

Answers: Pluto

Marking guidance - Value reasoning as well as the selected answer

1 to 4 | Identify

1. Dwarf planet.
2. Accept a correct location or orbital relationship.
3. Rotation: 6.39 days · retrograde; orbital period: ≈ 248 years.
4. Temperature: ≈ -232 °C; also accept a correct environmental feature.

5 and 6 | Read and compare

5. Each figure needs its unit and measured quantity.
6. The explanation should preserve the meaning of this comparison: Its diameter is less than one fifth of Earth's.

Teaching point

A rounded figure is still a useful estimate. The size of a drawing does not prove that its proportions are correct. A comparison must state its reference.

Answers: check and explain

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7. A. Sputnik Planitia

Sputnik Planitia is a vast nitrogen glacier within the bright heart-shaped region.

8. A. Charon

Charon is so large relative to Pluto that the two bodies almost form a double system.

9. A. The Kuiper Belt

Pluto is part of the Kuiper Belt, beyond Neptune.

10. A. Nitrogen and methane

Its surface contains nitrogen, methane and carbon monoxide ices.

11 to 13 | Quantities and models

11. Accept two units from the table correctly linked to their quantities.
12. Bodies can be enlarged or distances compressed for readability, but this must be stated.
13. Accept accurate similarities and differences supported by a fact sheet or scientific source.

Answers: investigate and write

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14 | Observation or fact

Accept an accurate sentence describing a checkable characteristic or figure. Do not accept an opinion presented as a fact.

15 | Scientific question

The question should be investigable through observations, measurements, comparisons or a mission. Reward precise, testable wording.

Mini-mission | Suggested marks out of 10

Description of the environment: 0-2.

Three correctly used scientific terms: 0-2.

Clear exploration objective: 0-2.

Plausible mission and coherent account: 0-2.

Between 5 and 7 clear sentences: 0-2.

Adaptation

Accept spoken explanations when appropriate. For further challenge, require data and distinguish observation, interpretation and conclusion.

Sources and limitations

NASA Science: <https://science.nasa.gov/dwarf-planets/pluto/facts/>

Online fact sheet: <https://systeme-solaire-3d.fr/en/pluton>

Values are rounded. The artistic view changes sizes and distances for readability. Check dated information before reusing it.