General Biology Year 11 2021

Unit 1 – Classification and cell processes

Task 2: Test - Classification

(weighting 10%)

|  |  |  |  |
| --- | --- | --- | --- |
| **Name:** | **Teacher: Mr Groznica** | **Date:** | **Score:**  / |

**Time permitted: 60 minutes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Section | Number of questions | Marks available | Marks achieved |
| A | Multiple choice | 10 | 10 |  |
| B | Short answer | 14 | 32 |  |
| C | Extended answer | 1 | 5 |  |
|  | **Total** | **25** | **47** |  |

**Comments:**

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**Section A: Multiple Choice (10 marks)**

Section A consists of 10 questions, each worth one mark. Circle the correct answer. Attempt all questions. You are advised to spend no more than 15 minutes on this section.

1. A key in which there are two choices at every branch is commonly known as:
2. Bifurcating key
3. Duolous key
4. Twin key
5. Dichotomous key
6. The lowest two levels in the system of classification are:
7. Class and species
8. Kingdom and order
9. Order and genus
10. Genus and species
11. Humans belong to the genus:
12. *Homo*
13. Mammalia
14. Vertebrata
15. *Hominidae*
16. Using the key below, the figure shown could be identified as:

Diagram

Description automatically generated

1. Shape A
2. Shape B
3. Shape C
4. Shape D
5. Term given to describe the 2 name naming system is:
6. Dichotomous key
7. 2 scientific names
8. Binomial nomenclature
9. Binomial key
10. The following are used to provide reference collections for classification of unknown species:
11. Museums and herbariums
12. Museums
13. Zoos
14. Museums, herbariums and zoos
15. How Australian Aboriginal people classify organisms?
16. They only give a specific name to those that have a special use to them
17. They only give a specific name to those that have a special significance or use to them
18. They use the 2 name naming system
19. They divide organisms into land, water and air dwellers
20. Organisms which are members of the same order must also be members of the same…
21. genus
22. species
23. class
24. family
25. Members of the same species…
26. May belong to different genera
27. Are able to mate and produce fertile offspring
28. Usually have different scientific binomial name
29. Are all identical to one another
30. The scientific (and common) names of three animals are: *Canis familiaris* (dog), *Canis lupis* (wolf) and *Vupes vulpes* (fox). These three animals all belong to the same:
31. Species but different genera
32. Genus but different species
33. Class but different species
34. Genus but different classes

**Section B: Short Answer (32 marks)**

Section B consists of 15 questions. Write your answers in the spaces provided. You are advised to spend 35 minutes on this section.

1. Define the following terms: (2 marks)

Classification

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Grouping organisms into different categories based on their characteristics (1).

Biodiversity

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**Variety of all life forms** (1): the different plants, animals and organisms, the genes they contain and the ecosystems of which they form a part.

1. List two reasons why biologists classify living things. (2 marks)
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The diversity of life on Earth is vast, so classifying organisms is a way of organising information. It allows for patterns and trends to be observed and relationships between organisms better understood (1).

It allows biologists to analyse information about organisms (1).

It allows biologists to communicate with one another (1).

Maximum 2 marks.

1. Complete the following: (2 marks)

Organisms are divided. First into:

K \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Kingdom -1/2 for each wrong answer

These are then subdivided into:

P \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Phylum

Then

C\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class

O \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Order

F \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Family

G \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Genus

S \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Species

1. List two criteria scientists use to separate organisms into groups. (2 marks)
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Physical characteristics (1)

Reproductive methods (1)

Molecular sequences (1)

Max 2 marks

1. Why are two words used in the scientific naming system? (2 marks)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Every species would get a **name** consisting of **two words**: the first **word** is the genus, and the second **word** is the species, and they together uniquely identify the species.

1. What rules are followed in writing the scientific name? (2 marks)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Genus first, species second (1/2)
2. Genus capital (1/2)
3. Species lower (1/2)
4. Underline (1/2)
5. Which two organisms listed below are likely to be most similar?
6. *Helichysum pungens*
7. *Hibbertia longiflora*
8. *Acacia longiflora*
9. *Hibbertia scandens*

(1 mark)

B and D (1)

Explain your choice. (2 marks)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Same Genus (1) but different species (1).

1. How would a biologist determine whether two mammals belonged to the same species or not?

(2 marks)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Look at the scientific name (1). If the second part of the name is the same, they are the same species (1).

1. The following lists show the scientific name and the common name of some native Australian plants.

|  |  |
| --- | --- |
| Scientific name | Common name |
| *Leucopogon attenuatus* | Old Man’s Beard |
| *Dichondra repens* | Kidney weed |
| *Phyta nodiflora* | Fog-fruit |

Explain why a scientist would use the names in left column, whereas a nurseryman in Western Australia is more likely to use the common names in the right column. (2 marks)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Scientists use scientific name so that they can communicate with other scientists (1). The scientific names are very specific while common names are not (1).

1. Identify the animal in the dichotomous key that has four legs and hooves, but does not have a woolly coat or four toes on each foot. (1 mark)

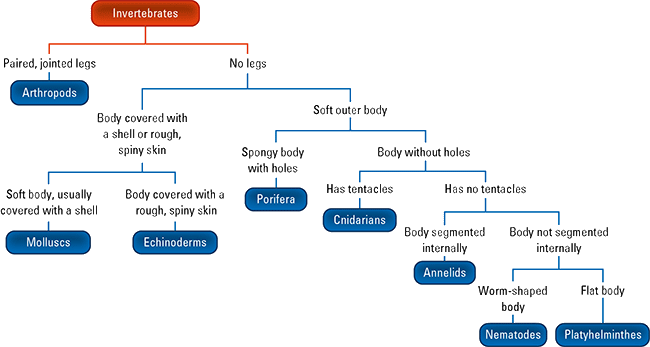
Graphical user interface

Description automatically generated

Name of organism: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Horse (1)

1. Use the invertebrate dichotomous key to identify which group the following organisms belong to. (2marks)



1. A picture containing insect

   Description automatically generatedA picture containing invertebrate, starfish, gear

   Description automatically generatedStarfish \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Echinoderms
2. Butterfly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Arthtopods
3. Based on the information in the classification key shown below, construct Venn diagram to compare the flowering plants and conifers. (3 marks)

Timeline

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**FLOWERING PLANTS**

**CONIFERS**

Do not produce flowers (1/2)

Seeds in woody cones (1/2)

Produce flowers with seeds (1/2)

Produce seeds (1/2)

Contain vascular tissue (xylem and phloem) (1/2)

-1/2 mark for each missing

1. Use the key below to classify the animals pictured below. (3 marks)

Diagram, schematic

Description automatically generated

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Cnidarins (1)
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Annelids (1)
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Echinoderms (1)
4. Complete the following table which shows the characteristics of some types of animals. (2 marks)

|  |  |  |
| --- | --- | --- |
| **Classification** | **Characteristics** | **Examples** |
| Arthropods | Segmented body (1/2)  Paired and jointed legs (1/2)  Exoskeleton (1/2) | Spider (1/2) |
| Molluscs | Soft-bodied animals, large muscular foot, usually have a shell | Snails, slugs, squid |

1. **Outline** the impact of technological advances on the development and revision of biological classification systems. (2 marks)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Changes in DNA occur at a predictable rate, DNA technology has allowed scientists to understand when certain groups evolved (1)

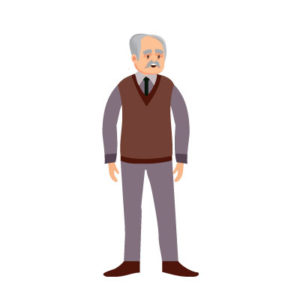
Possible to classify organisms down to many more levels than the traditionally recognized taxa (1)

**Section C: Short Answer (5 marks)**

Section C consists of 1 question. Write your answers in the spaces provided. You are advised to spend 10 minutes on this section.

1. Construct a branching dichotomous key that could be used to classify the following organisms: snail, worm, insect, spider and human. (5 marks)





Features used to identify organisms (2.5)

Able to identify 5 species (1)

Easy Appropriate biological terminology (0.5)

to follow (0.5)

Each step presented with two choices (0.5)