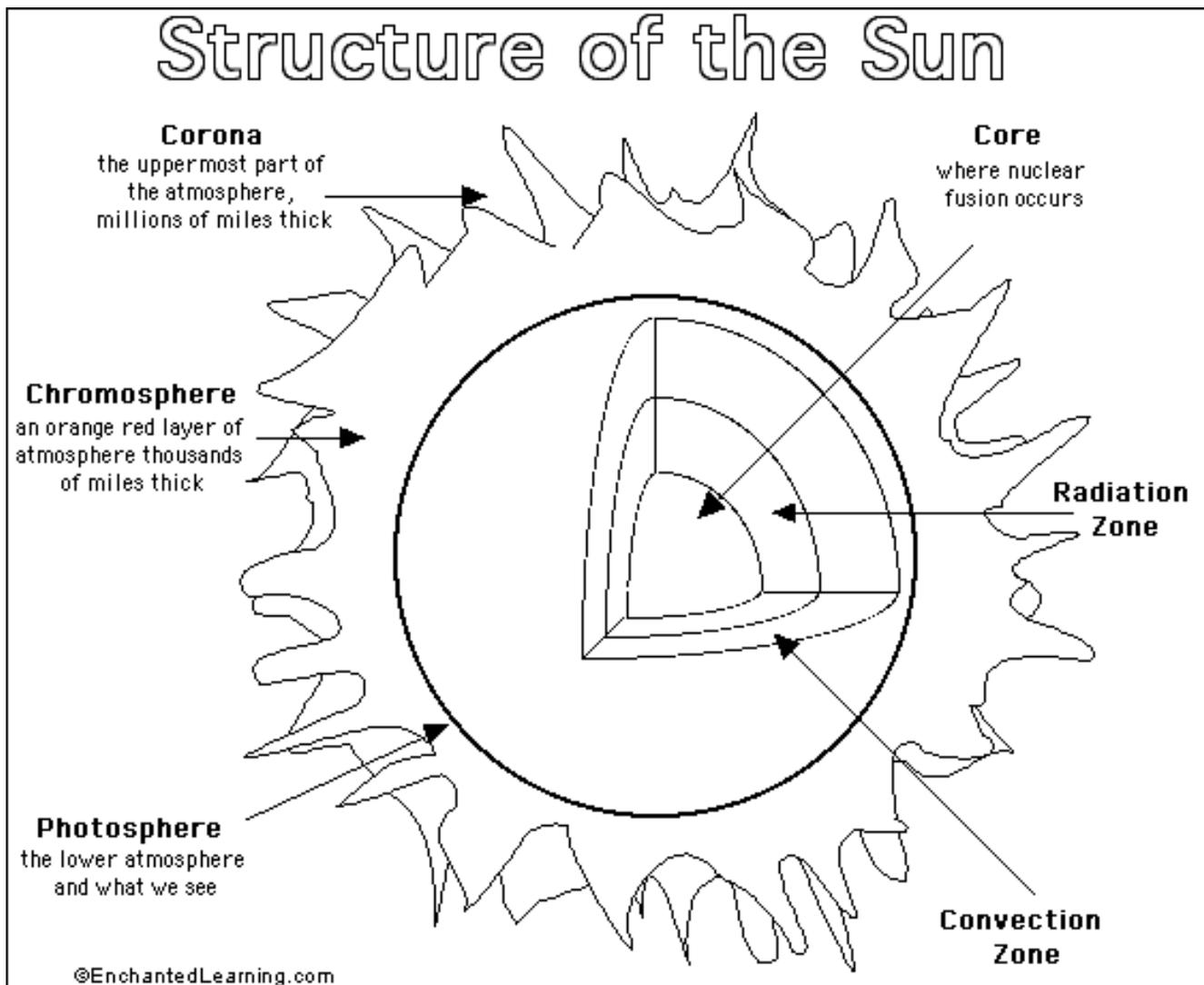


## The Sun and Inner Planets Information Worksheet

For the next few days you will be visiting different centers to learn about the sun and the first four inner planets. Use the information found at each center to fill in this worksheet and prepare the required graphs.

### The Sun

Color in this diagram using yellows to represent hotter temperatures and reds to represent cooler temperatures.



# The Sun

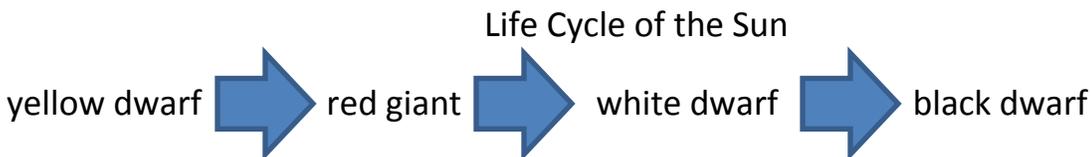
Two fourth grade boys came home from school after studying the Solar System and were having an argument. Bob told his brother Sam that he learned the Sun was the biggest, hottest sun in the entire Universe. Sam disagreed with his brother. What evidence can you find to help Sam convince his brother that what he is saying is not correct?

**Claim:** The Sun is just an average star.

**Evidence:**

1. The sun is an average sized star
2. There are millions, if not hundreds of millions of other stars just like ours
3. There are millions of stars much bigger than our own

It takes light from the sun approximately 8 minutes to reach the earth.



Explain each stage of the life cycle of the sun as shown above.

yellow dwarf – This is the stage our sun is in now. Hydrogen atoms are being fused together to create Helium atoms in a process called nuclear fusion. This gives off a lot of energy and the star shines

red giant – As a star uses up its fuel (converts hydrogen to helium) the outer layers expand, cool off, and expand creating a red giant. This is the beginning of the end for the star. Our star will become a red giant in about 5 billion more years.

white dwarf – This is the last stage of a star. It is the core left over from the red giant stage and it no longer has enough mass and temperature required to fuse hydrogen atoms together. The white dwarf will eventually cool off and stop giving off light.

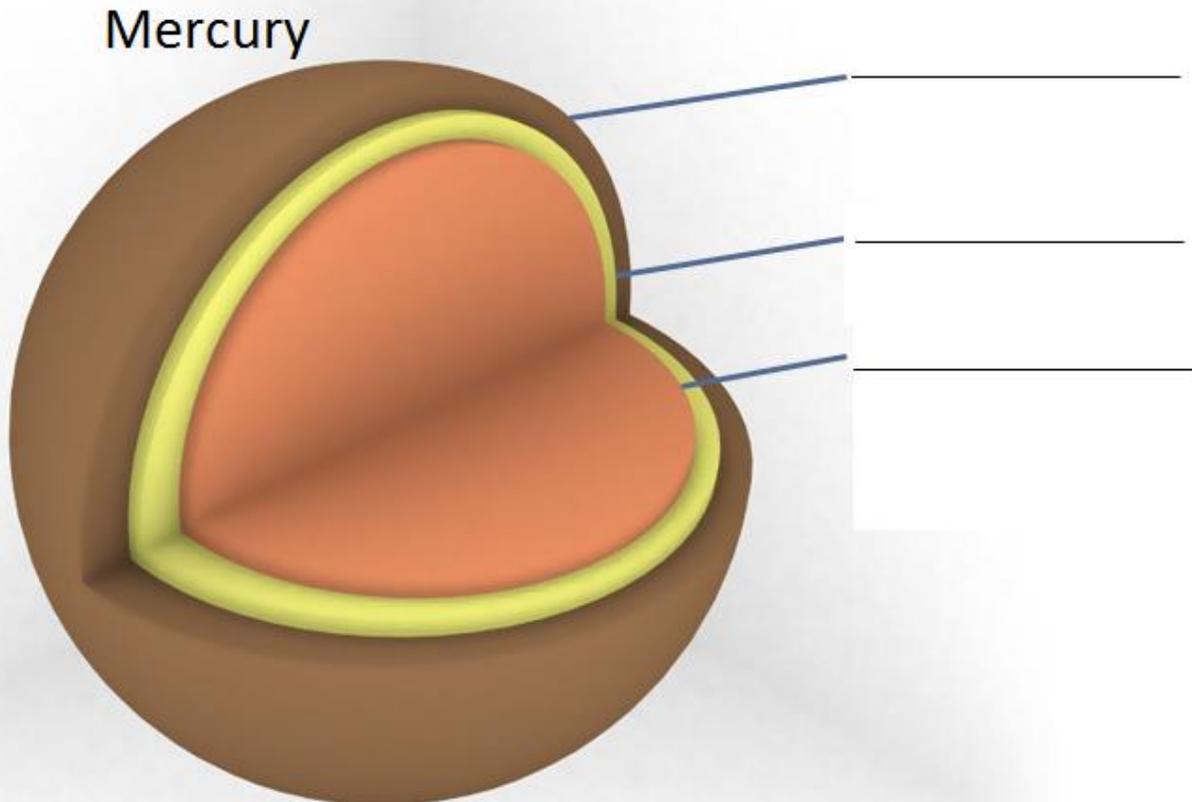
black dwarf – Scientists have never found an actual black dwarf, but they believe this is what would be the end stage of a star like our sun. When it has used up most of its hydrogen fuel, cooled off and contracted to just a core. Scientists think it would take over 14 billion years for a star to reach this stage.

The sun is about 4.5 billion years old and scientists think it has 5 billion years left before it has burned up all its fuel.

# Mercury

Use the information provided at the center to complete this page.

Label this diagram.



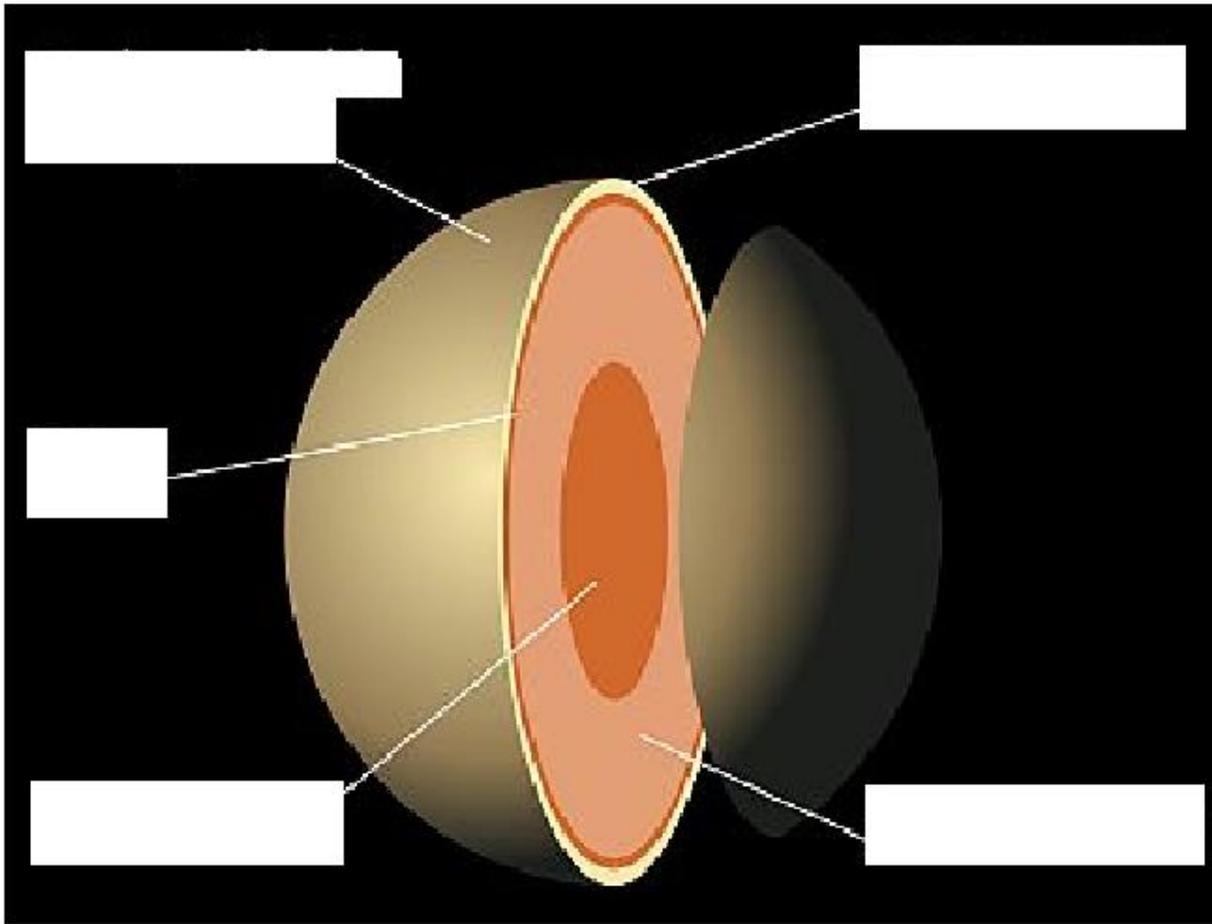
What similarities and differences do you notice about the structure of Mercury as compared to Earth? Mercury has the same three major layers, core, mantle and crust. However, Mercury's core is proportionally much bigger than Earth's core. Mercury's mantle is proportionally much smaller than that of Earth.

How was Mercury discovered? We do not know when Mercury was first discovered, it has been known for thousands of years.

It was named after the Roman messenger god because it moves through the sky more quickly than the other planets

Label this diagram.

## Venus



What are the similarities and differences between the atmosphere of Venus and the Earth?

The atmosphere of Venus is much, much thicker than Earth's. It is made up of mostly Carbon Dioxide and Sulfuric Acid. The atmospheric pressure on Venus is 90 times greater than that on Earth.

When was Venus discovered? Venus can be seen without a telescope so it has been known for thousands of years.

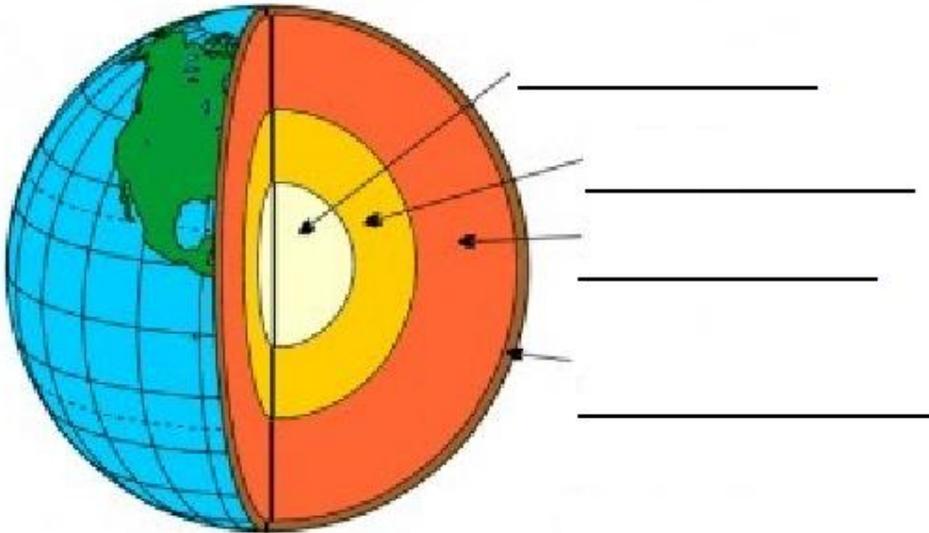
Can it be seen without a telescope? Yes, it is known as the evening star because it rises early in the evening and is quite bright.

How did it get its name? It is named after the Roman Goddess of love: Venus

Is life on Venus possible? why? or why not? \_\_\_ Life as we know it is not possible on Venus. The atmosphere is too toxic and the pressure would kill us.

Label this diagram.

## The Earth



Earth is a very special planet. It is the only one to have liquid water which is necessary for all life. What else does Earth have that allows life to flourish here? Earth is at just the right distance from the sun to be not too cold and not too hot. We are in the Goldilocks Zone. We also have an ozone layer that protects life from harmful UV radiation and a magnetic field that deflects other types of radiation from reaching Earth. Liquid water is also important to life as we know it.

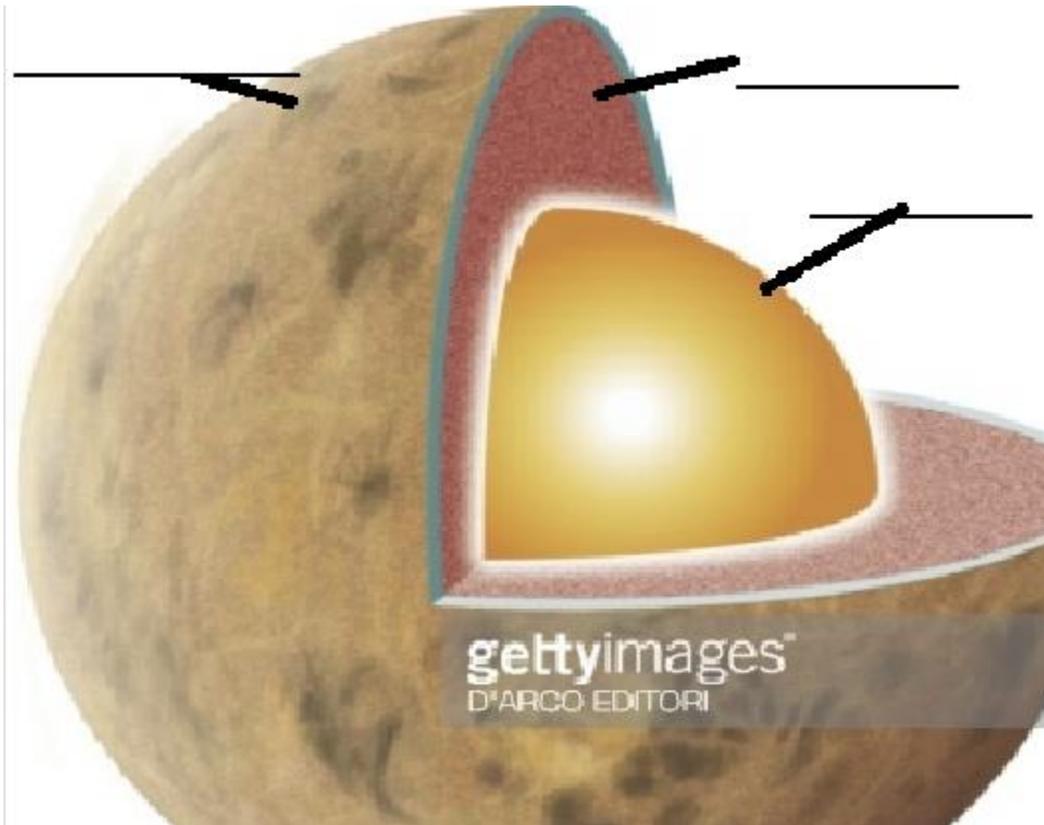
The spinning metal core gives Earth its magnetic field. This shields Earth from much of the sun's harmful radiation and protecting life on the surface.

The Earth is about the same size as what other planet? Venus is about 80% as large as Earth.

There was a TV show called, Third Rock From the Sun. Is this an appropriate name for Earth? Why/Why not? This was an appropriate name for our planet because it is the third rocky planet from the sun

Label this diagram.

## Mars



Mars was named after the Roman god of war.

Why is Mars called the “Red Planet”? because its soil contains a lot of ferrous oxide or rust which is blown around in the atmosphere by storms and give the planet a reddish color when seen from space.

What evidence do scientists have that Mars once had liquid water on its surface?

There are surface features like canyons and what look to be river beds that if on Earth would have been formed by water erosion. Also, one of the rovers discovered crystals called blueberries that only form here on Earth in the presence of water.

Describe the two Martian moons. Phobos – 27 km in diameter, closer to Mars, covered in craters, predicted to smash into Mars in about 40 million years

Deimos – 15 km in diameter, farther away than Phobos, covered in craters.

Earth and Mars both rotate around a tilted axis. This causes both planets to have seasons.