

Solar System Planet Report Activity

1) Planet name

a) What does its name mean? (Planets in our solar system were named after mythological gods.)

2) Discovery

a) Planets that are not visible using the naked eye were discovered after the invention of the telescope. If your planet was discovered with a telescope, who discovered it and when?

Discovered by _____ on _____

3) Position in the Solar System

a) Where is your planet located? (For example, Earth is the third planet from the Sun.)

b) What is its closest distance (perihelion) from the Sun in kilometers (km) ? _____
and astronomical units (AU) ? _____

c) What is its farthest distance (aphelion) from the Sun in kilometers (km) _____
and astronomical units (AU) ? _____

d) What is its semi-major axis distance from the Sun in kilometers (km) _____
and astronomical units (AU) ? _____

4) Orbit

a) What is its orbital period around the Sun in days (d) or hours (h) ? (This is the length of one year on your planet.) _____ (be sure to include the correct units)

b) What is its average orbital speed in kilometers per second (km/s) ? _____

c) Is its average orbital speed faster or slower than Earth's? (Earth's orbital speed is 29.78 km/s. If your planet is closer to the Sun than Earth, its orbital speed will be higher, if it is farther than the Earth, its orbital speed will be lower.) _____

d) What is its inclination to the ecliptic in degrees? (Earth's inclination to the ecliptic is 0° since we measure the inclination of the other planets based on Earth's orbit.) _____

5) Axis rotation

a) How long does it take for your planet to rotate on its axis (sidereal period) in days (d) or hours (h) ? (This is the length of one day on your planet.) _____ (be sure to include the correct units)

b) What is its axial tilt in degrees? _____

c) Is its axial tilt more than or less than Earth's? (Earth's axial tilt is 23.45°) _____

d) Does it rotate backwards (retrograde)? _____

6) Size

a) How does it compare with the other planets in terms of size? (Is it the largest? smallest? second largest? second smallest? etc.) _____

b) What is its (mean) radius in kilometers (km) ? _____

c) What is its surface area in square kilometers (km^2) ? _____

d) What is its mass in kilograms (kg) ? _____

e) What is its volume in cubic kilometers (km^3) ? _____

f) What is the range of its apparent magnitude? _____

g) What is the range of its angular diameter in degrees? _____

7) Gravity

- a) What is the surface gravity in meters per second squared (m/s^2) ? _____
- b) What is the gravity in units of g? _____
- c) Is its surface gravity greater than or less than Earth's? (Earth's surface gravity is 1 g. If your planet's g is less than 1, then the planet's surface gravity is less than Earth's; if your planet's g is greater than 1 then the planet's surface gravity is more than Earth's.) _____

8) Temperature

- a) What is the temperature range your planet in degrees centigrade ($^{\circ}C$) ? _____
- b) What is the temperature range your planet in Kelvins (K) ? _____
- c) Are the temperatures different on the day and night sides of your planet? _____
- d) Is your planet hotter or colder than Earth? (You will need to look up Earth's temperature range.)

9) Composition

- a) Is your planet made of rock or gas? _____
- b) What is its internal composition? _____
- c) Does it have a solid or liquid core? _____
- d) What is your planet's density in grams per cubic centimeter (gm/cm^3) ? _____

10) Surface features

- a) What is its geometric albedo? _____
- b) What color(s) is/are your planet? _____
- c) Does your planet have craters? _____ mountains? _____
volcanoes? _____ deserts? _____
polar caps? _____ other surface features? _____
- d) What features, if any, does it share with Earth? _____

11) Atmosphere

- a) What is the composition of the atmosphere? _____
- b) What is the surface pressure in kilopascals (kPa) ? _____
- c) Is it thick or thin? _____
- d) How does it compare with Earth's atmosphere? (You may need to look up some information on Earth's atmosphere.) _____
- d) Does your planet have cloud bands? _____
spots in its clouds? _____ sand storms? _____
lightning? _____ high winds? _____

12) Moons

- a) Does your planet have moons? _____
- b) If it does, how many? _____
- c) If it does, describe the largest moons and when they were discovered.

13) Rings

- a) Does your planet have rings? _____
- b) If it does, how many does it have? _____
- c) If it does, describe the rings and state when they were discovered.

14) Human survival

- a) Could a human survive with or without a space suit? _____
- b) If a human could survive, what would humans need to live on your planet?

- c) If a human could not survive, even with a space suit, what would happen to a human on your planet?

15) Discoveries

- a) What spacecraft have photographed your planet and when?

- b) What discoveries were made by those spacecraft about your planet?

- c) Assume that you actually could visit your planet or its moons. What would you do during your visit? and what would you want to investigate?

16) Additional information

- a) Include any additional interesting information about your planet
