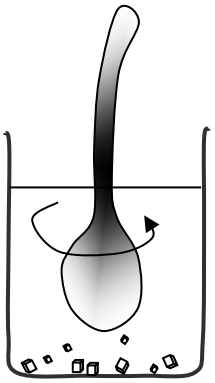


(c) Write the correct phrases into the sentences below. Each sentence requires two phrases. Choose each phrase from the following list. You may use a phrase more than once.

move faster ● slow down ● move closer together ● move further apart

When a gas turns to a liquid the particles..
and

Question Five: Separating [6 marks]



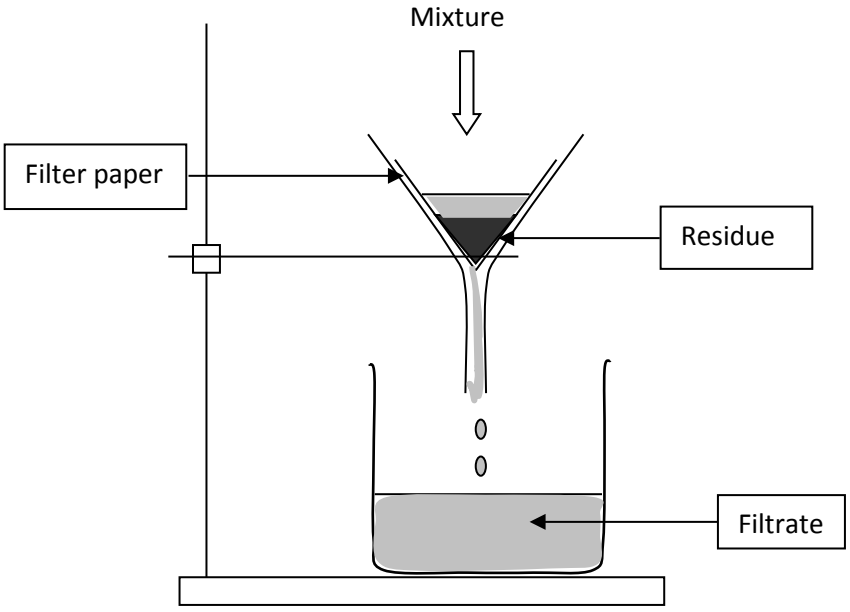
(a) Sugar is dissolving in water as shown in the diagram.

(i) Circle the correct material.

Sugar is the solvent / solute / solution
Water is the solvent / solute / solution

(ii) Explain how you could get sugar crystals back again after they had all dissolved in the water.

(b) A mixture of muddy water is separated by filtration as shown below.



What would you collect as the residue and filtrate?

Residue :	Filtrate :

(c) A mixture of iron filings and yellow sand needs to be separated. How might you do this?

I would use…
It works because …..

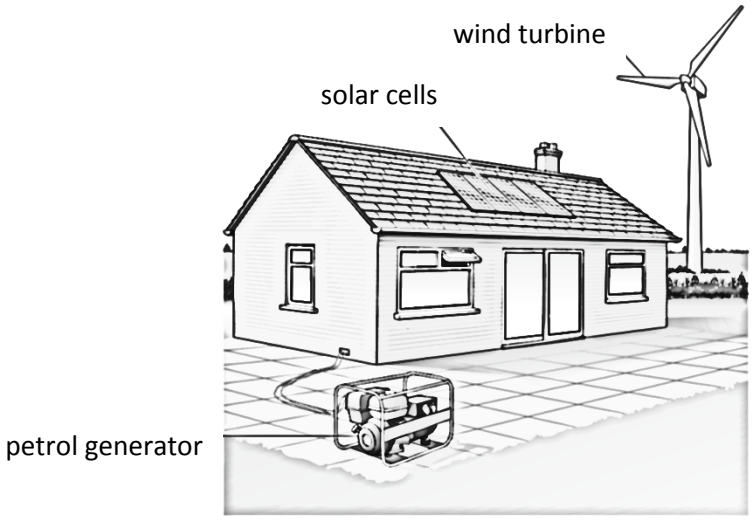
(d) For each of the following mixtures choose the best method of separation from the list given.

filtration ● decanting ● distillation ● sorting

Small stones and water:
Ink and water:

Question Six: Energy resources [5 marks]

(a) Here is a house and three ways of generating electricity.



(i) Draw a straight line from each of the two methods below to the main energy resource used to generate electricity. Draw only two lines.

method	energy resource
	air movement
solar cells	
	chemicals
	sunlight
petrol generator	
	heat

(ii) The solar cells cannot work at night. Explain why not.

(iii) The wind turbine cannot generate electricity all the time. Explain why not.

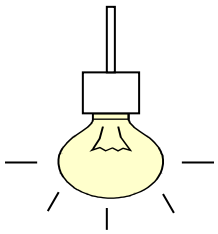
(b) Energy appears in many different forms. Write the energy form in the picture and its changes.

Choose from: heat ● light ● sound ● electrical ● chemical ● movement

(i)

Energy :
Changes to…

(ii)

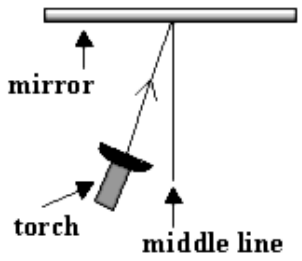


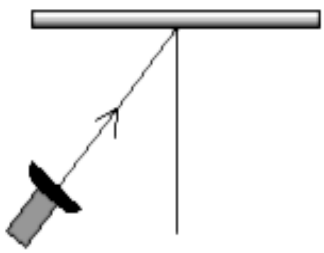
Energy :
Changes to…

Question Seven: Light and shadows [7 marks]

James shone a torch at a mirror.

(a) Complete the two drawings to show what happened to the light ray each time.





(b) Complete the conclusion for his findings. Circle your answer.

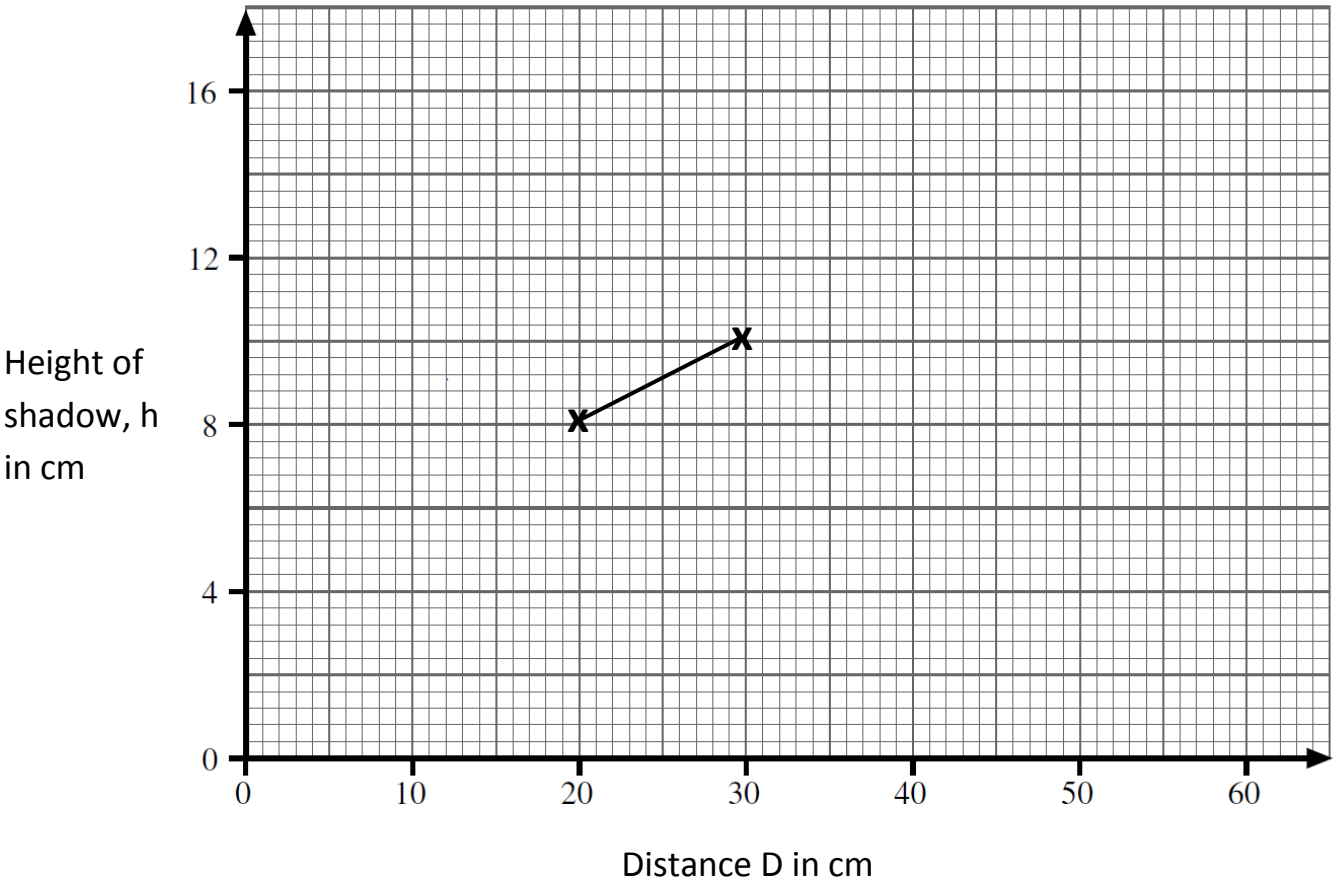
When light hits a mirror it: refracts / reflects / disappears.

(c) A student is carrying out an investigation on shadows.

She puts an opaque (solid) object between a light and a screen. She moves the screen further away from the opaque object (Distance D) and she measures the height of the shadow, (h). Here are her results.

Distance D in cm	20	30	40	50	60
Height of shadow, h in cm	8	10	12	14	11

(i) Complete plotting the results on the grid below. Join the plots with a smooth line. The first two points have been done for you.



(ii) Which value of (h) in the table was incorrect?

cm

(iii) What would you have expected this value of (h) to be? Why?

Expected value:
Reason

(iv) Complete the conclusion for what she found out.

As the screen is moved further away, the shadow (circle your answer) increases / decreases / stays the same size

Question Eight: Food chains [4 marks]

(a) Read the information given in the following chart about some common sea animals.

Marine animal	Feeding behaviour
Killer whales	Eats other whales, seals, salmon and sea birds
Herrings	Eat plankton (tiny plants)
Salmon	Eat herrings

Use it to write a food chain.

→ → →

(b) Complete the table with examples from above to match the definitions.

Key Word	Definition	Example
Producer	Can make its food energy from sunlight.	Tiny plants
Consumer	Has to eat to provide food energy.	
Herbivore	Eats only plants.	
Prey	Is hunted.	

Question Nine: Adaptations [2 marks]

Birds have beaks which are adapted to the way the birds feed.

1 **2** **3** **4**

Match the feeding methods, A, B, C and D, with the birds 1– 4.

A catches fish and carries them inside its lower beak _____

B sucks nectar from deep inside a flower _____

C shovels up the mud at the bottom of water to find food _____

D rips animal prey to pieces _____