

Name: \_\_\_\_\_ Section: \_\_\_\_\_

### The Solar System – Open Response Question 1

The table and descriptions below show some of the characteristics of the planets in our solar system.

**Planetary Data\***

Planet	Mass ( $10^{24}$ kg)	Diameter (km)	Density (kg/m <sup>3</sup> )	Length of Day <sup>1</sup> (hours)	Distance from Sun ( $10^6$ km)	Orbital Period <sup>2</sup> (days)	Orbital Velocity <sup>3</sup> (km/s)
Mercury	0.330	4879	5427	4222.6	57.9	88.0	47.9
Venus	4.87	12,104	5243	2802.0	108.2	224.7	35.0
Earth	5.97	12,756	5515	24.0	149.6	365.2	29.8
Mars	0.642	6794	3933	24.7	227.9	687.0	24.1
Jupiter	1899	142,984	1326	9.9	778.6	4331	13.1
Saturn	568	120,536	687	10.7	1433.5	10,747	9.7
Uranus	86.8	51,118	1270	17.2	2872.5	30,589	6.8
Neptune	102	49,528	1638	16.1	4495.1	59,800	5.4
Pluto (dwarf)	0.0125	2390	1750	153.3	5870.0	90,588	4.7

\* Numerical data based on NASA information.

<sup>1</sup>Length of Day (hours) – This is the average time in hours that it takes for the Sun to move from the noon position in the sky at a point on the equator back to the same position.

<sup>2</sup>Orbital Period (days) – This is the time in Earth days that it takes for the planet to orbit the Sun.

<sup>3</sup>Orbital Velocity (km/s) – This is the average velocity, or speed, of the planet in kilometers per second as it orbits the Sun.

- Identify the planet that has the greatest density. Include data from the table to support your answer.
- Describe the relationship between a planet's distance from the Sun and its orbital period. Include data for at least two planets to support your answer.
- Identify the planet that rotates the fastest on its axis. Include data from the table to support your answer.