

Name \_\_\_\_\_

period \_\_\_\_\_

Date \_\_\_\_\_

Write your notes  
about what you are  
reading in this space.

## Science Shorts -8

### Outer Space

Have you ever wondered what is really in outer space? What exactly is the universe? The word universe is used to refer to all of outer space. Astronomers have studied space for many years but they still have more questions than answers. No one knows just how large our universe really is. We do know that the universe is immense and the distances between objects are tremendous. But how far is “far away”?

Astronomers prefer to use the term “light-years” to measure distances from Earth. A **light-year** describes how far light can travel in one year. Astronomers chose light as a reference point because it travels faster than anything else does. In fact, if you shined a beam of light all the way around the world, it could go around 7 ½ times in one second! Now that is speedy traveling! Scientists guess that the universe is at least 10 billion light-years across, and it seems to be getting larger.

The universe is made up of a lot of empty space. Huge swirling masses of stars, called galaxies, are scattered throughout the universe. Each **galaxy** is made of billions of stars. Our solar system can be found within a galaxy called the Milky Way. The Milky Way has a shape similar to a spinning Frisbee but with a bigger bulge in the middle. Our solar system would be located out on one side of the Frisbee.

There are many different kinds of stars, some old and some new. Some stars are brighter than others. Stars that are the hottest appear white through a telescope. Stars that are not quite as hot appear yellow, like our Sun. Those stars that are even cooler will appear red in color.

Have you ever looked for the Big Dipper or the Little Dipper in the sky at night? If you have, then you have looked for constellations.

**Constellations** are patterns of stars that form a specific shape in the sky.

In between the stars there are cloud-like shapes of gasses and dust called **nebulae**. Nebulae are called the birth place of stars. A star is born when the gases in these clouds condense enough for nuclear reactions to begin. A star begins to burn the gases that form it and will continue to burn and give off heat for billions of years. It may end its life quietly by becoming a black dwarf star or it may end in a supernova explosion.

The universe includes billions of stars and galaxies. Astronomers are discovering more and more about our universe every day. For now, we can all observe some the amazing characteristics of outer space each night and leave the rest up to our imaginations and scientists.

## Words To Know

<p>Word</p> <p><b>LIGHT-YEAR</b></p>	<p>Write a sentence from the reading that uses the word.</p>	<p>Word</p> <p><b>GALAXY</b></p>	<p>Write a sentence from the reading that uses the word.</p>
<p>Draw a picture of the word.</p>	<p>Write your own sentence that uses the word.</p>	<p>Draw a picture of the word.</p>	<p>Write your own sentence that uses the word.</p>
<p>Word</p> <p><b>CONSTELLATION</b></p>	<p>Write a sentence from the reading that uses the word.</p>	<p>Word</p> <p><b>NEBULAE</b></p>	<p>Write a sentence from the reading that uses the word.</p>
<p>Draw a picture of the word.</p>	<p>Write your own sentence that uses the word.</p>	<p>Draw a picture of the word.</p>	<p>Write your own sentence that uses the word.</p>