Earth, Moon, and Sun · *Enrich*

Your Weight in the Solar System

Each object in the solar system has a different mass and diameter. As a result, you would have a different weight on the moon than on Mars or on Earth. Use the table below to calculate a person's weight on the surfaces of some solar system objects. In the case of the sun, you'll have to use your imagination. It's really impossible to stand on the sun's gaseous surface. For your calculations, use the example of an astronaut who weighs 150 pounds on Earth. In your calculations, use newtons instead of pounds. One pound is about equal to 4.5 newtons.

To find your weight on the surface of each object, multiply your weight on Earth by the proportion of Earth's gravity for each object. Enter your weight on each object into the table.

Solar System Object	Proportion of Earth's Gravity	Weight on Surface
Moon	0.165	
Venus	0.905	
Mars	0.379	
Pluto	0.059	
Sun	274	

Answer the questions below on a separate sheet of paper.

1. Which object has a much higher gravitational attraction than Earth? Explain.
2. On which object would you weigh the least? Why do think this is so?
3. Could you jump higher on Venus or on Mars?
4. During the Apollo program, astronauts played golf on the moon. How do you think the moon's low gravity affected their game?
5. Imagine that the sun contracted to a smaller volume. How would this affect the gravitational force on its surface?