

Oisín Argand 1st Year Armstrong Ms. Keating's Science Class

Summary questions

1. Copy and complete the following table, which outlines the seven characteristics of life:

Characteristic	Definition
Excretion	Removing waste made in cells from the organism
Reproduction	Creating a new organism
Growth	Increasing in size when new cells are made or when cells become larger
Sensitivity	Reacting to changes in the environment
Respiration	The use of energy
Movement	Changing position to find food, escape danger or absorb sunlight
Nutrition	Getting the needed nutrients to survive

2. What is a cell? A building block of life made up of organelles

3. Fig. 3.14 shows a light microscope.

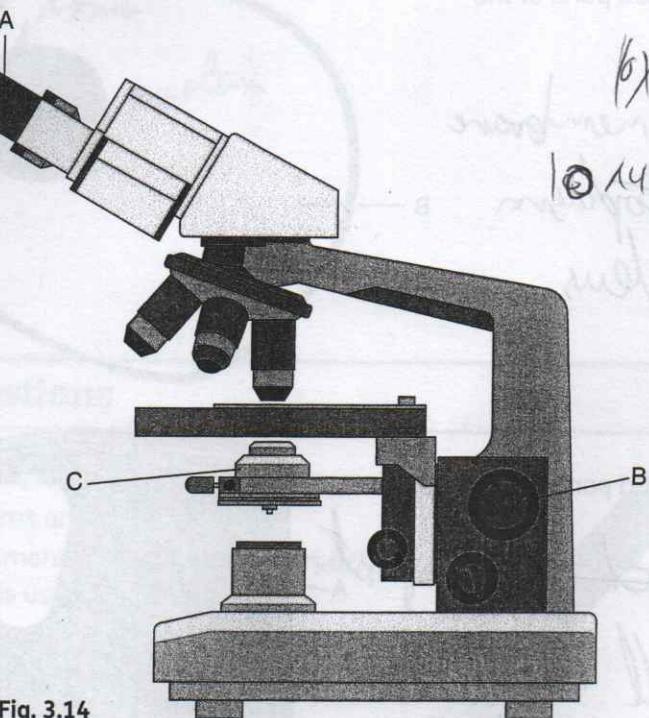


Fig. 3.14

- a. Which parts of the light microscope listed below correspond to the labels A, B and C?

Coarse focus wheel **B** Eyepiece lens **A** Diaphragm **C**

- b. Which part controls the amount of light passing through the specimen?

Diaphragm

4. Identify whether the following statements are true or false:

Statement	True	False
The coarse focus should be adjusted before the fine focus.	✓	
The fine focus should be adjusted before the coarse focus.		✗
Iodine is a suitable stain to use when viewing onion cells under a light microscope.	✓	
Methylene blue is a suitable stain to use when viewing plant cells under a light microscope.		✓
If the eyepiece lens is $\times 10$ and the objective lens is $\times 40$, then the total magnification is $\times 50$.		✓

5. Does Fig. 3.15 show animal cells or plant cells viewed under a light microscope?

Plant

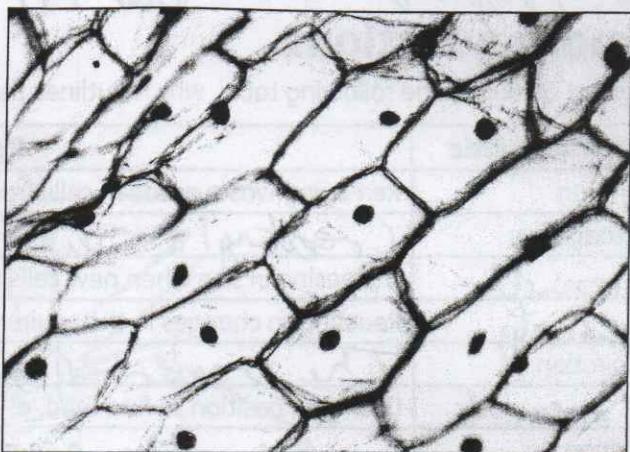


Fig. 3.15

6. Name the labelled parts of the animal cell.

A = Cell membrane
B = Cytoplasm
C = Nucleus

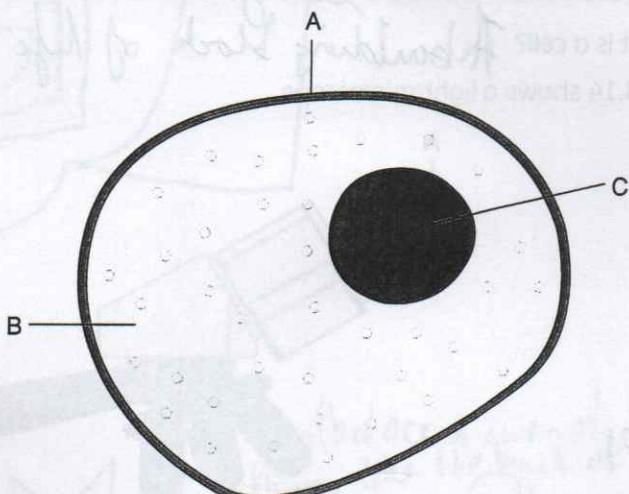


Fig. 3.16

7. Name the labelled parts of the plant cell.

A = ~~Mitochondria~~ Chloroplast
B = Cell membrane
C = Cell wall
D = Large vacuole

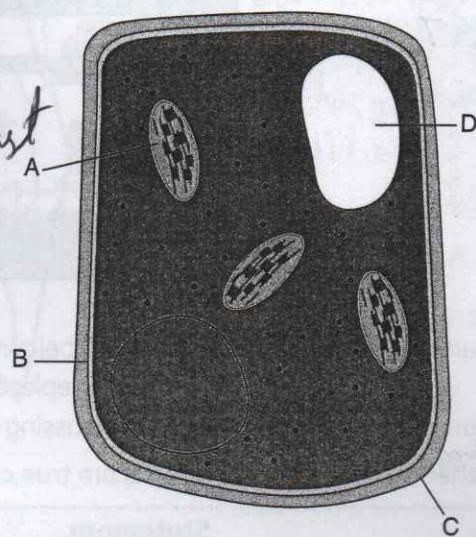


Fig. 3.17

8. Describe the functions of the following organelles:

a. Nucleus = Controls the cell

b. Cell membrane = Only lets specific things pass through to protect the cell

c. Cell wall = Only lets specific things through to protect the cell

9. List three differences between an animal cell and a plant cell.

10. What is the role of:

a. mitochondria = Powerhouse of the cell

b. ribosomes in cells? = Makes protein

Organelle → Cell → Tissue → Organelle → Organ → System → Organism

11. Put the levels of the organisation of life in order, starting with the simplest level.

Tissue System Organelle Organ Cell Organism

12. Match the level of the organisation of life with its description.

Organisational level	Description
1. Tissue	a. A group of organs that work together
2. Cell	b. Structure in a cell that performs a specific task
3. Organ	c. Result of all systems working together
4. Organelle	d. A group of cells that work together
5. Organism	e. A group of tissues that work together
6. System	f. Building block of life, made up of organelles

13. Give one example of each of the following:

- a. Organelle *Mitochondria*
- b. Cell *Blood cell*
- c. Tissue *Heart tissue*
- d. Organ *Heart*
- e. System *Respiratory system*

Past paper questions

1. Sample Paper 2018, Question 1

All biological organisms are made up of cells.

- a. Name the instrument shown in *Microscope* Fig. 3.18, which is used to examine cells.
- b. Name the labelled part of the instrument, which makes the cells look bigger.

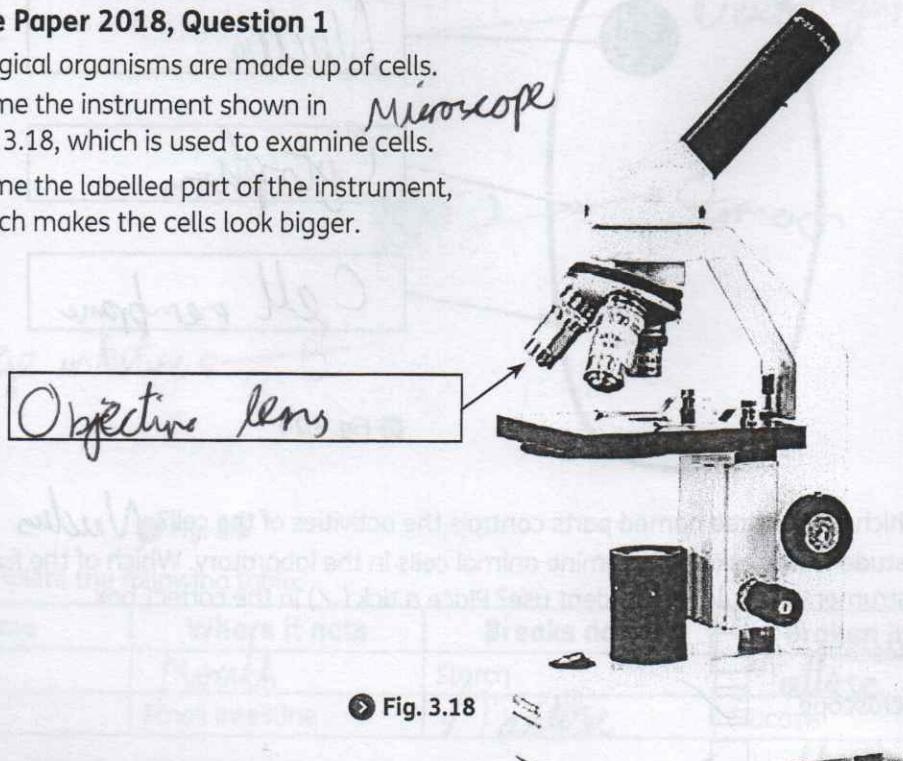


Fig. 3.18

- c. Fig. 3.19 shows cells from an onion, which are typical plant cells. Label any one part of the cell.

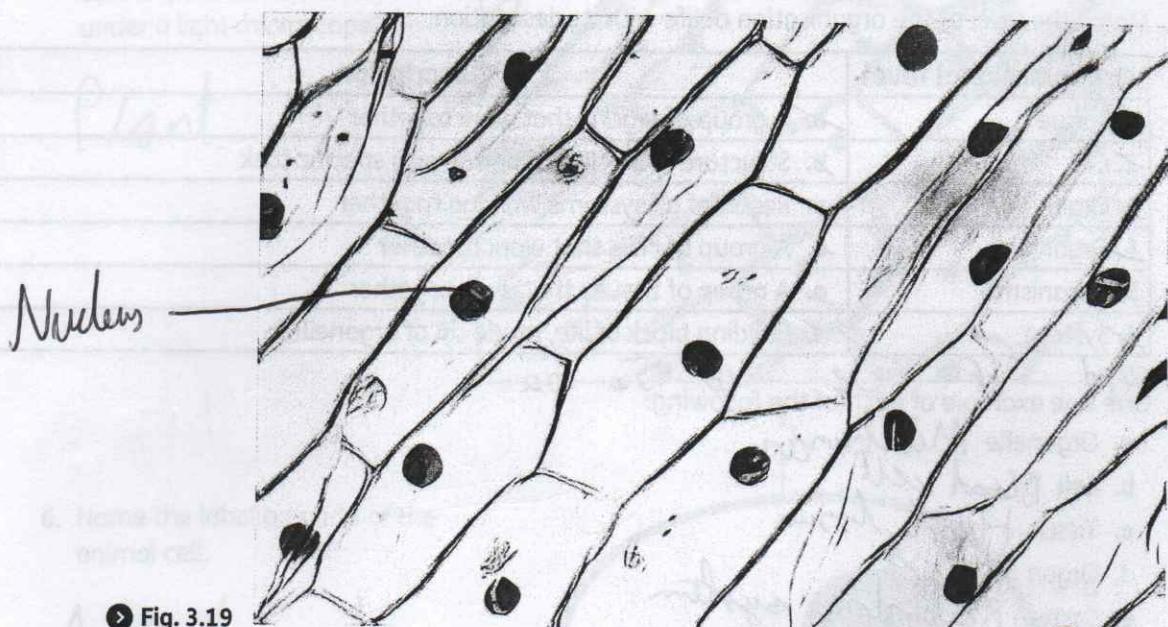


Fig. 3.19

Controls the cell

- d. State the function of the part of the cell you have chosen.

2. Final Examination 2019, Question 1

The diagram shows an animal cell.

- a. Use the words listed below to label the parts of the cell.

Cytoplasm Cell membrane Nucleus

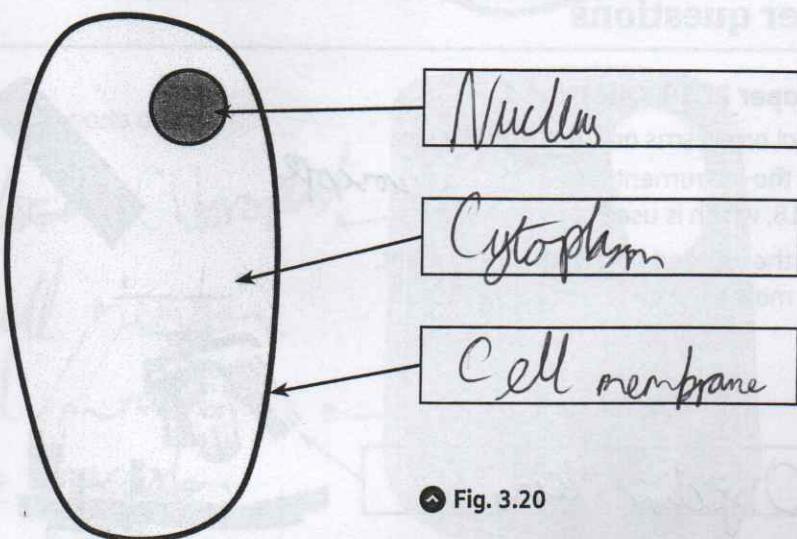


Fig. 3.20

- b. Which of the three named parts controls the activities of the cell? *Nucleus*

- c. A student was asked to examine animal cells in the laboratory. Which of the following instruments should the student use? Place a tick (✓) in the correct box.

- | | |
|------------|-------------------------------------|
| Telescope | <input type="checkbox"/> |
| Microscope | <input checked="" type="checkbox"/> |
| Periscope | <input type="checkbox"/> |

→ Go to page 13 of your **Assessment Book** to answer more exam-style questions.



Summary questions

- What is the role of the digestive system in the human body? To digest food
- Copy and complete the sentences.

There are five stages of human nutrition. Eating is the taking in of food to the mouth. Once food is in the mouth, it starts to be digested, both physically and chemically. When the food is broken down into small enough pieces, it is brought into the blood and carried to the cells. The digested food enters the cells – this is called respiration. Any undigested food is released from the body – this is called excretion.

- Explain the difference between physical and chemical digestion. Chemical digestion uses chemical reactions
- Copy and complete the following table:

Type of tooth	Description	Function
Incisor	Narrow, sharp teeth at the front of the mouth, similar to chisels	<u>Bite off food</u>
Canine	Pointed teeth, often called 'eye teeth'	<u>Hang on to food</u>
Pre-molar	<u>Flatter teeth</u>	Crushing and grinding food
Molar	<u>Flattest teeth</u>	Crushing and grinding food

- Name the parts of the digestive system labelled A, B and C.

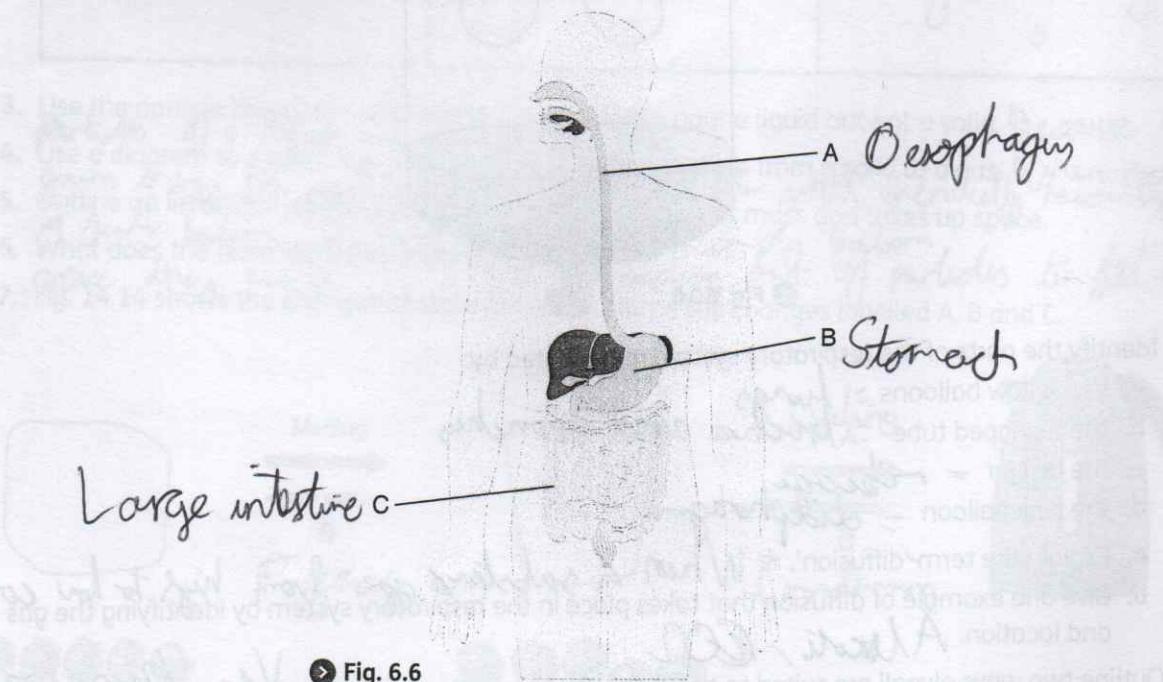


Fig. 6.6

- Copy and complete the following table:

Enzyme	Where it acts	Breaks down	Broken into
Amylase	Mouth	Starch	Maltose
Maltase	Small intestine	Maltose	Glucose

- Distinguish between the roles of the small intestine and large intestine. Small intestine removes nutrients, large intestine removes water
- List three functions of the liver. Creates bile, helps with fat digestion, helps with alcohol

4. Match each part of the respiratory system with a function it carries out.

Part of respiratory system	Function
1. Nose	a. Allow air to flow into and out of lungs
2. Trachea	b. Opening for respiratory and digestive systems
3. Bronchus	c. Supply oxygen to cells
4. Pharynx	d. Protects the heart and lungs
5. Intercostal muscles	e. Removes dust and micro-organisms
6. Ribcage	f. Contracts and relaxes to move air in and out of the lungs
7. Lungs	g. Move the ribs
8. Diaphragm	h. Allows air to flow to the bronchus

5. Fig. 8.10 shows a model of the respiratory system.

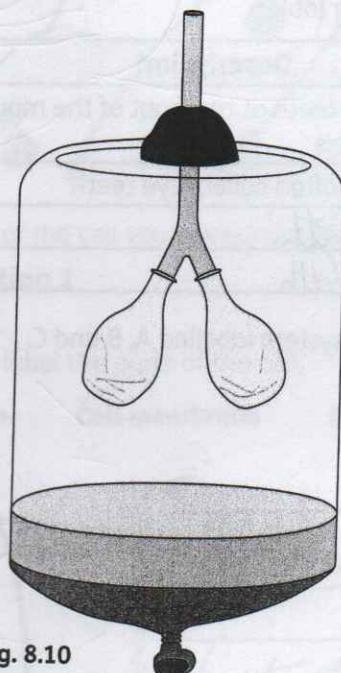


Fig. 8.10

Identify the parts of the respiratory system represented by:

- the yellow balloons = lungs
 - the Y-shaped tube = trachea and bronchi
 - the bell jar = ribcage
 - the pink balloon = diaphragm
6. a. Explain the term 'diffusion'. = When a substance goes from high to low concentration
 b. Give one example of diffusion that takes place in the respiratory system by identifying the gas and location. *Alveoli, CO₂*
7. Outline two ways alveoli are suited to their job in the respiratory system. *Very thin walls, surrounded by capillaries*
8. The following table shows the percentage of carbon dioxide in the breath of a person during different levels of physical activity:

Level of physical activity	Percentage of carbon dioxide in exhaled air
At rest	4.1
Low-moderate	6.8
Moderate-high	9.3

Summary questions

1. Copy and complete the sentences.

There are three states of matter: solid, liquid and gas. The particles in a solid are packed tightly together. The particles are in a fixed position, but they do move. The particles in a liquid can squeeze past each other. This allows liquids to flow. The particles in a gas are very far apart. As a result, gases can be invisible. Diffusion is the spreading out of particles to fill the space they are in.

2. Copy the table below and use the particle theory to draw the arrangement of particles in solids, liquids and gases.

Solid	Liquid	Gas

3. Use the particle theory to explain why it is possible to pour a liquid but not a solid. Because the particles of a liquid are packed together
 4. Use a diagram to explain how a substance can change state from a solid to a gas. gains energy, the particles will spread further until eventually becoming a gas
 5. Outline an investigation you would use to show that air has mass and takes up space. A full balloon is heavier than an empty balloon
 6. What does the term 'diffusion' mean? The spreading out of particles to fill the space they are in
 7. Fig. 14.14 shows the changes of state for water. Name the changes labelled A, B and C.

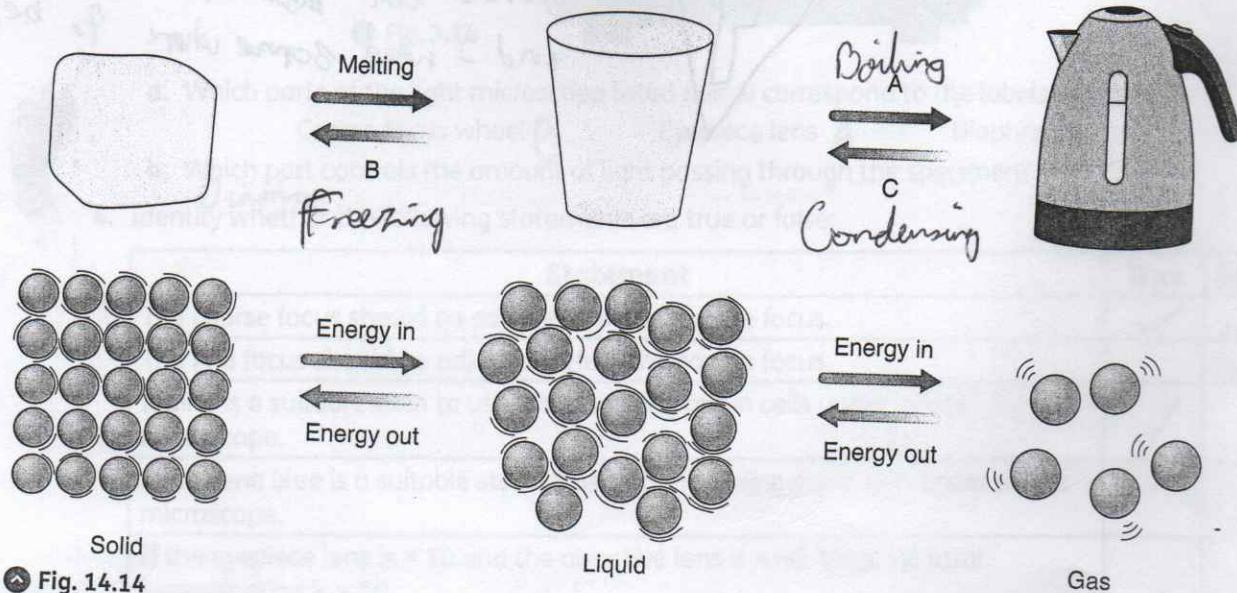


Fig. 14.14