

Exercise walk-through

1.3

Features of organisms

IGCSE Biology

Species, the binomial system, and dichotomous keys

to classify

to sort organisms into groups by the features they share

a species

a group that can reproduce to make **fertile off-spring**
– fertile is the word that matters

the binomial name

genus then species, in *italics*: *Homo sapiens*. *Rattus norvegicus* and *Rattus rattus* share a genus, not a species

a dichotomous key

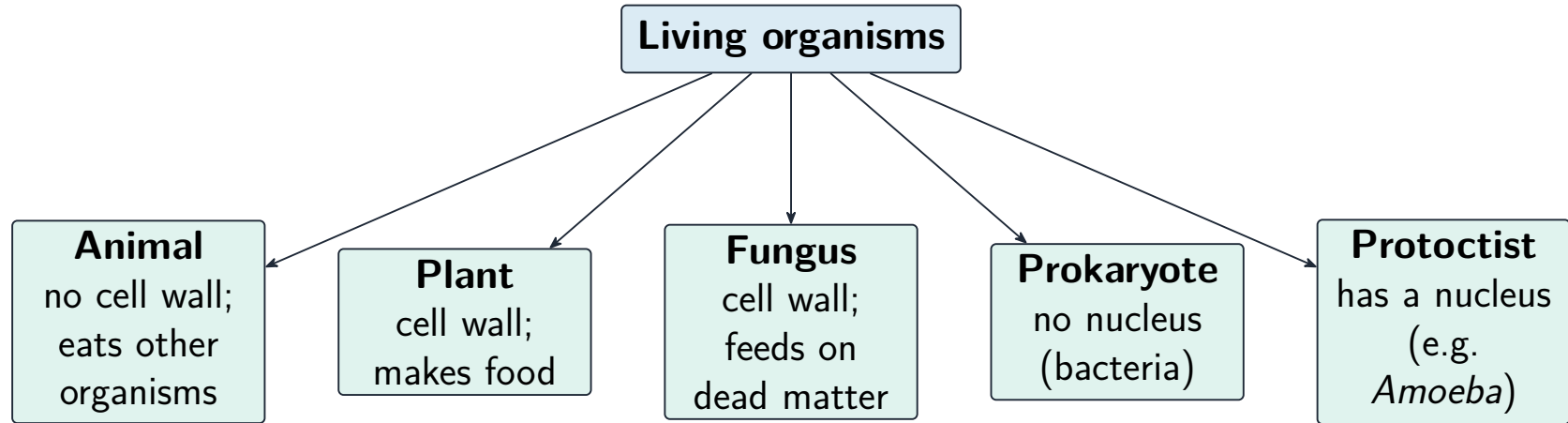
“dichotomous” means splitting into two: each step offers **two** statements and sends you to the next step or a name

using a key

start at step 1 every time, and follow only the branch your organism matches

A key's questions must be about **visible, unambiguous** features. “Is it large?” is a bad step; “does it have six legs?” is a good one.

The five kingdoms, in detail



Living organisms are sorted into five kingdoms by their main features

Exam tips

- Learn the **seven characteristics** by heart, with their exact definitions. Write them as clear, full sentences.
- **Digestion** is *not* one of the seven characteristics – it is just one part of nutrition. “Breathing” is not one of the seven either.
- In a scientific name, the genus starts with a capital letter and the species with a small letter, and both are in italics.
- To use a dichotomous key, start at the first pair of choices and follow the route step by step. Do not jump ahead.
- More similar DNA base sequence → the organisms are more closely related (they share a more recent ancestor).

Exercises 2.1·2.2

2.1 State the main feature that distinguishes a vertebrate from an arthropod. [1]

2.2 State the two parts that make up a virus. [2]

Exercises 2.1·2.2

2.1 State the main feature that distinguishes a vertebrate from an arthropod. [1]

2.1

- a vertebrate has a **backbone**; an arthropod has an **exoskeleton**
-

2.2 State the two parts that make up a virus. [2]

2.2

- a virus has a **protein coat** and **genetic material** inside

Exercise 3.1

3.1 An organism is multicellular, has cell walls made of chitin and feeds by absorbing nutrients from dead material. Which kingdom does it belong to? [1]

☐

A plants

B animals

C fungi

D prokaryotes

Exercise 3.1

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3.1 C

- chitin cell wall + absorbing dead material → **fungi**
- plants have cellulose; animals have no cell wall; prokaryotes are single-celled with no nucleus

Exercise 3.2 (a)

3.2 An animal has three pairs of legs, a body in three parts and one pair of antennae.

(a) Name the arthropod group it belongs to.

[1]

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(a) Name the arthropod group it belongs to. [1]

(a)

- three pairs of legs, body in three parts, one pair of antennae → **insects**

Exercise 3.2 (b)

3.2 An animal has three pairs of legs, a body in three parts and one pair of antennae.

(b) State two features of a mammal.

[2]

Exercise 3.2 (b)

3.2 An animal has three pairs of legs, a body in three parts and one pair of antennae.

(b) State two features of a mammal.

[2]

(b)

- any **two** of: **fur/hair** / **feed young on milk**

Exercise 3.3

3.3 Explain why many scientists do not classify viruses as living organisms. [2]

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3.3

- a virus is **not made of cells** and cannot carry out life processes on its own
- it can only reproduce **inside a living host cell**