

Study Guide
Chapter 16 - The Solar System

GPS: S6E1 - Students will explore current scientific views of the universe and how those views evolved.

- a. Relate the Nature of Science to the progression of basic historical scientific models (geocentric, heliocentric) as they describe our solar system, and the Big Bang as it describes the formation of the universe.
- c. Compare and contrast the planets in terms of size relative to the Earth, surface and atmospheric features, relative distance from the Sun, and the ability to support life.

1. In a geocentric system, Earth is at the center of the revolving planets and stars.
2. Around 140 AD the Greek astronomer, Ptolemy, further developed the geocentric model.
3. In a heliocentric system, Earth and the other planets revolve around the Sun.
4. Around 1543, the Polish astronomer, Copernicus further developed the heliocentric model.
5. Galileo used the newly invented telescope to make discoveries that supported the heliocentric model.
6. Kepler found that the orbit of each planet is an ellipse.
7. The Solar System consists of the Sun, the planets and their moons, and several kinds of smaller objects that revolve around the Sun.
8. The four inner planets are small and dense and have rocky surfaces and are called terrestrial planets.
9. Earth is unique in our solar system in having liquid water at its surface.
10. Mercury is the smallest terrestrial planet.
11. Mercury is the planet that is closest to the Sun.
12. Venus has a density and internal structure that are very similar to Earth's.
13. The carbon dioxide in Venus's atmosphere traps heat so well that it has the hottest surface (hottest average temperature) of any planet.
14. Mars is called the "red planet" because it is rusty and dusty.
15. Scientists think that a large amount of liquid water flowed on Mars surface in the distant past.
16. The four outer planets - Jupiter, Saturn, Uranus, and Neptune - are large and massive and do not have solid surfaces and are often called the gas giants.
17. Jupiter is the largest and most massive planet.
18. Jupiter has a Great Red Spot which is actually a storm larger than the Earth.
19. Saturn's rings are made of chunks of ice and rocks.
20. Saturn has the most spectacular rings of any planet.
21. Uranus looks blue - green because of traces of methane gas in its atmosphere.
22. Uranus rotates from top to bottom instead of from side to side like other planets.
23. Uranus and Neptune look like twins because they are similar in size and color.
24. Neptune is a cold, blue gaseous planet.
25. Pluto is now classified as a dwarf planet because it crosses into Neptune's orbit.
26. Moon is a natural satellite that revolves around a planet.