Science Planning

**Unit 1: Structure and Motion Within the Solar System (6 weeks)**

**Week 1 Big Idea: The moon changes shape over time and has cyclical patterns.**

Week 2 – 9/3 to 9/6

9/3 - YWBAT identify the causes of the moon’s phases.

Success is: modeling and explaining the causes of the phases of the moon.

* + Warm up: recall last week’s exploration of the syrofoam demonstration
    - narrow in on the fact that it is primarily the moon’s movement that causes the phases to occur
  + Let students know that today, their goal is to identify what earth, moon, sun positions are needed for each phase to occur
  + Group demonstration with Styrofoam balls and flashlights
    - Students repeat demonstration **in order to see what positions the earth, sun and moon must be in for each phase to occur**
    - Record data/observations in folders
    - Students should take photos of/illustrate each of the 8 phases they make
  + Students individually write and illustrate an explanation of how the sun, moon and earth systems create the phases of the moon. They can/should include drawings of their simulation (pictures).
    - Possibly have a paragraph frame up as an optional support for how to write an explanation

9/4 - YWBAT identify the causes of the moon’s phases.

Success is: construct a model explaining the causes of the phases of the moon.

* + Warm up: Discuss yesterday’s paragraph answers and clarify any misconceptions
  + Moon phase sort
  + Table Group demonstration with ping pong balls mounted onto foam board
    - groups receive ping pong balls, and cardboard with circle cut out of it and are asked to recreate the cycle of moon phases
    - Teacher circulates, questioning students about why they are placing the moons the way that they are. E.g. Where would the lit halves go? Why? In what direction is the moon rotating?
    - When students have a model that works correctly, they should use the phase sort cards to label the model correctly with the name and how the position appears from earth
    - Students transfer it into their journals, complete with labels of the phase names and what the phases look like from earth. See Kids Discover Handout for Example Model
  + Class discussion
    - How does the orbit and the fact that one half is always lit cause the moon phases? Answer: We see it at a different angle, so we see different portions of the lit half depending on the position of the moon in its orbit.

9/6 - YWBAT identify the causes of the moon’s phases.

Success is: construct a model explaining the causes of the phases of the moon.

* + In table groups, construct a model of the moon phases including the following:
    - A picture-model of the moon phases. Be sure to include the sun and the moon in the correct places.
    - Label each picture with the correct phase name.
    - Next to each picture, write a brief explanation of why it looks the way it does.
    - Write a group paragraph on and be prepared to answer the essential question: **What causes the moon to change its appearance?**
  + Brainpop video: <https://www.brainpop.com/science/space/moonphases/>
    - Guided notes
  + If time: refine models