A3.1 Diversity of organisms (HL)

What the Cell · DP Biology · worksheet · HL statements A3.1.12–15

Name _____ **Date** _____ **Total** _____ / 20

About 20 minutes, or one section at a time. The number of marks shows how many separate points to make.

Section A: Recall

5 marks

1 **State** the biological species concept. A3.1.12 **[1]**

2 **Define** horizontal gene transfer. A3.1.12 **[1]**

3 **State** the chromosome number (2n) of a mule. A3.1.13 **[1]**

4 **Define** DNA barcode. A3.1.15 **[1]**

5 **State** what is meant by a couplet in a dichotomous key. A3.1.14 **[1]**

Section B: Understanding

7 marks

6 **Explain** why the biological species concept is hard to apply to organisms that reproduce asexually. A3.1.12 **[2]**

7 **Explain** why a hybrid of two species with different chromosome numbers is usually infertile. A3.1.13 **[3]**

8 **Outline** two advantages of eDNA surveys over catching and counting organisms. A3.1.15 **[2]**

Section C: Working with evidence

8 marks

All data in this section are invented for practice.

9 A3.1.14

The table describes the leaves of five trees.

Tree	Leaf divided into leaflets?	Leaf edge	Leaves arranged
P	Yes	Toothed	Opposite
Q	Yes	Smooth	Alternate
R	No	Lobed	Alternate
S	No	Toothed	Alternate
T	No	Toothed	Opposite

Construct a dichotomous key to identify the five trees. **[4]**

10 A3.1.15

Water from three ponds was tested for eDNA. The table shows the number of DNA sequences matched to each species.

Species	Pond A	Pond B	Pond C
Great crested newt	340	0	12
Three-spined stickleback	910	1520	0
Signal crayfish (invasive)	0	205	0

a **Identify** the pond where the invasive species is present. **[1]**

b **Explain** why the number of sequences does not show how many animals live in each pond. **[2]**

c **Suggest** why newt DNA was found in pond C, although no newts were seen there. **[1]**