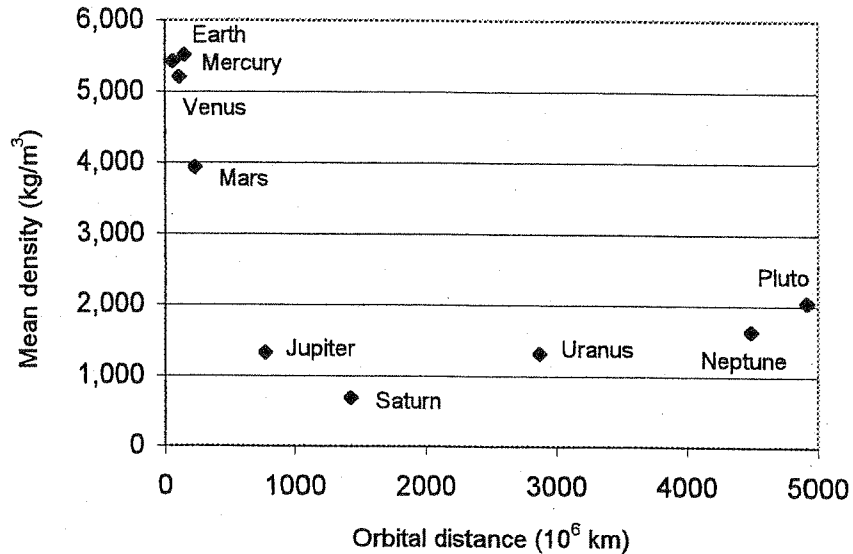


3. Planet Patterns

- a. In general, density decreases with distance from the Sun. Pluto doesn't fit this pattern. See graph on next page.



- b. In general, planet size increases with distance from the Sun. Pluto is an exception.

c. 1.

Small and high density (terrestrial planets)	Large and low density (Jovian planets)
Mercury, Venus, Earth, Mars	Jupiter, Saturn, Uranus, Neptune

2. It doesn't fit well into either category. Students may put it with the terrestrial planets based on its small size (but it is smaller than any of them), or with the Jovian planets based on its relatively low density (but it is denser than any of the Jovian planets). This is a good time to mention that some scientists think that, rather than being a "true" planet, Pluto is an escaped moon of some other planet or a chunk of ice leftover from the formation of the solar system.
- d. 1. Rock and metal. The densities of air, water, and ice are too low to explain the density of the terrestrial planets. Typical rocks are less dense than the terrestrial planets. Their density could be explained by mixing rock with metal.
2. Saturn
- e. 1. Orbital period increases with distance from the Sun.
2. A year

3. a. 87.969 days

b. Answers will vary. One Earth year is 365.25 days; one Saturn year is 10,747 days.

$$\frac{10,747}{365.25} = \sim 29.42, \text{ so each year on Saturn is equivalent to } \sim 29 \text{ Earth years.}$$

To calculate their age in Saturn years, students should divide their real age by 29.

c. 248. Use the ratio of the number of days in a Pluto year to the number of days in an Earth year:

$$\frac{90,591}{365.25} = \sim 248$$

f. 1. Venus and Mars

2. Venus has a much greater surface atmospheric pressure (the Venesian atmosphere is many times thicker than that of Mars).

3. Oxygen. Earth's oxygen-rich atmosphere reflects the presence of life.

4. Greater atmospheric pressure leads to less variable surface temperatures.

5. Venus has significant greenhouse warming due to its thick, CO₂-rich atmosphere.

Part IV. Concept Map About the Solar System

Answers will vary, but each map should show a hierarchical arrangement from the most general concept at the top, to more specific concepts going downward. Check that students have added at least three concepts, and that all links are labeled appropriately.

Part V. WebQuest - What Killed the Dinosaurs

The Process and Resources

Part I. Gathering information