

The Solar System

Section 4: The Outer Planets

Guide For Reading: What are the main characteristics of the gas giant planets?

- The first four outer planets – Jupiter, Saturn, Uranus, and Neptune – are much larger in size than Earth, and are made almost entirely of gases.
- Also, the gas giants do not have solid surfaces

Checkpoint: Why do the gas giants have large atmospheres?

- The gas giants have so much mass that they exert a strong gravitational force that keeps the planets' gases from escaping

Checkpoint: What are Jupiter's four largest moons?

- Io – covered with volcanoes
- Callisto – icy surface, so heavily cratered that no part of its surface is free of craters
- Ganymede – surface is icy and partly covered with craters
- Europa – Icy crust

Checkpoint: What are Saturn's rings made of?

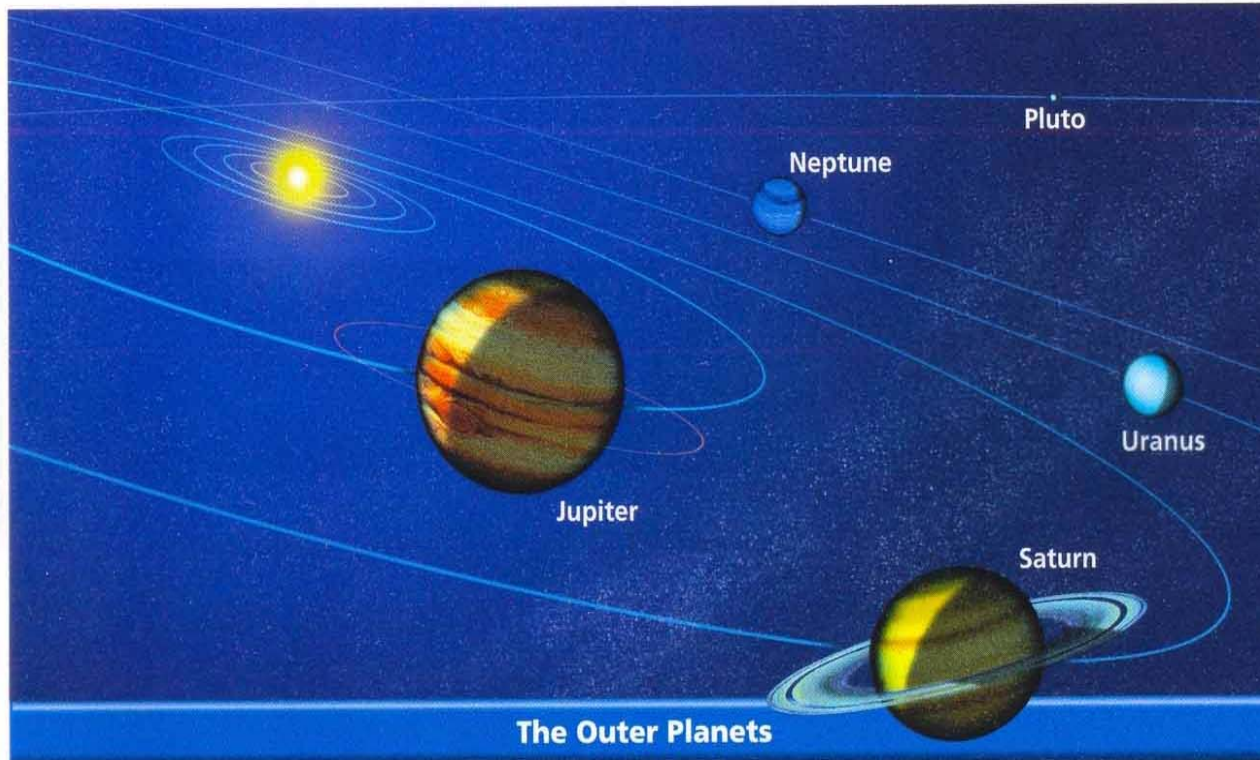
- Ice chunks and rocks

Checkpoint: Before they could see Neptune, what evidence led scientists to conclude that it existed?

- Uranus was not following the orbit that scientists predicted. Scientists believed that the gravity of large object, probably a planet, was affecting Uranus's orbit

Guide For Reading: How is Pluto different from the other outer planets?

- Pluto and Charon have solid surfaces and masses much less than that of Earth.
- Pluto is less than $\frac{2}{3}$ the size of Earth's moon



The Outer Planets

Planet	Diameter (kilometers)	Period of Rotation (Earth days)	Average Distance From Sun (kilometers)	Period of Revolution (Earth years)	Number of Moons
Jupiter	143,000	0.41	779,000,000	12	60+
Saturn	120,500	0.45	1,434,000,000	29	31+
Uranus	51,100	0.72	2,873,000,000	84	25+
Neptune	49,500	0.67	4,495,000,000	164	13+
Pluto	2,400	6.4	5,870,000,000	248	1