

Name: _____

Class: _____

ANSWER ALL QUESTIONS

1. The table shows the pH values of 5 solutions whose labels have been lost.
The questions below are about these solutions



Solution	pH value
A	6.0
B	8.0
C	7.0
D	4.0
E	11.0

- a. Which solutions are acidic? _____ (2 marks)
- b. Soap solution is a weak alkali. Which of the above solutions could be a soap solution?
_____ (1 mark)
- c. (i) Choose 2 solutions that react together to produce a solution with pH 7.
_____ (1 mark)
- (ii) What is this reaction called? _____ (2 marks)
- d. Indicators are chemicals which change colour in acids and alkalis. A student used Universal Indicator to test some of the above solutions. What colour did the student get in the following solutions?

Solution C: _____

Solution D: _____ (2 marks)

2. Soils can be described as acidic, alkaline or neutral, depending on their pH. A table shows which soil types are best for growing different crops.



CROP	SOIL pH RANGE
potatoes	5.5 - 6.0
oats	5.5 - 7.0
wheat	6.0 - 7.5
barley	6.5 - 7.5
sugar beet	6.5 - 8.0

A farmer grows potatoes successfully in a field that has an acidic soil (pH 5.5). The next year he decides to grow sugar beet in the field instead. An agricultural chemist tells him that he should treat the field with lime (calcium oxide) before planting the sugar beet.

- a. (i) Write down the pH of neutral soil. _____ (1 mark)

- (ii) The soil pH is 7.8. Which ONE of the above crops grows best in this type of soil?

(1 mark)

- b. The farmer found that the soil pH in the same field can change. Underline the TWO things which mostly affect the pH of the soil.

wind rain phases of the moon lightning animal waste

(2 marks)

- c. The farmer added lime to the soil. In this case what is lime acting as? Underline the correct answer.

a fertiliser an alkali an acid a weedkiller

(1 mark)

- d. Underline the correct answer. When lime is dissolved in water its pH is likely to be

5 6 7 10

(1 mark)

3. This question is about light and sound.

- a. The start of the sound of thunder and a flash of lightning happen at the same time in the air.

Why do you see the lightning first?

(1 mark)



- b. Sound does not travel through a vacuum. Why?

(2 marks)

- c. The following table shows the speed of sound in different materials. The speed of sound in iron is missing. Which one of the following three values could possibly be the speed of sound in iron? Write your answer in the table below.

1000m/s

5000m/s

250m/s

Material	Speed of sound (m/s)
air	330
iron	
water	1500

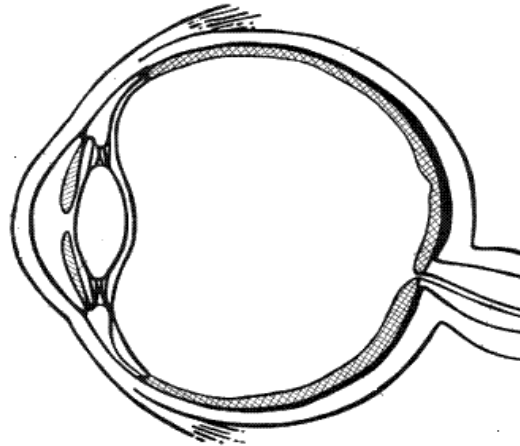
(1 mark)

- d. Use the particle theory to explain why sound travels at different speeds in solids, liquids and gases.

(2 marks)

4. The following is a diagram of the human eye.
- a. Use the following words to label the diagram.

pupil lens retina cornea nerve

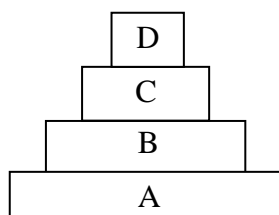


- b. Complete the following sentences: (3 marks)
- On entering a dark room, the pupil _____
 - The retina is the surface on which _____
 - The nerve carries messages to _____

5. This is a food chain from a valley in Malta.

pondweed → insect → frog → hedgehog

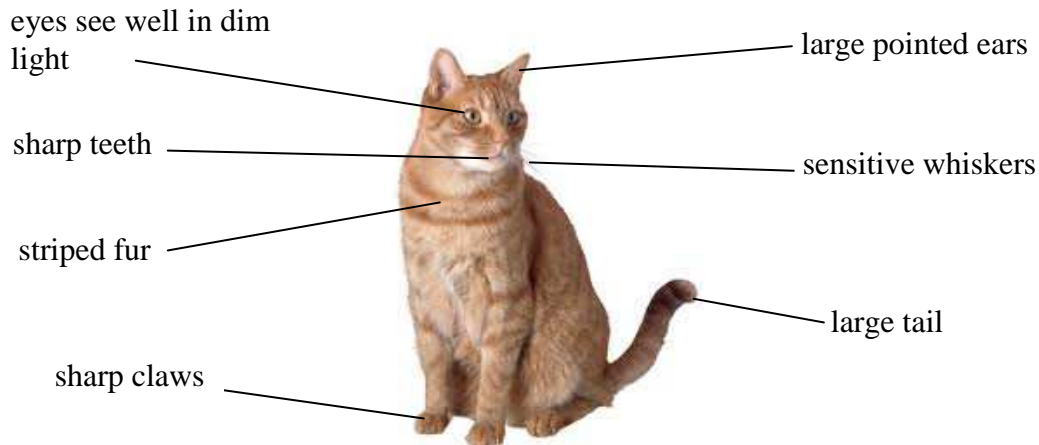
- a. The pondweed plants are the producers in the food chain.
What name is given to all the animals? _____ (1 mark)
- b. Which of the organisms in the food chain is a herbivore?
_____ (1 mark)
- c. From the above food chain name:
- one animal which is a predator _____
 - one animal which is both a predator and a prey _____ (2 marks)
- d. The following diagram is a pyramid of numbers of the given food chain.



Which letter refers to the hedgehog? _____

(1 mark)

6. The picture shows a cat. The cat is a predator which often hunts at night.



- a. The features in the diagram adapt the cat to be a successful predator.
For example: *Its eyes help the cat to see its prey at night.*

Use the above features to give FOUR more examples.

- i. _____
- ii. _____
- iii. _____
- iv. _____

(4 marks)

- b. Cats eat meat. What general name is given to animals that eat meat?

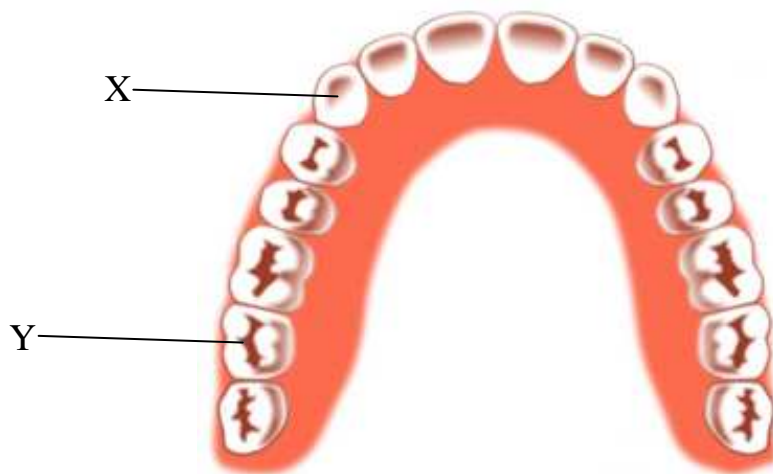
_____ (1 mark)

7. Our body needs food to carry out different activities. Complete the following table. The first one has been done for you.

Food needed for...	Example of food	This food is rich in...
a. running	rice	carbohydrates
b. growing up	meat	
c.		calcium
d. staying healthy	vegetables	
e.		fibre

(6 marks)

8. This is a diagram of an adult's set of teeth. An adult has four different types of teeth.



- a. What is the name and function of teeth X and Y?

X: name: _____
function: _____

Y: name: _____
function: _____

(4 marks)

- b. How do teeth help the process of digestion? Give one answer.

(2 marks)

- c. Describe how tooth decay takes place. The following words might help you.

- food, plaque, bacteria, cavity, acid -

(2 marks)

- d. How does toothpaste prevent tooth decay?

(2 marks)

9. Parachutes are designed to fall slowly through the air.
- a. On the drawing of the parachute, use arrows to show the size and direction of the **force of gravity** and the **force of air resistance** as it moves down at a constant speed. Label the force of gravity as W and the force of air resistance as R. (Note that the length of the arrows represents the size of the forces.)
- (2 marks)



- b. Some students did an investigation to find out if the surface area of the parachute affected the time it took to reach the ground. They made four different parachutes from the same material and dropped them from the same height in the school hall.
- i. Was this a fair test? _____ (1 mark)
- ii. In the following table write down the order in which the parachutes will reach the ground. (4 marks)

Surface area of parachute	Order (1 st , 2 nd , 3 rd , 4 th)
400 cm ²	
200 cm ²	
1200 cm ²	
800 cm ²	

10. Steve was investigating friction. He measured how much force was needed to move his shoe moving on different surfaces.

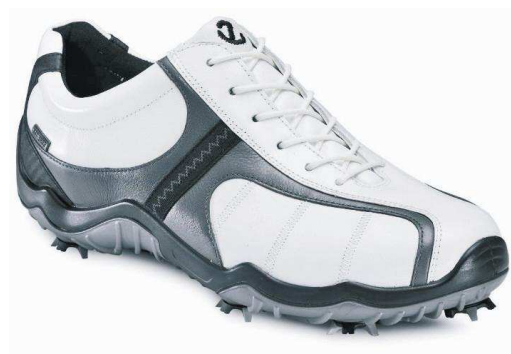
a. Which instrument did Steve use to measure the force?

(1 mark)

b. These are his results. **Write a heading for each column.**

(2 marks)

Ceramic tiles	1.2N
Carpet	5.0N
Concrete	2.5N
Grass	4.8N



c. Which surface offered the most friction?

(1 mark)

d. i. On which of these surfaces do most accidents in the home occur? _____

ii. Give a reason for your answer.

(1,2 marks)



11. Read this paragraph and then answer the following questions.

Daniela is camping. She makes a wood fire to cook her food. Before Daniela goes to sleep, she pours water on the fire to put it out. In the morning, all that is left is a pile of ash. She has to collect more wood to cook food for breakfast.



a. Is the burning of wood a physical or a chemical change? _____

Give a reason for your answer. _____

(2 marks)

b. Fill in the blanks:

During burning, wood reacts with the _____ of the _____
produces a number of gases, for example _____.
burning, compounds called _____ are produced.

(3 marks)

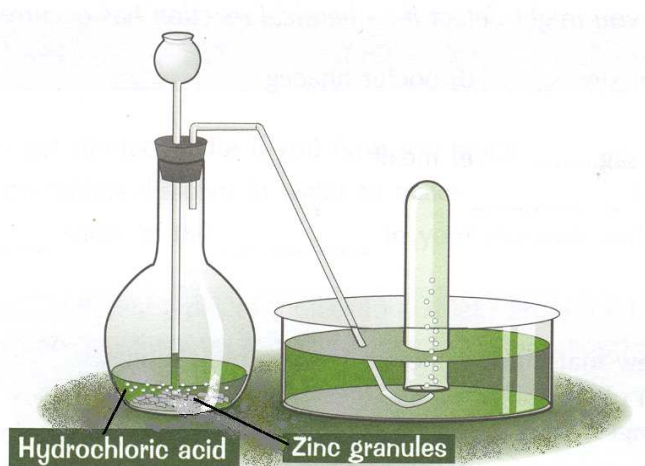
c. Why do you think that pouring water on the fire makes it go out?

(1 mark)

d. How does the fire triangle help in the putting out of fires?

(2 marks)

12. Kate's teacher has made and collected some hydrogen gas as shown in the picture.



a. Write down TWO changes that Kate should SEE during the reaction.

(2 marks)

b. Describe how Kate's teacher should test the gas collected to show that it is hydrogen.

(2 marks)

- c. Fill in the blanks in the paragraph below. Choose words from the following list: **reaction, graphite, zinc, air, hydrogen, corrosive, disappears, appears, bubbles**

When an acid is added to many metals such as _____ the gas
produced is _____. In this type of chemical
_____, the piece of metal _____ or becomes
smaller. This is because acids are _____.

(5 marks)

13. This question is about the Sun, the planets and the Moon.

- a. Write down TWO differences between the Sun and the Moon. Put your answers in the following table.

The Sun	The Moon

(2 marks)

- b. How long does it take for the Moon to make ONE orbit round the Earth?

_____ (1 mark)

- c. There are 8 planets orbiting the Sun. Name THREE of them and give TWO facts about each. An example has been done for you.

PLANET	TWO FACTS
Venus	It is made of rocks. It is the hottest planet.

(6 marks)

14. The Earth spins on its axis.

a. Draw the axis on this diagram. (1 mark)

b. How long does it take the Earth to make ONE rotation on its axis?

_____ (1 mark)

c. The Earth goes round its axis at a speed of 1674km per hour. What will happen if this speed increases?

_____ (1 mark)

d. How long does it take for the EARTH to make ONE orbit round the SUN?

_____ (1 mark)

e. The axis is tilted and this produces the different seasons throughout the year. What would happen to the seasons if the axis of the Earth were not tilted?

_____ (1 mark)

f. Underline the correct answer:

The Earth's rotation on its axis produces

summer and winter

the phases of the Moon

day and night

solar and lunar eclipses

(1 mark)

- End of paper. Please check your work again -

