

1.2 Concept and uses of classification systems

Name: _____ Class: _____ Date: _____

Total: 22 marks

KEY WORDS species 物种 • binomial system 双名法 • scientific name 学名 • genus 属
• ancestor 祖先

Objective

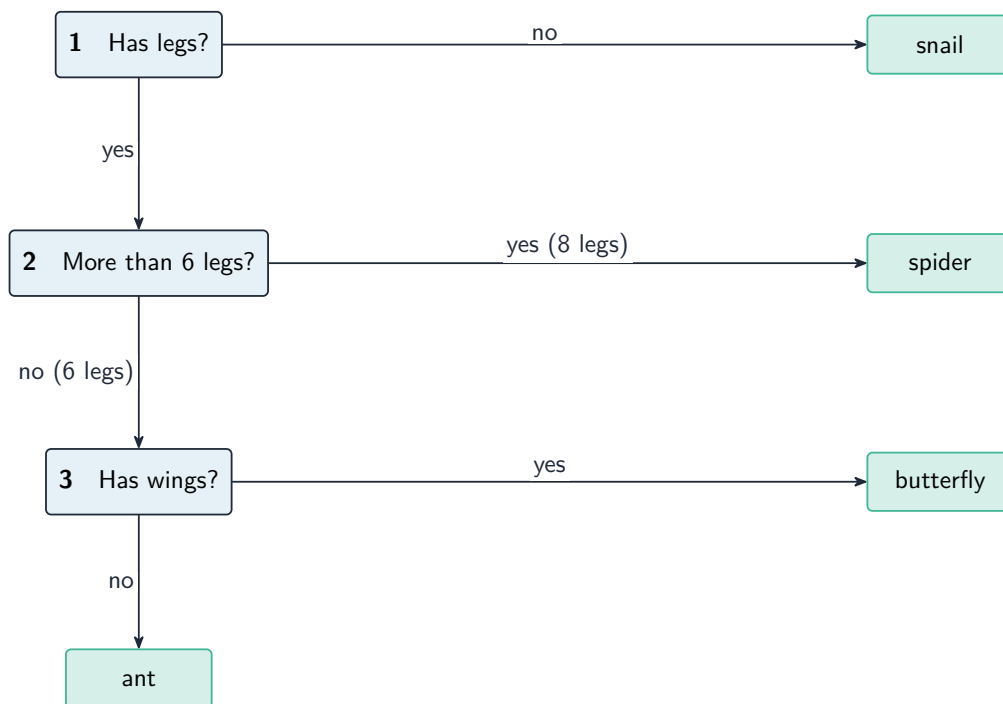
Build the skills to answer exam questions on **classification systems** 分类系统 — **species** 物种, the **binomial system** 双名法, **dichotomous keys** 二歧检索表, and DNA in classification.

You must be able to:

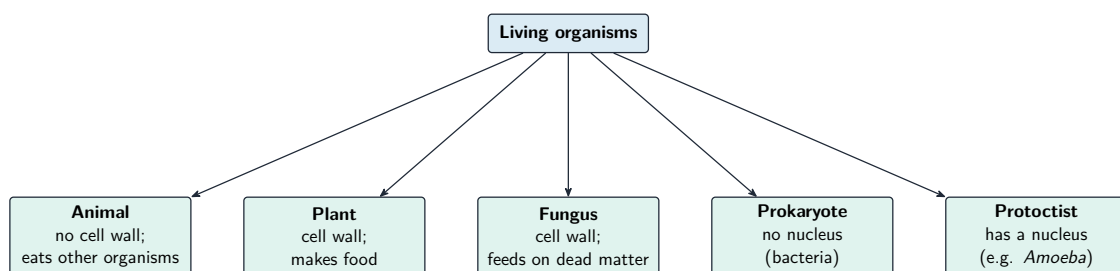
- define a species and use the binomial naming rules
- use and construct a dichotomous key
- explain how DNA base sequences show how closely related organisms are

1 Worked examples

■ Keys and naming



Each step of a key gives two choices until you reach the organism



A key sorts organisms into the five kingdoms

- **species:** a group that can reproduce to make fertile offspring.
- **binomial:** *Genus species* — Genus capital, species lower-case, both italic.
- more similar DNA base sequence → more closely related (more recent ancestor).

2 Practice

2.1 Define a species. [1]

2.2 In the name *Homo sapiens*, state which word is the genus. [1]

3 Exam-style questions

3.1 Two organisms with very similar DNA base sequences are: [1]

A	B
C	D

- A** distantly related
- B** closely related
- C** the same individual
- D** not related

3.2 A student writes a scientific name as “homo Sapiens”.

(a) State the two mistakes in this name. [2]

(b) State one feature you should use when building a dichotomous key, and one you should avoid. [2]

3.3 Explain how DNA base sequences can be used to find out how closely two species are related. [2]

3.4 Five small animals were found in a pond.

Animal	Legs	Wings	Body
P	6	yes	three parts
Q	8	no	two parts
R	0	no	many segments
S	6	no	three parts
T	10	no	two parts

(a) Construct a dichotomous key that separates all five animals. [4]

(b) Animals **P** and **S** belong to the same class. Name that class and give **two** features from the table that place them in it. [3]

(c) One of the animals is called *Daphnia pulex*. State what each part of the name tells you, and give **two** rules for writing a binomial name. [4]

(d) Explain why scientists use scientific names instead of common names. [2]
