

The Solar System

Science

QUESTIONS...

- What are these large rock-like structures?
- What do you think will happen if they crash into the Earth?
- What other objects are there in outer space that are close to the Earth?



QUESTIONS...



- What are these large rock-like structures?

Answer: Meteoroids

- What do you think will happen if they crash into the Earth?

Answer: they will destroy property and kill people.

- What other objects are there in outer space that are close to the Earth?

Answer: the Moon, other planets, the Sun, comets, asteroids and meteoroids.

- What makes up the Solar System?

- The Sun, the Earth and the Moon are part of a system in space called the Solar System.
- The Sun is the central object in the Solar System. The Earth and all the other objects in the Solar System move around the Sun.



- What makes up the Solar System?

- The Sun is the closest star to the Earth. It gives out its own heat and light which makes it possible for living things to survive on the Earth.
- The Moon moves around the Earth in a circular path. It does not produce light on its own. We can see it at night because it reflects light from the Sun.



- What makes up the Solar System?

- The Earth is a planet. Unlike stars, planets do not give out light of their own.
- The Earth is the only planet that is known to support life. This is because water is present on the surface of the Earth. Also the Earth is neither too close nor too far away from the Sun. So, the temperature on the Earth is just right for living things to survive.



How much water do we have?

The little blue sphere on the right is about all the water we have on Earth.

'The sphere includes all the water in the oceans, seas, ice caps, lakes and rivers as well as groundwater, atmospheric water, and even the water in you, your dog, and your tomato plant.' <http://ga.water.usgs.gov>



• What makes up the Solar System?

- Apart from the Earth, the Solar system has seven other planets. We will learn about them in a later section.
- Some of the planets have their own moons.



❖ Comets, asteroids and meteoroids

- Besides the Sun, the planets and their moons, there are other objects that move around the Sun in the solar system. These are comets, asteroids and meteoroids.



○ Comets

- Comets are made up of ice, gas, dust and small rocky particles. They are found at the edge of the Solar System.
- When a comet is far away from the Sun, it can hardly be seen from the Earth. When the comet is close enough to the Sun, heat from the Sun causes the ice in the comet to change into gas directly.



○ Comets

- This gas combines with the dust particles in the comet to form the comet's tail. The comet's tail can be seen from the Earth because it is lighted by the Sun.
- The nucleus of the comet is the central, solid part of the comet.



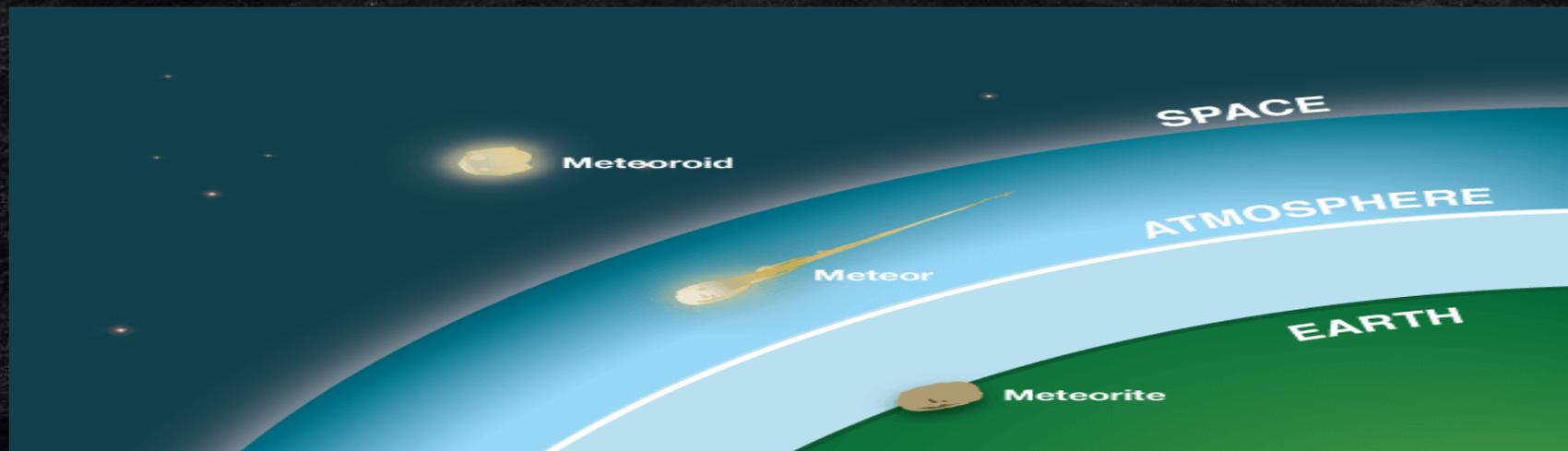
○ Asteroids

- Asteroids are irregular-shaped pieces of rock and metal exist in space. They are smaller than planets.
- In the Solar System, most asteroids are found in the main asteroid belt between the two planets Mars and Jupiter. Some asteroids have also been found close to the Earth.



○ Meteoroids

- Meteoroids are small pieces of rocks in space that have broken off from a planet or an asteroid.
- Sometimes, meteoroids enter the Earth's atmosphere at high speeds. They get heated up, glow and leave a shining trail of gases and melted particles behind them. So, they become visible to us. These visible meteoroids falling through the Earth's atmosphere are called meteors or shooting stars.





Comet

A chunk of ice, rock and dust, which develops a bright coma and tails when it is closer to the Sun
(nucleus ~10km wide, coma 1000s of km wide, tails millions of km long)



Asteroid

A large object in space, mainly composed of rock and metals, with some ice
(1m to 100s of km wide)



Meteoroid

A piece of rock, ice and/or metals, from space dust up to boulders in size
(10µm to 1m wide)

Micrometeoroid

A bit of rock or ice, from the size of a speck of dust to a grain of sand
(10µm to 2mm wide)

Fireball

A meteor that is at least as bright as Venus

Meteor

A streak of light in the sky, produced by a meteoroid entering the atmosphere, either on its own (sporadic) or as part of a meteor shower

Meteorite

A meteoroid or asteroid that survives its trip to Earth's surface*



Bolide

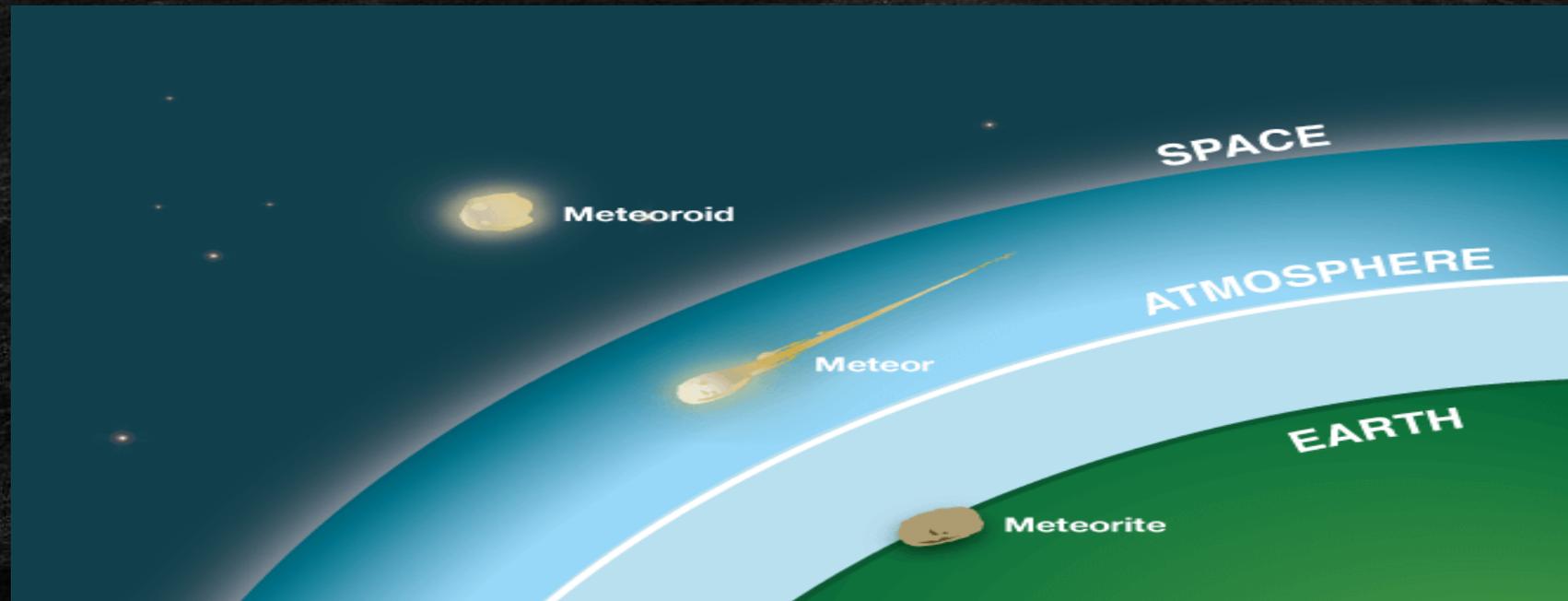
An exceptionally bright fireball that ends with the meteoroid or asteroid exploding



*Meteorite shown is NWA 1918-EUC, on display at Toronto's Royal Ontario Museum

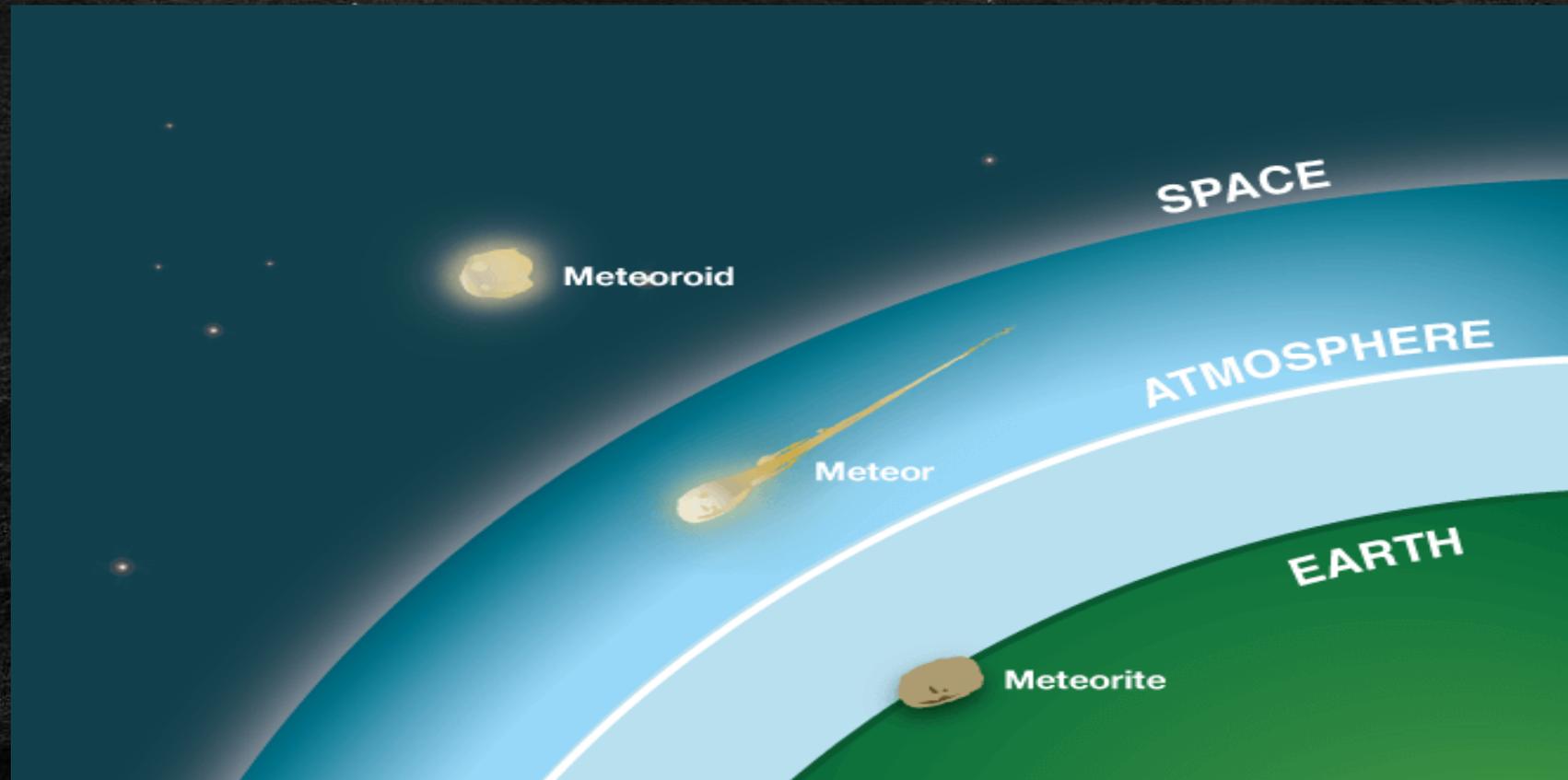
○ Meteoroids

- Most meteors are small and burn up completely as they fall through the atmosphere.
- Those that do not burn up reach the Earth's surface. Meteors that reach the Earth's surface are called Meteorites.



○ Meteoroids

- When a number of meteors fall from a single point in the sky, it is called a meteor shower.



- Arrangement and movement of planets in the Solar System

- Apart from the Earth, there are seven other planets in the Solar System.



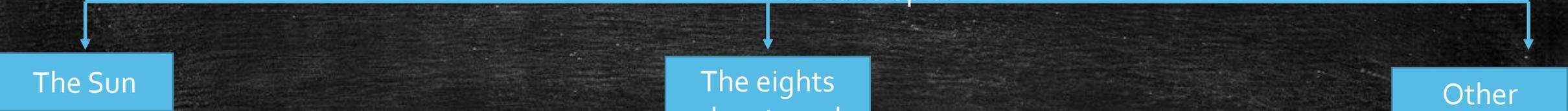
- Arrangement and movement of planets in the Solar System

- All the planets in the Solar System revolve or go around the Sun in specific elliptical paths known as orbits. When planets revolve around the Sun, we say they are orbiting the Sun.



The Solar System

is made up of



The Sun

which is the

Central and largest object in the Solar System

The eights planets and their moons

which

Revolve around the Sun

in

Elliptical paths or orbits

Other objects

like



Comets

Asteroids

Meteoroids

which in order of distance from the Sun are



Mercury

Venus

Earth

Mars

Jupiter

Saturn

Uranus

Neptune

ACTIVITY

1. Say if it is false or true.

- a. The Earth takes one year to travel once around the Sun. _____
- b. The Sun provides the Earth with heat and light. _____

2. Complete the following sentences:

- a. The solar system is made up of the _____, eight _____, their moons and other objects like _____, _____ and _____.
- b. The Sun is the _____ and largest body of the Solar System, giving out its own _____ and _____.
- c. The _____ is the only planet in the Solar System where life is known to exist.

ACTIVITY

2. Complete the following sentences:

d. Comets are made up of _____, gas, _____ and small rocky particles.

e. Objects in space that have a nucleus and a tail are called _____. They become visible when they are near the Sun.

f. Irregular – shaped pieces or rocks and metals found in space are called _____. Most of them are found in the main _____ belt.

g. Small pieces of rocks in space that have broken off from a planet or an asteroid are called _____.

h. The eight planets in order of distance from the Sun are: Mercury, Venus, Earth, Mars, Jupiter, _____, _____ and _____.

i. Planets revolve around the Sun in _____ paths called _____.