Grade 11 Biology, Explained

Unit 4 · Introduction to Floral Diversity

WORKSHEET

Full marks 39

Name _____ Class _____ Roll no. _____ Date _____ Marks _____ / 39

1 Key words [4]

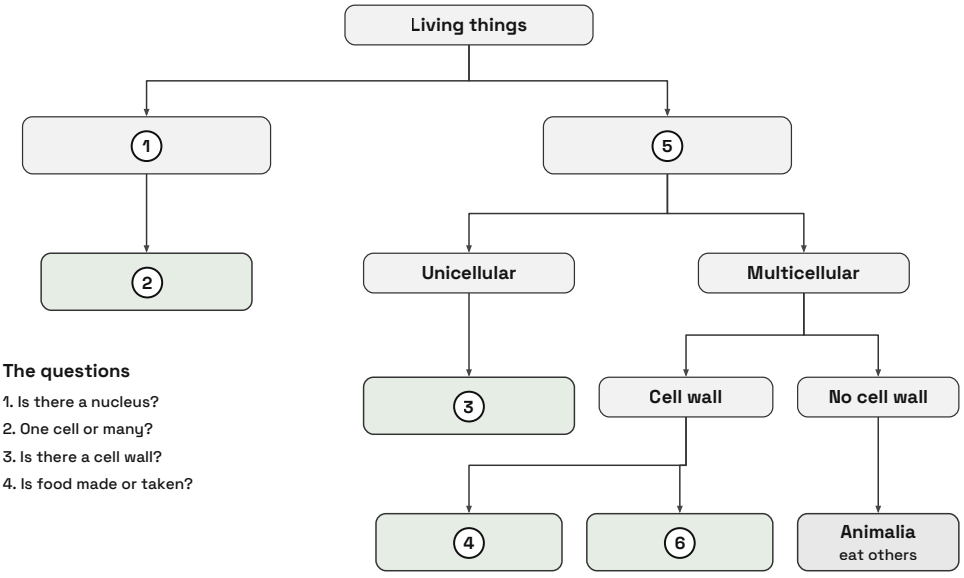
Fill in the blanks with words from the box. Two words in the box are not needed. Each blank carries 0.5 mark.

Archaea	**biodiversity**	**endemic**	**epithet**	**ether**	**Eukarya**	**genetic**	**ICN**	**phylogeny**	**ribosomal RNA**

The variety of living things on the Earth is called _____; the hundreds of local rice varieties of Nepal show its _____ level. The three domains were proposed by Carl Woese from differences in the cells' _____. The membrane lipids of the _____ are joined to glycerol by _____ bonds. In a binomial name, the first word is the genus and the second the specific _____. The rules for naming plants are set by the _____. A species that grows wild in Nepal and nowhere else is _____ to Nepal.

2 Label the diagram [3]

The diagram shows how Whittaker's questions sort living things into five kingdoms. Write what belongs in place of 1 to 6. Each carries 0.5 mark.



1. _____ **2.** _____

3. _____ **4.** _____

5. _____ **6.** _____

3 Multiple choice [5]

Choose the correct option for each of the following questions.

i. Which domain is made up of ancient prokaryotes, many of which can live in extreme environments? [1]

a. Archaea
b. Bacteria
c. Eukarya
d. Prokarya

ii. Using the rules of binomial nomenclature, which is the correct way to print the scientific name of the lion? [1]

a. Panthera leo (in ordinary type)
b. *Panthera Leo*
c. *Panthera leo*
d. panthera leo

iii. A farmer in Jumla grows three local varieties of rice in neighboring fields. Which level of biodiversity do the three varieties show? [1]

a. genetic diversity
b. species diversity
c. ecosystem diversity
d. floral diversity between species

iv. A newly found microbe has no nucleus, has a wall with no peptidoglycan, and its membrane lipids have ether bonds. To which domain does it belong? [1]

a. Bacteria
b. Archaea
c. Eukarya
d. Monera

v. Why can a doctor use streptomycin against a bacterial infection without harming the patient's own cells? [1]

a. human cells have a cell wall that stops it
b. it blocks bacterial ribosomes, which differ from the ribosomes of eukaryotic cells
c. it kills only cells that live in extreme places
d. human cells have peptidoglycan

4 Very short answers [3]

Write very short answers to the following questions.

a. Name the five criteria Whittaker used for his five kingdoms. [1]

b. What does "L." mean in *Mangifera indica* L.? [1]

c. A student writes the scientific name of the snow leopard by hand as "Panthera Uncia". Write it correctly. [1]

5 Short answers [9]

Write short answers to the following questions.

a. Which organism is the most complex among a bacterium, a mushroom and an apple tree? Give reasons. [2]

b. Write any four differences between the domains Bacteria and Archaea. [2]

c. *Spirogyra* is a many-celled green alga, while *Euglena* is a single green cell. Where did Whittaker place each, and on which criterion? [2]

d. The common name of cauliflower is simpler than its scientific name, *Brassica oleracea*. Why, then, is the simpler common name not used in biology instead of the scientific name? [3]

6 Numerical problems [4]

Solve the following problem. Show your working.

The table in your book gives, for Nepal, 1,150 species of bryophytes (8.2 % of the world's known species) and 6,973 species of angiosperms (3.2 %). Nepal has about 0.1 % of the world's land. i. About how many species of bryophytes are known in the world? ii. About how many angiosperms? iii. How many times its share of the land does Nepal hold of the world's bryophytes? iv. Give one reason why bryophytes are so rich in Nepal.

Answer: _____

7 Long answers [8]

Write long answers to the following questions.

a. What is the binomial system of nomenclature? Mention its rules. **[4]**

b. Classify a mushroom, *Paramecium*, a cyanobacterium (*Nostoc*) and a mustard plant into Whittaker's kingdoms, and for each give the features that place it there. **[4]**

8 Think [3]

Archaea look like bacteria under a microscope, yet biologists say they are closer relatives of us than of bacteria. Give three pieces of evidence for this, and say how the five kingdoms and the three domains fit together.

9 Activity: Common and scientific names (not marked)

Write the common name (Nepali or English) and the scientific name of one organism from each group. Remember: genus with a capital letter, both words underlined separately.

Group	Common name	Scientific name
vegetable		
fruit		
wild plant		
domestic animal		
wild animal		

Which two of your organisms belong to the same genus, if any?