Lesson Plan By: Becca Flanders
Lesson: Moon Phase Stations
Length: 45 minutes
Age or Grade Intended: 3rd grade
Source: Created with original ideas as well as ideas and tips taken from:
http://www.darylscience.com/Demos/MoonPhase.html
http://www.uen.org/Lessonplan/preview.cgi?LPid=2495
http://www.woodlands-junior.kent.sch.uk/time/moon/phases.html

Academic Standard:

3.3.4 Observe and describe that the moon looks a little different every day, but looks the same again about every four weeks.

Performance/Behavioral Objectives:
After participating in the stations, students will accurately explain in their own words, 2 new facts that they learned about the moon in their science notebooks.

Assessment: Students will write new things they learned in their science notebooks and I will check these to see if they wrote at least 2 things.

Advanced Preparation by Teacher:
For station #1:
-a collection of balls of various sizes
-Station #1 Instruction sheet (see attached)

For station #2
-copies of phase cards from http://www.uen.org/Lessonplan/preview.cgi?LPid=2495
Enough so that each student can have their own copy.
-the book, Kitten's First Full Moon by Kevin Henkes
-Scissors
-Station #2 Instruction sheet (see attached)

For station #3
-1 large square piece of cardboard
-8 ping pong balls
-black paint
-Station #3 Instruction sheet (see attached)
The teacher will need to create the moon phases demonstration by cutting out a "head hole" from the middle of the cardboard. The cardboard must then be painted black. Moons will be created from 8 ping pong balls. These balls must be colored or painted half black to represent how the sun is always lighting half of the moon. These balls must be glued on the board around the head hole, 18 inches from the middle of the hole. They should be placed like a compass at N, NW, W, SW, S, SE, E, NE. For more detailed instructions visit
http://www.darylscience.com/Demos/MoonPhase.html

For station #4
- 1 flashlight
-1 reflector (ex. Bike reflector)
-Station #4 Instruction sheet (see attached)

For station #5
-a computer or computers
-Station #5 Instruction sheet (see attached)

Procedure:

Introduction/Motivation: We have been watching the moon at night for several weeks now and drawing in our science notebooks what we've seen. Today it's time to official start digging deep into studying the moon. By the end of today you will be one step closer to being experts on the moon. Today I'm not going to stand up here and tell you a bunch of facts about the moon- you're going to work as scientists and make your own conclusions. Are you ready?

Step by Step Plan:

-review procedures and expectations for station work
-identify locations of stations and a brief preview of the instructions for that station
-identify the signal that will be used when it is time to change stations
- divide the class into 5 even groups, assign each group a station to start at
-move around the room while students are working, answering questions about instructions and encouraging students to think scientifically.

*This lesson incorporates Bodily-Kinesthetic Intelligence when students move from station to station and use the models at the stations. It also incorporates Logical-Mathematical Intelligence, Linguistic Intelligence in the station tasks and Intrapersonal Intelligence as students work together to learn.
*Within the station work, Bloom's taxonomy is incorporated. Specifically, students are asked to synthesize many ideas of why they believe the moon behaves a certain way (Stations #4, #3 and #2) and use their knowledge to test one another on the phases of the moon.

Closing:

-When the students are done going through the stations gather as a group on the carpet
-Ask students to share new things that they learned at the stations (Bloom's Knowledge)
-Close by explaining that we are going to discuss and learn more about the moon tomorrow. Challenge the students to go home and look at the moon again tonight and take a parent, sibling or friend out with them to teach them the new things they learned about the moon.

Accommodations/Enrichments: To accommodate students in the class with MiMH, I will write the questions that need to be answered in their science notebooks. I will also pair them with students who are helpful and encouraging. To challenge students, who get done early at a station, I will have a variety of prompts on the board for discussion within the group or reflection in their science notebooks. Some examples of these questions include:

-Some people think that no human has ever landed on the moon and that it is all fake…what do you think?
-Will humans ever live on the moon? What will we need to survive there?

-How do you think the moon formed? Has it always been orbiting earth?
-If you were given the chance, would you take a trip to the moon? Why or why not.

Self Reflection: I will know this lesson was successful if students enjoy it and are able to write at least 2 new facts that they learned in their science notebooks.

Station #1

HOW BIG or little IS THE EARTH, COMPARED TO THE MOON?

Let's explore!

There are a bunch of balls here…as a group, you are going to create a model for how big you think the earth is compared to the sun. For example, if you think the earth is reallyreally big and the moon in very small? Then maybe you should choose the small bead to represent the moon and the big beach ball to represent the sun…..it's up to you! Work together and decide on two balls…then draw them on your worksheet.

Station #2

Yesterday we learned that the moon looks differently on different nights.

Some nights it's big and round like a pizza… 

A couple weeks later it could look like a fingernail clipping! 

We call these different ways that the moon can look PHASES.
At this station you will be making flashcards to help you learn the phases of the moon.

#1 Cut out these pictures of the many different shapes that the moon looks like in the sky.
#2 Write the names of the phases that we learned on the back of the card that has it's picture. Help each other out, there is an answer key here if you need want to check your answers.
#3 Quiz each other! Mix up the cards and see if you can put them in the right order again!
#3 If you have extra time, read through this book, Kitten's First Full Moon, by Kevin Henkes. What phase is the moon in in this story?

Station #3

We learned yesterday that the moon looks different in the night sky every day. But Why?
Does it change shape?
Does it have shadows on it?

WHAT IS GOING ON!!!!??

This station has a model of what you see of the moon from the earth. It's really neat!

YOUR JOB!

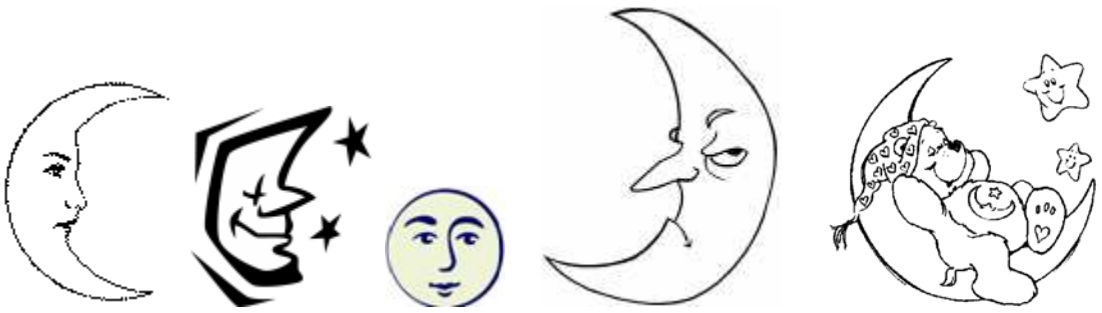
#1 First, someone must pretend to be the earth and stick their head in the hole in our cardboard square. Two other people must hold the cardboard model up.

#2 The person who is pretending to be the earth must move around in the circle and look at all the different ping pong balls. These ping pong balls represent the moon.
#3 Write in your science notebook about what you saw. Write why you think the view of the moon that we see changes each night? You are a scientist, try to think of a reason that this might happen.
We will be discussing our ideas and learning more about this later ☺

Station #4

DOES THE MOON SHINE?

At this station there are two objects: A flashlight and a reflector from a bike. One of these objects represents the moon. The other object represents the sun.
When we see the moon in the sky it glows and shines. Where is that light coming from. We know the moon is not a star, then write about why you think we see the moon shining in the night sky. Remember, you are a scientist and scientists work together and bounce ideas off each other. Don't forget to look at the two objects, they are an important clue to understanding the moon!



Some people think the moon has a face! What do you think? ☺

Station #5

Visit this website:

http://www.woodlands-junior.kent.sch.uk/time/moon/phases.html
#1 Read together the information on the webpage…there are some really neat facts!
#2 Scroll down to where you see "Animation #1" Click on it! It will take you to a really cool site that you can explore with each other.
#3 Talk about what you're seeing and reading on the computer. Remember that scientists work together—they discover more that way!

A Riddle:

Q: What do a dollar, a football game, and the moon have in common with one another?

A: they all have four quarters! ☺