

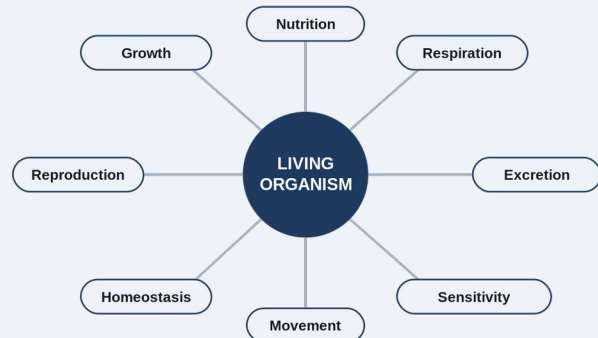
1.1 Characteristics of Living Organisms

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1. KEY VOCABULARY

TERM	MEANING
Organism	An individual living thing.
Nutrition	Taking in nutrients (food / raw materials) for energy and growth.
Respiration	Releasing energy from food, in every living cell.
Excretion	Removing the waste products of the body's chemical reactions.
Sensitivity	Detecting and responding to changes in the surroundings.
Homeostasis	Controlling and keeping the internal conditions constant.

2. THE EIGHT LIFE PROCESSES



All living organisms carry out these eight life processes (mnemonic: MRS GREN).

3. WHAT EACH PROCESS MEANS

PROCESS	WHAT IT IS
Movement	Changing position or place
Respiration	Releasing energy from food
Sensitivity	Responding to the surroundings
Growth	A permanent increase in size
Reproduction	Producing offspring
Excretion	Removing metabolic waste
Nutrition	Taking in food / raw materials

4. REMEMBERING THEM — MRS GREN

Movement Respiration Sensitivity

Growth Reproduction Excretion Nutrition

The eighth: control of internal conditions (homeostasis).

A living organism must show ALL of these — not just some of them.

5. IS IT ALIVE? — APPLYING IT

A fire moves, 'grows' and uses fuel — but it does not respond, reproduce or excrete. Not alive.

A car moves and uses fuel — but shows none of the other processes. Not alive.

A virus only reproduces inside a host cell and shows no other life processes on its own — so it is not classed as a living organism.

6. THE WHY

Why all eight must be present: many non-living things show one or two of the processes (a flame 'moves', a crystal 'grows'). Only living organisms carry out all eight.

Why respiration is on the list, not 'breathing': respiration releases energy in every cell — breathing is just gas exchange, and not all organisms breathe.

7. COMMON EXAM MISTAKES

- ✗ "Respiration means breathing."
- ✓ Respiration releases energy from food in cells; breathing is gas exchange.
- ✗ "Anything that moves is alive."
- ✓ Movement alone is not enough — all eight processes are needed.
- ✗ "Excretion is getting rid of faeces."
- ✓ Excretion removes metabolic waste (e.g. CO₂, urea); faeces is egestion.

8. SELF-CHECK · cover & quiz

Can you...

1. Name all eight life processes?
2. Give the MRS GREN mnemonic and what each letter stands for?
3. Define respiration, excretion and sensitivity?
4. Explain why a fire is not a living organism?
5. Explain the difference between respiration and breathing?
6. Explain the difference between excretion and egestion?