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INTRODUCING THE SOLAR SYSTEM

CLASS DESCRIPTION
In this class, students will understand the basic concept of our solar system and the nine planets for better understanding.

TOTAL CLASS TIME: 2 hours

CLASS OUTCOME
By the end of this class, students will

- Know how to define and explain basic terms in our solar system
- List the nine planets

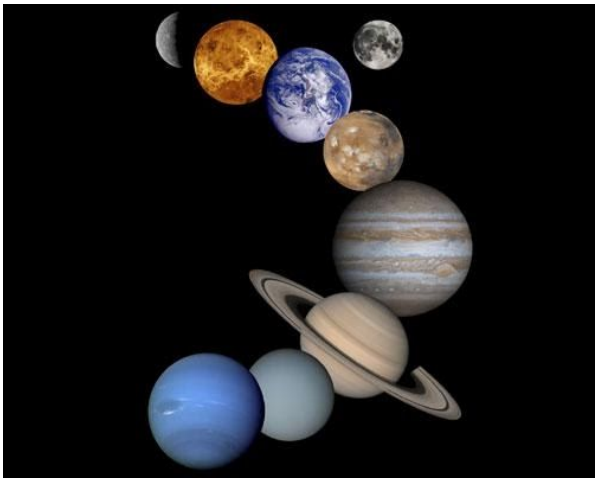
INTRODUCTION

Have you ever wondered if there are other planets other than the earth and what they look like? If YES, we take you through an in depth study of the solar system and carry out exciting experiments. So let's get started:

WHAT IS IN THE SOLAR SYSTEM?

Pretty much everything found around the Sun, which includes the Sun, planets, satellites (moons), asteroids, comets and anything else that is the area (dust and debris is pretty much all that remains). It should be noted that the proper way to refer to a moon around a planet is the term **satellite**. Satellites can be natural (like a moon) or artificial (like weather satellites). This also helps to avoid confusing our Moon with others.

Did you notice some new words or big terms? So let's understand the words better.



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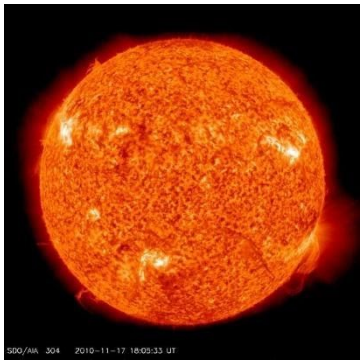
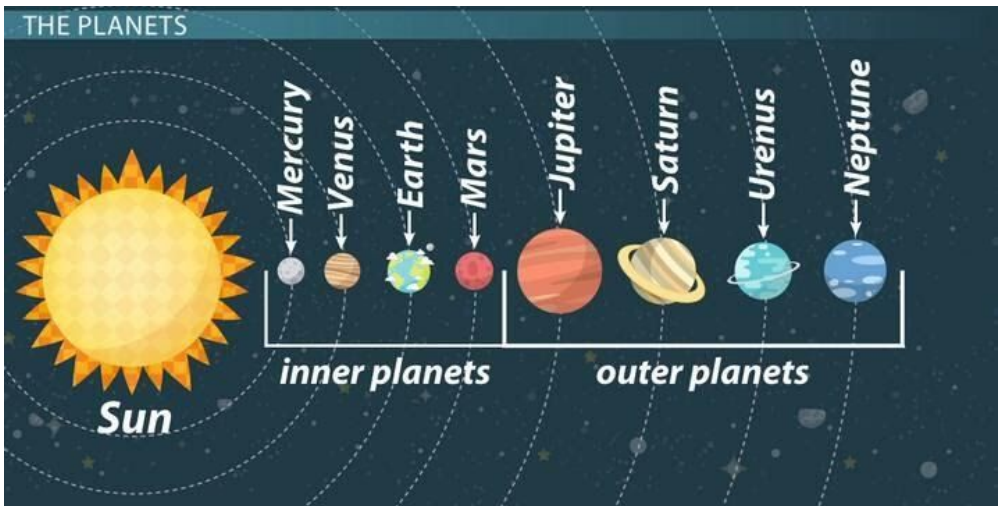
THE SUN:



The Sun—the heart of our solar system—is a yellow dwarf star, a hot ball of glowing gases. Its gravity holds the solar system together, keeping everything from the biggest planets to the smallest particles of debris in its orbit.

PLANETS:



This seemingly simple question doesn't have a simple answer. Everyone knows that Earth, Mars and Jupiter are planets. But both Pluto and Ceres were once considered planets until new discoveries triggered scientific debate about how to best describe them—a vigorous debate that continues to this day. The most recent definition of a planet was adopted by the International Astronomical Union in 2006. It says a planet must do three things:

1. It must orbit a star (in our cosmic neighbourhood, the Sun).

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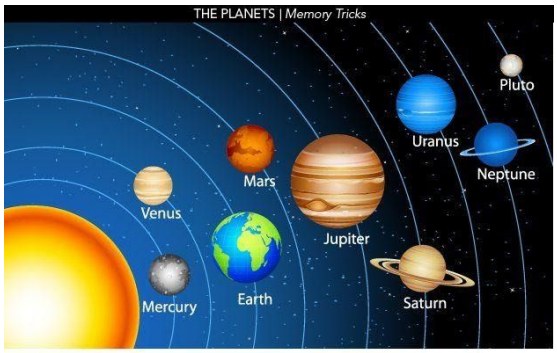
2. It must be big enough to have enough gravity to force it into a spherical shape.
3. It must be big enough that its gravity cleared away any other objects of a similar size near its orbit around the Sun.

Let's see if we can memorize the nine planets together in a simpler way:



My, **V**ery, **E**asy, **M**ethod: **J**ust, **S**et, **U**p, **N**ine, *P*lanets

SATELLITES

In astronomy, a satellite is an object that orbits (goes around) a planet. There are several hundred natural satellites, or moons, in our Solar System. Thousands of artificial (human-made) satellites have also been launched since 1957. These have many different uses, including taking pictures of the Sun, Earth, and other planets, and looking deep into space at black holes, and distant stars and galaxies. There are also communications satellites, weather satellites, and the International Space Station.

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THE MOON:

The Moon was the first place beyond Earth humans tried to reach as the Space Age began in the last 1950s. Most of the planets in our solar system—and some asteroids—have moons. Earth has one moon. We call it "the Moon" because for a long time it was the only one we knew about. Many languages have beautiful words for Moon. It is "Luna" in Italian, Latin and Spanish, "Lune" in French, "Mond" in German, and "Selene" in Greek.

Our Moon is like a desert with plains, mountains, and valleys. It also has many craters, holes created when space rocks hit the surface at a high speed. There is no air to breathe on the Moon. The Moon travels around the Earth in an oval shaped orbit. Scientists think the Moon was formed long, long ago when Earth crashed into a Mars-sized object. We always see the same side of the Moon from Earth. You have to go into space to see the other side.

MILKY WAY GALAXY

Our Sun (a star) and all the planets around it are part of a galaxy known as the Milky Way Galaxy. A galaxy is a large group of stars, gas, and dust bound together by gravity. They come in a variety of shapes and sizes. The Milky Way is a large barred spiral galaxy. All the stars we see

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in the night sky are in our own Milky Way Galaxy. Our galaxy is called the Milky Way because it appears as a milky band of light in the sky when you see it in a really dark area.

ASTEROIDS

Asteroids are small, rocky objects that orbit the Sun. Although asteroids orbit the Sun like planets, they are much smaller than planets. There are lots of asteroids in our solar system. Most of them live in the main asteroid belt—a region between the orbits of Mars and Jupiter. Some asteroids go in front of and behind Jupiter. They are called Trojans. Asteroids that come close to Earth are called Near Earth Objects, NEOs for short. NASA keeps close watch on these asteroids. Asteroids are left over from the formation of our solar system.

COMETS

Comets orbit the Sun just like planets and asteroids do, except a comet usually has a very elongated orbit. As the comet gets closer to the Sun, some of the ice starts to melt and boil off, along with particles of dust. These particles and gases make a cloud around the nucleus, called a

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coma. The coma is lit by the Sun. The sunlight also pushes this material into the beautiful brightly lit tail of the comet.

METEORS & METEORITES

A meteor is a space rock—or meteoroid—that enters Earth's atmosphere. As the space rock falls toward Earth, the resistance—or drag—of the air on the rock makes it extremely hot. What we see is a "shooting star." That bright streak is not actually the rock, but rather the glowing hot air as the hot rock zips through the atmosphere.

- When Earth encounters many meteoroids at once, we call it a meteor shower. **Meteoroids** are objects in space that range in size from dust grains to small asteroids. Think of them as “space rocks."
- When meteoroids enter Earth’s atmosphere (or that of another planet, like Mars) at high speed and burn up, the fireballs or “shooting stars” are called **meteors**.
- When a meteoroid survives a trip through the atmosphere and hits the ground, it’s called a **meteorite**.

CLASS ACTIVITIES: Solar System Word Hunt 1

The class activity exercise should be printed and distributed to every participant.

Search for the words given in the word box. (Find the solution on the next page.) Word Box

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Working To Advance STEM Education for African Girls

Comet asteroid planet star satellite orbit axis

Q	I	N	R	N	Z	Y	M	J	E	K	B	V	E	E
M	M	T	W	U	A	Z	G	C	Y	B	P	O	O	J
G	X	T	E	A	X	I	S	N	Q	J	Z	F	E	I
S	P	I	P	M	Q	M	H	Q	F	U	T	Q	P	X
S	R	B	S	E	O	F	L	T	S	E	I	G	F	H
O	B	R	M	R	J	C	C	F	A	E	X	L	M	U
C	B	O	S	F	S	X	G	O	T	D	N	V	O	Z
R	Q	W	E	E	H	P	A	C	E	I	J	E	G	E
X	M	Z	J	K	A	S	L	Y	L	Y	Q	X	S	O
J	G	N	R	X	T	I	D	B	L	G	C	A	U	Y
P	T	A	V	E	F	W	H	R	I	T	I	S	F	T
L	T	G	R	F	G	X	L	J	T	A	C	N	F	R
S	A	O	F	T	A	D	T	X	E	O	R	W	R	K
G	I	J	U	F	L	Y	T	S	T	E	N	A	L	P
D	B	W	U	E	E	M	L	D	T	K	Z	T	K	K

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ACTIVITIES: SOLAR SYSTEM WORD HUNT 2

Search for the words given in the word box.

Earth Jupiter Mars Mercury Neptune Saturn Uranus Venus

E X L V E J B M H H E N U H J
Q C H M G V T G T P B H H C U
C C N L X C E R U O K U T S P
K Z B A R B A I Z P D V R U I
J T S A M E G V F P W F E N T
O G B I G B C G U B V N S E E
D D K W Z M S G V W U E A V R
W Y V T C V A S N T V T T T F
D R T H F B D R P W V P U O J
Y R U C R E M E S Z J V R F V
S U N A R U N A R R S M N C G
S S Z X B X T X I P L T H L X
J L K Q R S J W B J G B D N B
X B O R H O M R Y Q N L O P M
E U T R S V U C C D V N Q G J

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REFERENCES:

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