

1.1 Characteristics of living organisms

Name: _____ Class: _____ Date: _____ **Total: 10 marks**

KEY WORDS organisms 生物体 • excretion 排泄 • respiration 呼吸作用 • growth 生长
• characteristics 特征

Objective

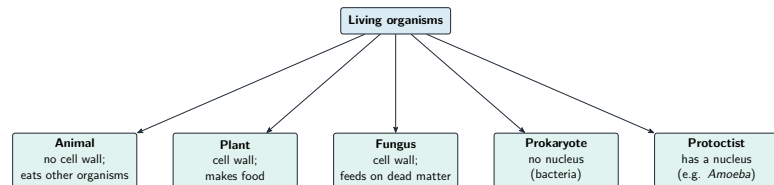
Build the skills to answer exam questions on the **characteristics of living organisms** 生物的特征 — the seven life processes (**MRS GREN**).

You must be able to:

- list the seven characteristics with their exact definitions
- define respiration, excretion, sensitivity and nutrition precisely
- recognise that digestion and breathing are **not** in the list

1 Worked examples

■ MRS GREN



All living organisms carry out the seven life processes

- Movement, **R**espiration, **S**ensitivity, **G**rowth, **R**eproduction, **E**xcretion, **N**utrition.
- **respiration:** chemical reactions in cells that break down nutrients to release energy.
- **excretion:** removal of the toxic waste products of metabolism (and excess substances).

2 Practice

2.1 State what the letters MRS GREN stand for (any four). [4]

2.2 Define growth. [1]

3 Exam-style questions

3.1 A student lists four things a mouse does. Which one is the characteristic **excretion**? [1]

- **A** it breaks down food in its gut into small soluble molecules
- **B** it removes carbon dioxide made by its own respiration
- **C** it moves away from a bright light
- **D** it takes in oxygen through its lungs

3.2 Give the precise definition of: [2]

- (a) excretion
- (b) sensitivity

3.3 Explain the difference between nutrition and digestion. [2]

Solutions

2.1 any four of: Movement, Respiration, Sensitivity, Growth, Reproduction, Excretion, Nutrition.

2.2 a permanent increase in size and dry mass.

3.1 B. Excretion is the removal of the toxic waste products the organism's own metabolism made. **A** is digestion, part of nutrition; **C** is sensitivity; **D** is gas exchange, not the removal of a waste product.

3.2 (a) the removal of the toxic waste products of metabolism (and excess substances).
(b) the ability to detect and respond to changes in the environment.

3.3 nutrition is taking in materials for energy, growth and development; digestion is just one part of nutrition (breaking food into small molecules).