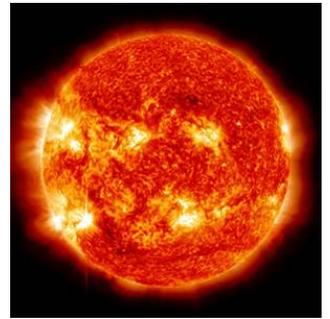


Make a Solar System necklace!

The sun is a star at the center of the Solar System and all of the planets orbit around it. It is much larger and heavier than Earth, and accounts for about 99% of the total mass of the Solar System. The Sun is composed mostly of hydrogen with small amounts of helium, oxygen, carbon, neon and iron. These elements are not in the form of solids, liquids or gases, but in a plasma that generates huge amounts of energy that we see as light and feel as heat. The Sun's light and heat provide Earth's energy. **Use the big, yellow or orange bead for the sun on your necklace.**



Mercury is the planet closest to the Sun and takes only about 88 days to orbit the Sun. It has a rocky surface and is scarred by craters. It is very bright, and is best seen just before sunrise or right after sunset. It has almost no atmosphere which means that at night it gets very cold (-280°F) and during the day it is extremely hot (800°F). **Use the small light purple bead to represent Mercury on your necklace.**

Venus is the second planet from the Sun, orbiting it every 225 Earth days. Its size and mass are similar to Earth, but since its atmosphere is mostly carbon dioxide and the temperature is over 800°F, we couldn't live there! It has a rocky body with many craters and what seem like volcanoes. There may have been water there once, but now the clouds are composed of sulfuric acid. After the Moon, it is the brightest natural object in the night sky and is bright enough to cast shadows. **Use the small yellow bead to represent Venus on your necklace.**

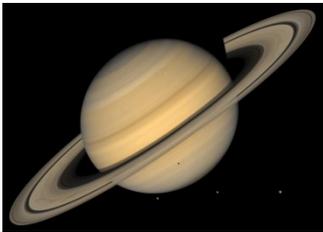


Earth is the third planet from the Sun and the densest planet in the Solar System. It takes 365 days for Earth to orbit the Sun. Earth has its own Moon that rotates around it about every 30 days. Earth is composed of silicon, aluminum, calcium, iron and many other elements. The Earth's surface is covered by water, ice, rock and land. Within its first billion years, life appeared in Earth's oceans and began to affect its atmosphere and surface. Since then, the combination of Earth's distance from the Sun, its physical properties and its geological history have allowed life to thrive and evolve. **Use the small green bead to represent Earth on your necklace.**

Mars is the fourth planet from the Sun and takes 687 days to orbit the Sun. Mars is rocky and is composed of silicon, oxygen, iron and other metals. It is called the Red Planet because the iron oxide prevalent on its surface gives it a reddish appearance. Its surface has impact craters, valleys, deserts, and polar ice caps. Mars is bright enough to see with naked eye and its red color may help you identify it in the night sky. **Use the small red bead to represent Mars on your necklace.**

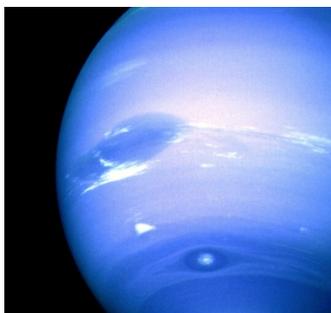
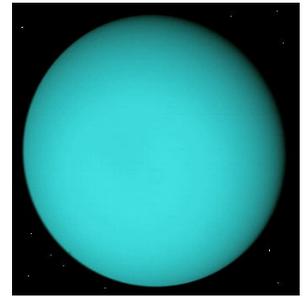


Jupiter is the fifth planet from the Sun and its orbit around the Sun takes 12 years. It is a gas giant which means that it has a molten rock core with liquid hydrogen oceans and clouds of hydrogen, ammonia and helium. Jupiter has large storms in its atmosphere - one of them is the "Great Red Spot" observed by large telescopes and shown in most photos and illustrations of Jupiter. Jupiter is often the third brightest object in the night sky and has 4 large moons that can be easily seen with small telescopes like you might have at home. **Use the big, dark swirly bead to represent Jupiter on your necklace.**



Saturn is the sixth planet from the Sun and the second-largest in the Solar System, after Jupiter. Like Jupiter, it is a gas giant. It is very heavy and large, with a radius about nine times that of Earth. Its orbit around the Sun takes 29 years. Saturn's core is composed of iron, silicon, rock, but it has lots of helium, hydrogen and ammonia in its atmosphere. Saturn is the most distant planet that can be seen with the naked eye. It is known for its rings, which can be seen with a backyard telescope. **Use the flat disc-shaped bead to represent Saturn on your necklace.**

Uranus is the seventh planet from the Sun and takes 84 years (!) to orbit the Sun. It has the third-largest radius and fourth-largest mass in the Solar System. It is an ice giant, which means that it is composed mainly of carbon, nitrogen, and sulfur and has ices of water, ammonia and methane. It is *extremely* cold (-357°F). You can barely see Uranus with the naked eye – it's easier with binoculars. It looks a little bluish. **Use the medium-sized, light blue bead to represent Uranus on your necklace.**



Neptune is the eighth and farthest known planet from the Sun and its orbit around the Sun takes 165 years! Its core consists of ices of water, methane and rock, and it has hydrogen and helium in its atmosphere. It is medium-sized but 15 times heavier than Earth. Like Uranus, it is *extremely* cold (-360°F). With strong binoculars or a telescope, it looks like a blue disk. **Use the medium-sized, dark blue bead to represent Neptune on your necklace.**

Pluto was originally considered the ninth planet from the Sun, but is now considered a dwarf planet. It takes 248 years to orbit the Sun! It is very small and is composed of nitrogen ice and rock. Parts of its surface look dark and parts are white, but it takes a large, professional telescope to see it. **Use small clear or silver bead to represent Pluto on your necklace.**

