A1.1 Water (HL)

What the Cell · DP Biology · worksheet · HL statements A1.1.7–8

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

About 20 minutes. The number of marks shows how many separate points to make.

Section A: Recall

5 marks

1 **Define** the Goldilocks (habitable) zone. A1.1.8 **[1]**

2 **State** two reasons why Earth has kept its water. A1.1.7 **[2]**

3 **Name** the type of meteorite thought to have delivered water to Earth. A1.1.7 **[1]**

4 **State** how a deuterium atom differs from an ordinary hydrogen atom. A1.1.7 **[1]**

Section B: Understanding

7 marks

5 **Explain** why most of Earth's water is thought to have come from outside the planet. A1.1.7 **[2]**

6 **Explain** how the ratio of deuterium to hydrogen is used to test where Earth's water came from. A1.1.7 **[2]**

7 **Explain** why the search for life on other planets begins with a search for water. A1.1.8 **[3]**

Section C: Working with evidence

8 marks

Approximate values for four bodies in our solar system.

8 A1.1.7, A1.1.8

Body	Distance from Sun / AU	Mean surface temperature / °C	Radius / Earth = 1	Water
Venus	0.7	464	0.95	Vapour only
Earth	1.0	15	1.00	Liquid oceans
Mars	1.5	−63	0.53	Ice; traces of ancient rivers
Europa (moon of Jupiter)	5.2	−160	0.25	Ice crust; probable ocean beneath

The Sun's habitable zone is roughly 0.95 to 1.7 AU.

a **Identify** the bodies that lie inside the habitable zone. **[1]**

b **Explain** why Venus has no liquid water. **[2]**

c **Suggest** why Mars has no liquid water on its surface today, even though it is in the habitable zone. **[2]**

d **Suggest** how Europa could have liquid water although it is far outside the habitable zone. **[2]**

e **Outline** what Europa shows about the limits of the habitable zone idea. **[1]**

What the Cell. Original questions written for this course.