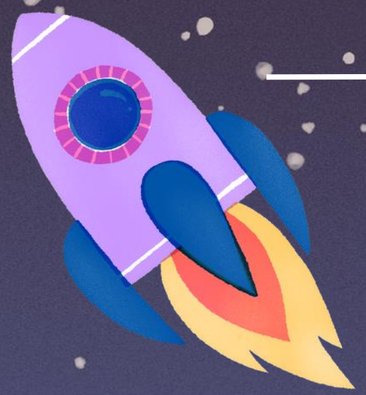
CHAPTER 13



WHAT ARE SOME CHARACTERISTICS AND PATTERNS OF STARS?

OBJECTIVES OF THIS CHAPTER

- DIFFERENTIATE THE DIFFERENT KINDS OF STARS
- DEFINE CONSTELLATION
- EXPLAIN HOW CONSTELLATIONS FORM

BIG IDEA

❑ STARS ARE ONE OF THE BEAUTIFUL HEAVENLY BODIES. THEY HAVE DIFFERENT CHARACTERISTICS AND FORMATION

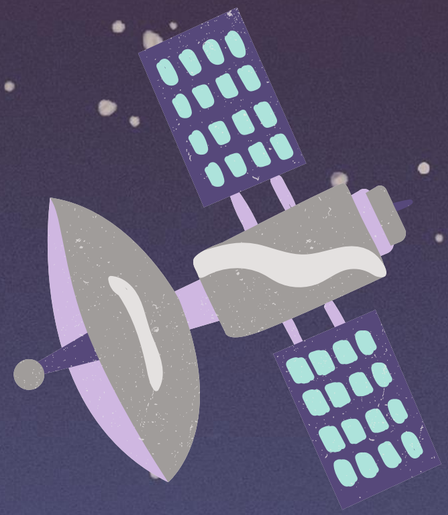
During ancient times, people used stars as their point of reference when traveling. This is because stars appears to be fixed in position. At present, stars plays an important role in the field of astronomy. They are used as a guide in determining the distance of a planet and the location of a heavenly body.

Stars differ in their sizes, color, and temperature, distance from Earth, and brightness. Some of these stars seems to form patterns in the sky.

In this chapter, you will familiarized with the different characteristics of stars and their names as well as the pattern they form.

LESSON 41

DIFFERENT CHARACTERISTICS OF STARS



IMPORTANT QUESTION

HOW DO STARS DIFFER FROM ONE ANOTHER?

Have you tried comparing the stars in a cloudless sky at night? How do they differ in size, color, and brightness?

Stars are giant balls of hot gases. They differ in color, brightness, and size. They shine day and night, but we see them only during the night.

The sun is an example of a star. During the day, it outshines other stars which are far away in space.

SIZE OF STARS

Stars are different sizes. They are measured in diameter. Diameter is a straight line that cuts a circle passing through the center point. The smallest known star has a diameter of about 20 kilometers. The VY Canis Major, one of the largest known star, has a diameter of 1,975, 000,000 kilometers. This is more than 100 times that of the sun.

Some stars are large, yet they cannot be seen by the naked eye because they are too far away. The sun is an average size star, it is the star closet to earth, that why we can see it.

THE SUN IS THE CLOSEST STAR TO EARTH.

The table below shows the size of some stars.

Star	Size (diameter in kilometers)
Sun	1,392,000
Capella	16,704,000
Arcturus	36,000,000
Antares	1,200,000,000
Betelgeuse	1,400,000,000

The Earth is so small compared to the sun. the sun is more than one million times larger than Earth. It will take about 108 Earths arranged in a row to fill the diameter of the sun.

BRIGHTNESS OF STARS

Some stars are brighter than others. A star which is too far away may look dim when actually it is very bright.

Apparent magnitude is a measure of the brightness of the star as seen from the Earth. It is used to describe the estimated brightness of a star. Stars that appear to be the brightness have an apparent magnitude of 1 while the dimmest stars that can be seen without the help of telescope on a clear night have an apparent magnitude of 6.

The table below shows a list of stars and their apparent magnitude.

Star	Apparent Magnitude
Aldebaran	.85
Rigel	.12
Capella	.08
Sirius	-1.46
Pollux	1.14
Dubhe	1.79
Shaula	1.62
Sun	-26.74
Polaris	1.97

DISTANCE OF STARS

Stars may appear to be close together when you look at the night sky. However, they vary in their distance from each other. The star nearest to Earth is the sun. It is about 150,000,000 kilometers away from Earth. If you could ride in a rocket ship that would travel at the rate of 24,500 kilometers per hour, and suppose you could go near the sun without getting burned, it would take you about 255 day to reach it.

Distance of stars are also measured in terms of light-year. A light-year is the distance light travels in one year. One light-year is about ten trillion kilometers. The second star closest to Earth is Proxima Centauri, which is 4.3 light-years away.

The table below shows the distances of some stars in light-years.

Star	Distance (Light-year)
Proxima Centauri	4.3
Sirius	8.8
Vega	26
Betelgeuse	26
Deneb	1,600

COLOR AND TEMPERATURE OF STARS

The color of a star helps astronomers determine the temperature of the star.

Study the table below.

Star	Color	Temperature (^{o}c)
Betelgeuse	Red	3,000
Arcturus	Orange	4,000
Sun	Yellow	6,000
Vega	White	10,000
Rigel	Blue	20,000

What color of stars is the Hottest?

Polaris or the North Star is the brightness star in the constellation Ursa Minor. It is commonly used by people as point of reference during early times.

Proxima Centauri is the second star closest to Earth.

THANK YOU!!