

Annual Examinations for Middle Schools 2022

YEAR 8

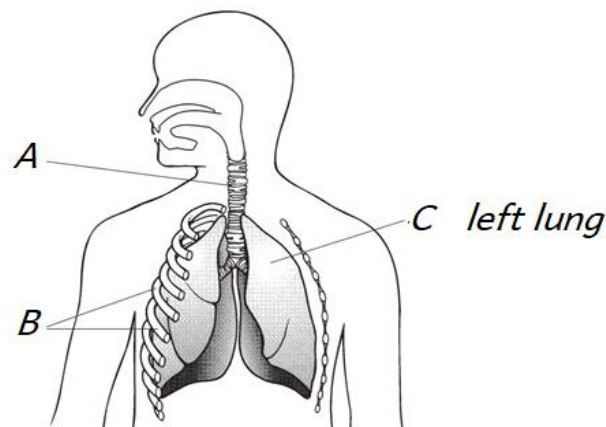
INTEGRATED SCIENCE

TIME: 1h 30min

Name: _____

Class: _____

1. The diagram shows an organ system in the human body.



a. Name the body system shown in this diagram. _____ (1)

b. Name the parts labelled

i. A: _____

ii. B: _____ (2)

c. Name the function of part B. _____ (1)

d. Name the unwanted gas that is exhaled through this system.

_____ (1)

e. Mark is using a sanding machine on a piece of wood, while wearing a mask to prevent breathing in harmful particles. The mask has tiny holes in it. When Mark breathes in, the mask separates the particles of sawdust from the air. Name this method of separation.



_____ (1)

f. At the door of his workshop, Mark attached the sticker shown on the right.



- i. Mark is not a smoker. How would smoking clients affect him?

 _____ (1)

- ii. Name **two** chemicals in cigarette smoke and explain why they are harmful to the body.

Chemical: _____

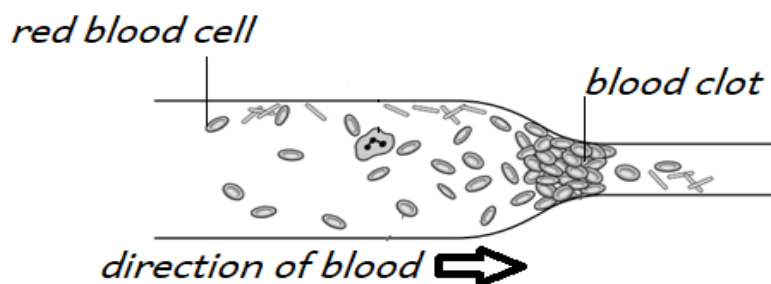
Harmful effect : _____ (1,1)

Chemical: _____

Harmful effect : _____ (1,1)

(Total: 11 marks)

2. The diagram below shows a patient's blood vessel. Blood vessels carry blood to different parts of the body.



- a. Name the organ that pumps blood around the body.

_____ (1)

- b. On the diagram, label a white blood cell.

(1)

- c. Explain the importance of white blood cells in our bloodstream.

_____ (1)

- d. The patient was sent to hospital due to the presence of a blood clot. Explain how this blood clot was causing damage to the patient's organs.

 _____ (1)

- e. Name **two** ways how a person can conduct a healthy lifestyle and prevent formation of blood clots.

 _____ (2)

f. Whilst walking around, this patient cut his foot. Luckily, a scab quickly formed over the cut.

i. Which blood component helped the scab to form? _____ (1)

ii. Give **one** reason why the formation of a scab is important.

_____ (1)

iii. Name **one** other natural way the body uses to prevent diseases.

_____ (1)

(Total: 9 marks)

3. During a fieldwork trip, students came across a chameleon. The chameleon was introduced in Malta around 150 years ago.



a. Which word/s describe/s an animal which was introduced in a natural environment in which it is not normally found?

_____ (1)

b. Name **one** adaptation which helps the chameleon to survive.

_____ (1)

c. Identify **one** example **each** of a positive and a negative human behaviour, which has an impact on chameleon population in Malta.

positive: _____

_____ (1)

negative: _____

_____ (1)

d. Chameleons may be found to be more common in a nature reserve.

i. Give an example of a nature reserve in Malta.

_____ (1)

ii. What is the importance of nature reserves?

_____ (1)

(Total: 6 marks)

4. Different metals have important properties that make them suitable for different purposes.

a. Match each metal with its use and suitable property. (6)

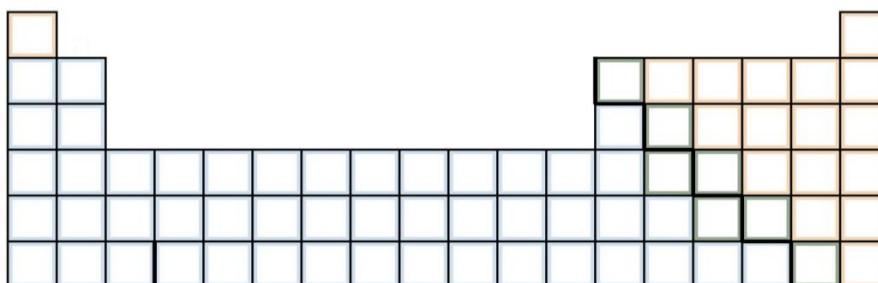
Metal	Use	Property
Aluminium	To make bridges	Shiny and does not react with air
Gold	To make ladders	Easy to shape and it is lightweight.
Iron	Jewellery	Strong, malleable, and cheap

- b. An electrical wire is made from copper, wrapped in plastic. Circle one property of copper that makes it suitable for this purpose. (1)

It is shiny.	It does not rust.	It is a good conductor of electricity.
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- c. What is the function of plastic surrounding the wire? (1)

- d. Metals can be found in the periodic table of elements. On the diagram below, shade the part of the periodic table that contains metals. (1)



- e. The list below shows non-metals in the periodic table. Choose any **two** and write their symbol. (2)

Oxygen	Nitrogen	Chlorine	Carbon	Sulfur

- f. Copper sulfate is not found in the periodic table. Give a reason for this. (1)

(Total: 12 marks)

5. The police are investigating a car accident. A car ran over an old person, hit a tree and drove away at a high speed. The forensic scientists came to collect any evidence.

a. Tick (✓) the clues which might be useful.

- i. The tyre marks on the ground.
- ii. The direction of the wind on that day.
- iii. Yellow paint found on the tree trunk.
- iv. The name of the place.
- v. The age of the old person.

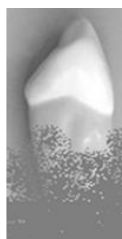
☐
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(2)

The police managed to find the car used in the accident. They found clues which may be related to this accident. The forensic scientists found one fingerprint, some hair strands, a half-bitten apple and a broken tooth. It seems that the driver lost this tooth during the accident.



strands of hair



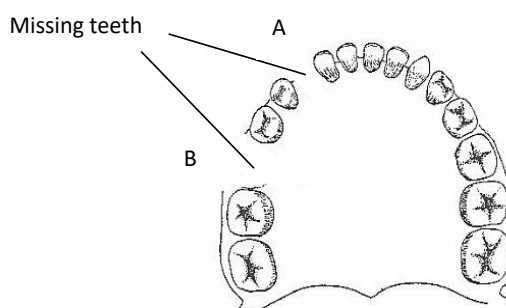
tooth



fingerprint

b. The bite marks on the apple found on the car seat indicate that the driver has two missing teeth.

- i. Name the four types of teeth we find in the human mouth.



(4)

- ii. Is the broken tooth shown in the diagram (see question 'a') likely to be tooth A or tooth B? _____.

Name this tooth. _____.

What is the function of this tooth? _____ (3)

- c. The forensic experts observed closely the tyre marks on the ground. These marks give an indication of the conditions of the tyres and the distance taken by the car to stop.

- i. What is the force between the tyres and the ground called?

_____ (1)

- ii. The photo shows a new tyre and an overused tyre. Explain the danger of using an overused tyre.

_____ (1)



- d. The diagram shows the details of four suspects.

SUSPECTS			
			
Andy—age 32	Blake—age 29	Carlston—age 27	Deborah—age 35
			

- i. Which piece of evidence suggests that Carlston may not be involved in the crime?

_____ (1)

- ii. From the evidence collected, identify which of the four suspects is responsible for the crime.

_____ (1)

(Total: 13 marks)

6. Charles is the owner of a scrapyard. He has been warned a number of times to clear up the mess as the waste is not sorted out. There are all sorts of wastes some of which are flammable and toxic.



a. Describe how his scrapyard may be a source of:

i. air pollution.

(1)

ii. water pollution.

(1)

b. The three R's are the basis of efficient waste management. As from January 2022, single-use plastics such as cups cannot be sold anymore in Malta. This REDUCES the amount of waste produced. Identify whether the following practices are examples of the other two R's namely, REUSE and RECYCLE.

	Reuse or Recycle
i. An old shoe box is used to store small toys in it.	
ii. Waste is sorted in separate bins.	
iii. Buying second-hand items from garage sales or charity shops.	
iv. A large number of used plastic bottles are collected to make a large Christmas tree.	
v. Used plastic bottles are used to produce new plastic items.	

(5)

c. The local toys company redesigned the package in which its toys are produced. The new package is made up of less plastic and paper material.

Underline the correct answer:

This is an example of [Reduce / Reuse / Recycle].

(1)

(Total: 8 marks)

7. You can often see carved limestone sculptures high up on old churches and other buildings. It is well known that acid rain damages limestone. The diagram shows a sculpture damaged by acid rain.



Answer the following questions.

- a. Underline the correct answer:

Normal rain is (slightly acidic / neutral / slightly alkaline). (1)

- b. How does acid rain damage limestone?

_____ (1)

- c. When sulfur dioxide combines with water, it forms sulfuric acid, which is the main component of acid rain. Name **one** possible source of sulfur dioxide.

_____ (1)

- d. Name **two** things which can be done to reduce acid rain.

_____ (2)

- e. Air pollution is one of the main reasons behind global warming leading to climate change. Which of the following may happen because of climate change?

Tick (✓) the correct answers.

☐ There will be an increase in the average air temperature.

☐ The sea level will go down.

☐ There will be longer days.

☐ There will be a change in rain patterns.

☐ There will be more volcanic eruptions.

(2)

(Total: 7 marks)

8. A family is watching a fireworks display.

- a. The steps below show what happens in their eyes to see the fireworks. Put the steps in the correct order.



The first one has been done for you.

The optic nerve takes the signal to the brain.	
Light goes through the lens .	
Light passes through the opening (the pupil) in the iris.	
Light rays are focused on the retina .	
Here an inverted image is formed.	
Light enters the eye through the cornea .	1

(5)

- b. The fireworks display is some distance away from the position of the family. The children noted that they are seeing the fireworks before hearing the sounds from the fireworks. Explain why this happens.

(1)

- c. One family member walked round the corner to buy a drink. The fireworks display became covered by a very tall building. Explain why he could not see the fireworks even though he could hear the sound.

(1)

- d. Some people complain about the loud noise produced by the fireworks. Complete: The level of noise may be measured by a sound meter. Loudness is measured in units called _____

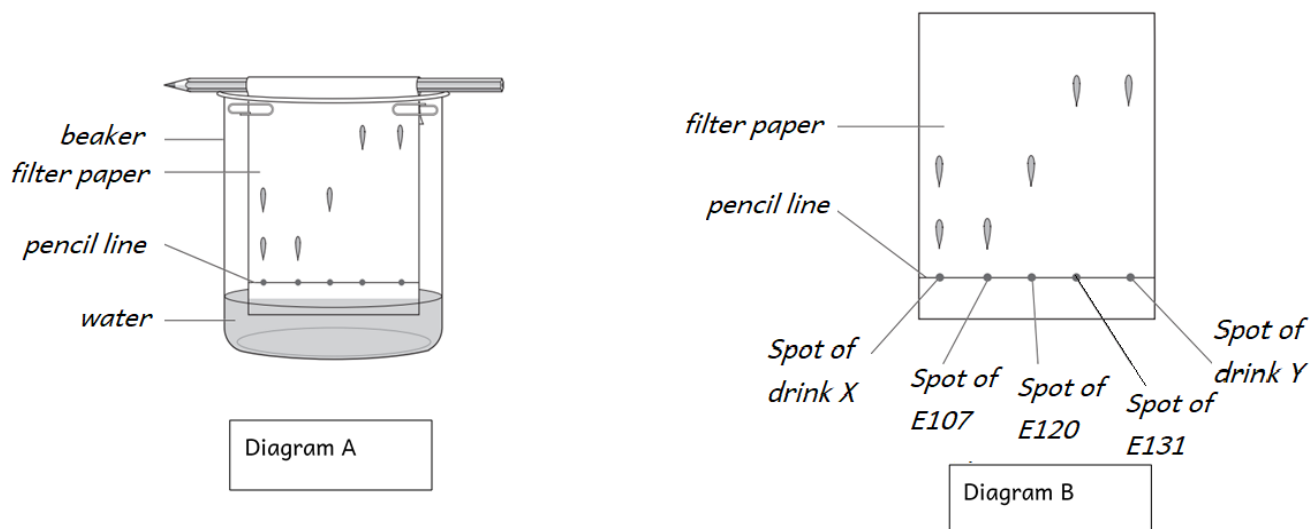
(1)

- e. State **two** ways how sound can damage a person's ears.

(2)

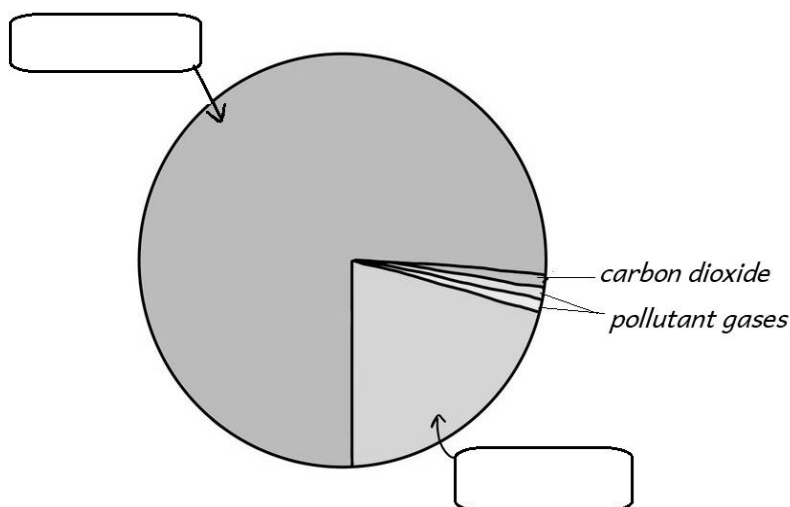
(Total: 10 marks)

9. Justine had two orange drinks X and Y. She used a separating method shown in Diagram A to study the different food colourings (E107, E120 and E131) added to these drinks. Her result is shown in Diagram B.



- Name the separating method used by Justine. _____ (1)
 - Name the drink which contains more than 1 food colouring. _____ (1)
Name these food colourings. _____ and _____ (2)
 - Draw another spot on Diagram B to show how it would look, if Drink Y contained the food colouring E120. (1)
 - Which food colouring is most soluble in water? _____ (1)
 - Give a reason for your answer. _____ (1)
 - The line on the filter paper on which drink samples were dropped, is drawn in pencil. Explain why this line is not drawn in ink. _____ (1)
- (Total: 8 marks)

10. a. Air is a mixture of gases. On the pie chart, label the sections representing Nitrogen and Oxygen gases. (2)



b. Name a method suitable to separate the mixtures below:

i. Iron filings and Sulfur: _____

ii. Red, green and yellow seeds: _____ (2)

(Total: 4 marks)

11. The Earth spins on its axis.



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

b. How long does it take the Earth to take **one** rotation on its axis?

_____ (1)

c. The Earth goes round its axis at a speed of 1674km per hour. What will happen if this speed increases? Tick (✓) the correct answer.

☐ Years will be longer.

☐ Days will be longer.

☐ Days will be shorter.

(1)

d. 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 was not tilted?

_____ (1)

e. Underline the correct answer: The Earth's rotation on its axis produces

i. summer and winter

ii. the phases of the Moon

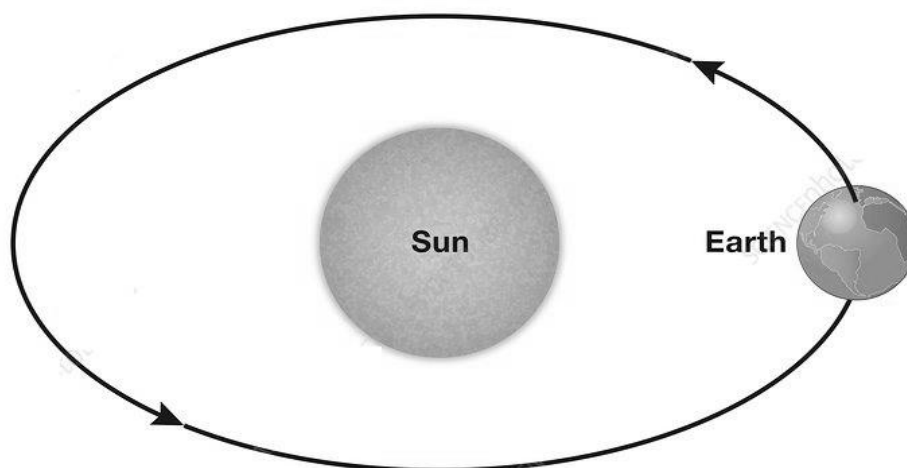
iii. day and night

iv. solar and lunar eclipses

(1)

(Total: 5 marks)

12. a. The following diagram shows the Earth in orbit around the Sun.



i. How long does the Earth take to orbit the Sun once? _____ (1)

ii. On the diagram, draw the position of the Earth nine months later than shown. (1)

b. The Solar System is made up of the Sun and several planets orbiting it.

i. Name **two** planets in the Solar System that are further away from the Sun than the Earth is.

_____ (2)

ii. Name the force which keeps all things in orbit.

_____ (1)

iii. What happens to this force as the mass of the planet increases?

_____ (1)

c. Some countries invest a lot of money in space exploration. Name **one** benefit of space exploration to humans.

_____ (1)

(Total: 7 marks)



[Note: If you have missed this year's fieldwork trip, ask the invigilator for the fieldwork written paper.]

End of paper. Check your work again.