

WEEK ONE:

Stars and the Universe

AFTER EATING HIS FIRST MEAL ON THE MOON, THE ASTRONAUT REPORTED...

THE FOOD WAS GOOD, BUT THE PLACE LACKED ATMOSPHERE.



HANG ON... THEY'RE ONLY GOING TO GET WORSE!

Day One

Today, you and your child will:

1. Read the text
2. Review the text with your child
3. Complete the student worksheets
4. Find the following materials for Days Two and Three:

Shallow pan
One bag of flour
Container of cocoa
Measuring tape

Marble
Cereal boxes
Flashlight
Scissors

You and your child(ren) will be covering the following Science Standards this week:

All objects in the universe have properties, locations, and movements that can be observed and described.

The earth is the third planet from the sun in a system that includes the moon, the sun, seven other planets and their moons, and smaller objects, such as asteroids and comets. The sun, an average star, is the central and largest body in the solar system.

Definitions:

Astronomers	scientists who study the universe
Universe	a word we use to describe everything that exists...everywhere
Telescope	tool used to make faraway objects appear closer
Galaxies	a large group of gas, dust and many stars. There are billions of galaxies in the universe.
Stars	huge balls of hot gas that give off a large amount of energy (like heat and light)
Milky way galaxy	the name of the galaxy that we live in
Sun	our nearest star
Comet	a chunk of ice, gases and dust that spins around a sun; a "dirty snowball"
Orbit	the movement of an object around a sun
Asteroids	large chunks of rock that are floating in space
Meteoroids	smaller chunks of rock (less than 20 feet long) that float around in space
Meteor	"shooting stars" or "falling stars"; falling meteoroids moving so quickly through the air they get very hot and burn up, leaving a glowing trail behind them in the air
Meteorite	the name given to a meteor that does not entirely burn up in the air and smashes into the ground
Planets	large round bodies of rock or gas that orbit stars
Earth	our home planet, the third planet from the sun
Solar system	All of the planets, asteroids, meteoroids and comets that orbit a star

Sample Questions to ask after your child finishes their reading for Day One:

Place in order of greatest size to smallest size: Planet, star, universe and solar system

Universe, solar system, star, planet

What is earth's closest star?

The sun.

What is the difference between a comet and an asteroid?

A comet moves in orbit around a star while an asteroid may simply float in space.

What is the difference between a meteor and a meteoroid?

A meteor is a meteoroid that is falling through our atmosphere.

Answers to Worksheet Questions for Day One:

Page One:

3-meteor	13-Milky way galaxy
9-earth	12-telescope
10-Solar system	15-comet
5-Meteoroids	8-Asteroids
6-Planets	4-sun
7-Meteorite	14-Galaxies
2-Orbit	16-Universe
1-stars	11-astronomers

Page Two:

Comparisons between stars and planets:

- both have a round shape
- both are found within a solar system
- both may be made of gas

Differences between stars and planets:

- stars give off much more energy than planets
- planets orbit stars
- stars are not made up of rock

Page Three:

1. universe	5.comet
2.galaxy	6.meteoroid
3.solar system	7.meteorite
4.stars	

Day Two

Today, you and your child will:

- 1) Review Day One with the information found below.
- 2) Run this week's activity, "Crashing into Earth"

The following list will give you the most important items to review for your activity today!

Asteroids "ast-ur-oids" are large chunks of rock that are floating in space.

Meteoroids "meet-ee-or-oids" are smaller chunks of rock (less than 20 feet long) that float around in space. Millions of meteoroids float towards us everyday. When this happens, the meteoroid is called a meteor "meet-ee-or". You may have heard of meteors as "shooting stars" or "falling stars"! These small chunks of rock are moving very quickly and heat up quite a lot! In fact, they get so hot that pieces of them burn off and leave a trail behind them!

Most meteors burn up before they reach the ground, but not all of them! If a meteor smashes into the ground, it can cause a lot of damage! when this happens, astronomers call the meteor a meteorite "meet-ee-or-ite"!

ESP Activity: Crashing into Earth

Students will create craters on their simulated moon.

Materials:

Shallow pan

Container of cocoa

Marble

One bag of flour

Measuring tape

Activity:

- 1) Fill the shallow pan with about 1/4 inch of flour and sprinkle cocoa over the surface.
- 2) Drop the marble from a known height onto the surface of the pan.
- 3) Measure the diameter of the impact crater in the flour.
- 4) Mix the contents of the pan together and sprinkle more cocoa onto the surface.
- 5) For experimentation, increase or decrease the height of the marble.

Explanation:

As particles or rocks are traveling through space, they are known as meteoroids. When they enter the Earth's atmosphere, they light up brightly as friction vaporizes the surface of the meteoroid. At this time, a meteoroid is known as a meteor. If this object does not entirely burn up in the atmosphere and it strikes the Earth, it is known as a meteorite. The marble creates a crater within the surface of the flour in similar fashion to meteorites which strike the Earth.

Independent variable: Height of the marble

Dependent variable: Diameter of the crater

Hypothesis:

If the HEIGHT OF THE MARBLE is (increased/decreased), then the DIAMETER OF THE CRATER will (increase/decrease).

Day Three

- 1) Review Day One with the information found below.
- 2) Run this week's activity, "Portable Planetariums"

The following will give you the most important items to review for your activity today!

Stars are huge balls of hot gas that give off a large amount of energy (like heat and light).

Our sun is our closet star.

Groups of stars we see in the night sky are called constellations

Portable planetariums

Children will use a cereal box and a flashlight to construct their own planetarium.

Materials:

cereal boxes
flashlight

scissors

constellation map
(attached)

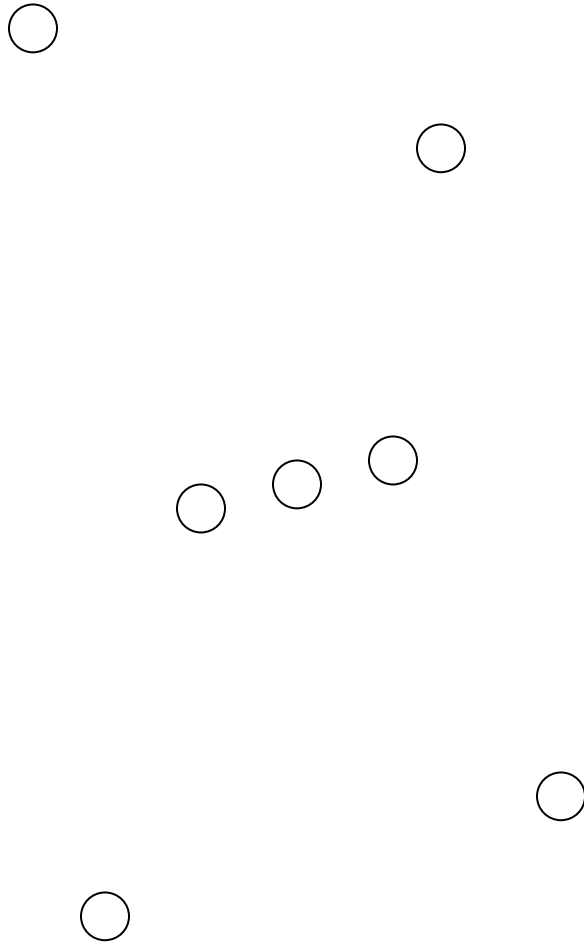
Activity:

- 1) Remove the cereal from the box.
- 2) Place the constellation map onto the surface of the box.
- 3) Punch holes through the side of the box in the right positions for the given constellation.
- 4) Cut a round opening in the side of the box for the flashlight.
- 5) Insert the flashlight and turn on your planetarium in a darkened room. You should see the constellation shining through the holes of the box.
- 6) Take your portable planetarium on a stargazing trip to help you find constellation in the sky.

Explanation:

A planetarium consists of half a hollow sphere on the inside of which have been placed the various stars in their relative positions. The half sphere spins slowly to give the appearance of the stars moving through the night sky. Making a portable planetarium is a good way to familiarize yourself with the grouping of stars (known as constellations) before you to stargazing to look for.

Orion



Big Dipper

PLACE THE CONSTELLATION MAP ONTO THE SURFACE OF THE BOX.
PUNCH HOLES THROUGH THE SIDE OF THE BOX IN THE RIGHT POSITIONS FOR THE GIVEN
CONSTELLATION.

