

Take a virtual tour of the solar system to uncover interesting facts about the planets. The websites listed below will provide the answers. In some cases, the information you are looking for may be hidden behind one or more links, so you will have to do a bit of detective work. Happy hunting and good luck! (P.S. Be sure to write in complete sentences where you are given room for more than short answers.)

Go to <http://www.astronomy.com/> and click on “Astro for kids”.

- * About 70% of Earth’s surface is covered with water. How much of this water is fresh water, the water we drink? _____ Earth’s atmosphere is about ____% oxygen. Some oxygen high in the atmosphere has changed to _____. Why is it important to living things on Earth?

- * The thick atmosphere of Venus is made up of mostly _____. The atmosphere acts like a greenhouse, trapping the sun’s energy and warming the planet to almost 500°C (900°F). As a result, Venus is the _____ planet in the solar system.

Go to <http://solarsystem.nasa.gov/planets/>

- * Mercury is so close to the sun that the temperature on its sunny side can reach a sizzling 467°C. But its nighttime temperatures can drop to a frigid -183°C. Why is Mercury so cold at night? _____

How much would you weigh on Mercury? (Hint: Look for the kids’ page.) _____

- * Mars is the _____ planet from the sun. Its average surface temperature is _____. List two ways that Mars is like Earth: _____

List two ways it differs: _____

Who is the Mars rock star? _____

- * With the exception of Pluto, the outer planets of our solar system are known as the gas giants. Which of the gas giants has the surface feature called the Great Red Spot (more brown than red, actually)? _____ What causes this feature? _____

Go to <http://observe.arc.nasa.gov/nasa/education/reference/orbits/orbit1.html>

* All of the planets have slightly elliptical orbits. Use the orbit simulator to find out what this means. What is the shape of an orbit when the eccentricity is zero? _____

When it is equal to 0.5? _____

Sketch these two orbits in the spaces below.

eccentricity = 0

eccentricity = 0.5


 CHALLENGE PROBLEM #1 (for super science wizards)

In July 2004, an unmanned spacecraft arrived at a planet in our solar system. This exploration included a small probe to be sent from the mother spacecraft onto the surface of one of the planet's moons. Which planet? _____ Which moon? _____

What is the name of the mission? _____

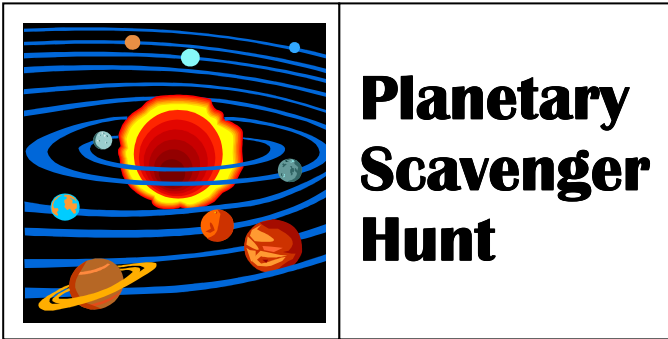
If you were riding on that probe, why wouldn't you be able to see the moon's surface easily?

What do scientists think might be found on the surface of this moon? _____

 CHALLENGE PROBLEM #2 (for super-duper science wizards)

Go to <http://stereo.gsfc.nasa.gov/>

Explore this website to learn about NASA's STEREO space mission – its purpose, what it looks like, what it does, etc. On a separate sheet of paper, write one or two good paragraphs about what you have learned.



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ANSWER KEY

Go to <http://www.astronomy.com/> and click on “Astro for kids”.

- ★ About 70% of Earth’s surface is covered with water. How much of this water is fresh water, the water we drink? **3%** Earth’s atmosphere is about **21** % oxygen. Some oxygen high in the atmosphere has changed to **ozone**. Why is it important to living things on Earth?

The ozone filters out harmful ultraviolet rays from the sun and protects the creatures living on Earth’s surface.

- ★ The thick atmosphere of Venus is made up of mostly **carbon dioxide**. The atmosphere acts like a greenhouse, trapping the sun’s energy and warming the planet to almost 500°C (900°F). As a result, Venus is the **hottest** planet in the solar system.

Go to <http://solarsystem.nasa.gov/planets/>

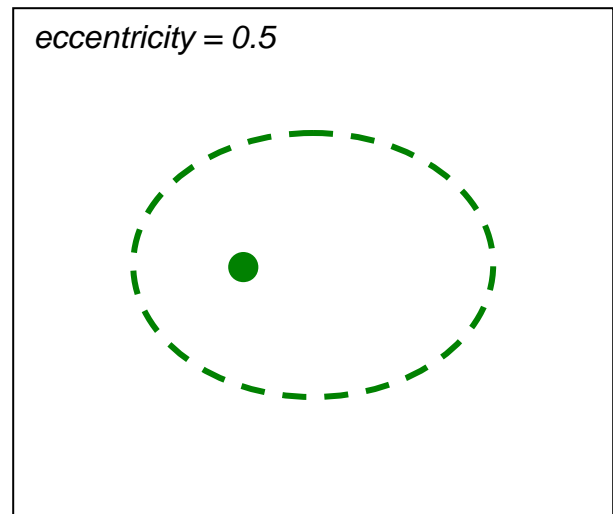
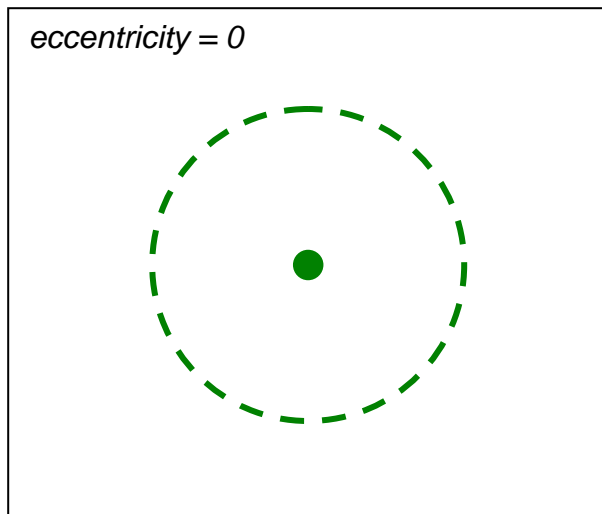
- ★ Mercury is so close to the sun that the temperature on its sunny side can reach a sizzling 467°C. But its nighttime temperatures can drop to a frigid -183°C. Why is Mercury so cold at night? **Mercury has hardly any atmosphere to keep it warm.**
How much would you weigh on Mercury? (Hint: Look for the kids’ page.) **Answers will vary.**
- ★ Mars is the **fourth** planet from the sun. Its average surface temperature is **-81°F (-62°C)**. List at least three ways that Mars is like Earth: **Mars has canyons, volcanoes, polar ice caps, dust, rocks, and four seasons.**
List at least three ways it differs: **Mars is colder and drier than Earth. It has two small moons, a poisonous atmosphere, a hazy red sky, and a year twice as long as Earth’s.**
Who is the Mars rock star? **Dr. Joy Crisp, a Mars Exploration Rover scientist**
- ★ With the exception of Pluto, the outer planets of our solar system are known as the gas giants. Which of the gas giants has the surface feature called the Great Red Spot (more brown than red, actually)? **Jupiter** What causes this feature? **a giant storm in Jupiter’s atmosphere**

Go to <http://observe.arc.nasa.gov/nasa/education/reference/orbits/orbit1.html>

- * All of the planets have slightly elliptical orbits. Use the orbit simulator to find out what this means. What is the shape of an orbit when the eccentricity is zero? a circle

When it is equal to 0.5? an ellipse (egg-shaped, oval, squashed)

Sketch these two orbits in the spaces below.



CHALLENGE PROBLEM #1 (for super science wizards)

In July 2004, an unmanned spacecraft arrived at a planet in our solar system. This exploration included a small probe to be sent from the mother spacecraft onto the surface of one of the planet's moons. Which planet? Saturn Which moon? Titan

What is the name of the mission? Cassini

If you were riding on that probe, why wouldn't you be able to see the moon's surface easily? The surface of Titan is hidden by clouds and haze (smog).

What do scientists think might be found on the surface of this moon? They think it might have seas or lakes of methane.

CHALLENGE PROBLEM #2 (for super-duper science wizards)

Go to <http://stereo.gsfc.nasa.gov/>

Explore this website to learn about NASA's STEREO space mission – its purpose, what it looks like, what it does, etc. On a separate sheet of paper, write one or two good paragraphs about what you have learned.