Teaching About The Moon

**Pre-brief**

**Slide 1:** **My Trip To The Moon**

**Slide 2:** **Our Mission**

 Astronauts our mission is to “Return to the Moon.”

Before we blast off to the Moon we must train for our mission by learning about the Moon.

**Slide 3: Picture of the Moon**

The Moon is made out of rock. There are actually big holes on the Moon’s surface called *craters*.

* What could have caused the craters on the Moon?
* Craters form when *meteorites* or falling rocks from space hit the Moon and blast holes into the lunar surface.
* The Moon does not have an atmosphere like the Earth. Our atmosphere protects us from meteorites, UV rays from the sun, and also keeps air (oxygen) surrounding Earth, which allows us to have oxygen to breath.
* The Moon does not have enough gravity to hold an atmosphere.
* There is no weather on the Moon because there is no air. There is no wind or rain. The sky is always clear and dark. Days on the Moon get hotter than boiling water and the nights get colder than

the North Pole.

* Because there is no air on the Moon, there isn’t any

sound on the Moon.

* (Practice Screaming on the Moon.)

**Slide 4: Moon Facts**

* Distance from Earth to the Moon is **240,000 miles**

A model of the Earth and Moon can be shared with Astronauts. Use a basketball (Earth) and softball (Moon). Wrap a string around the basketball 10 times to represent how far apart the Earth and Moon is in space.

* Size of Moon - **2,160 miles** across. Compare to Earth 8,000 miles across almost 4 times larger
* If you walked day and night without stopping to rest, it would take you a year to walk around the Earth and three months to walk around the Moon.
* On an airplane traveling 500 mph, it would take 1 school day to fly across the United States. If you flew nonstop day and night, it would take 3 weeks to reach the Moon.
* Your weight tells you how hard gravity is pulling on you. The Moon’s gravity is much weaker than Earth’s so you would weigh much less on the Moon.

If you weigh 60 pounds on Earth, you would weigh only 10 pounds on the Moon.

Because of the weak gravity, you could be a champion high jumper.

If you could jump over a wastebasket on Earth you could jump over a garbage truck on the Moon.

The easiest way to get around on the Moon is by hopping like a kangaroo. (Practice hopping on the Moon like a kangaroo)

* Larger planets and moons have more gravity.

**Task Card 5: Moon/Earth Orbit** (Power Points are available online to

demonstrate show orbits)

The Moon is our closest neighbor in space. As the Earth travels around the Sun, the Moon travels around the Earth. The path that the Moon takes is called an *orbit*. As the Moon orbits also *rotates* or turns like a spinning top. It takes the Moon a little more than 27 days to make one orbit around Earth. It takes the Earth a whole year to orbit the Sun.

**Does the Moon Shine?**

Ask students to raise their hands if they think the Moon shines.

Explain to the class that we will do an experiment to answer that question.

***Activity:*** *Does the Moon Shine?*

**Objective:** Help children to understand that even though the Moon looks like it is shining at night it is not a luminous body. The Moon shines because it is reflecting the light from the sun.

**Materials:** Foil (cut into a circle)

 Flashlight

* + Pin the foil circle to the wall. Turn off the lights and shine the flashlight onto the foil. What happens?

(*The foil reflects the light of the flashlight and appears to shine in the dark room.)*

* + Turn off the light again, this time do not shine the flashlight. What happens?

(*The foil doesn’t shine because it does not have light source*

*to reflect.)*

* + Explain to students that the Moon appears to shine because it reflects the light of the Sun.
* Just like Earth, the Moon gets all its light from the Sun. We see the Moon because light from the Sun hits the Moon and bounces off. Light reflects off the Moon just like it does a mirror. If the Moon did not reflect the sun’s light, we would not be able to see it.

#### Answer: Does the Moon Shine? NO

**HANDOUT – Phases of the Moon**

**Does the Moon Seem to Change?**

Have you ever noticed that sometimes the Moon may look big and full and other times it may look like just half of the Moon is there? Sometimes it looks like there is only a sliver of the Moon left or no Moon at all.

 When this happens we say that our Moon is going through “*Phases”.*

 One side of the Moon is always being lit by the Sun. Because of the way the Moon moves, sometimes we see a small piece of the lit side; sometimes we see the whole lit side of the Moon. When this happens we say the Moon is a Full Moon.

Phases: New, Crescent, Quarter, Full

**Activity:** Phases of the Moon Animated Flip Book (2 Versions)

 Handouts

 Scissors

 Staplers

 Pencils

 Students cut out pages, assemble, and staple

**Task Card 6:** **How Would We Get There?**

 The rocket that we will take us to the Moon is called an Ares rocket. We would arrive to the Moon in 2 1/2 days.

The Ares rocket is about 300 ft tall.

300 ft – like a football field standing straight up

30 stories tall - like a tall building in Chicago, count up 30 windows.

**Task Card 7: What Would We Wear?**

* Astronauts wear a Spacesuit and Helmet to walk on the Moon.
* The Helmet has a special visor to protect the our eyes from the sun’s bright rays
* The Helmet also has a radio so we can talk to Mission Control and other astronauts
* The astronaut also wears a backpack that contains a supply of oxygen to breathe

**Slide 7: Astronaut Training Complete!!!**