Science Planning

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

**Week 3 Big Idea: Seasons occur due to the orbit of earth around the sun and the tilt of earth’s axis.**

Week 4 – 9/16 to 9/20

9/17 - YWBAT prove that solar eclipses happen when the moon’s orbital plane and the earth’s orbital plane cross, placing the moon in front of the earth and causing the view of the sun and the sun’s light to be covered.

Success is: writing a paragraph arguing from evidence for how you know how eclipses happen

* + Students watch and analyze a video of a solar eclipse
    - Students take notes and come up with questions; make a class list of questions
    - <https://www.youtube.com/watch?v=G10m2ZZRH4U>
  + Repeat with lunar eclipse video
    - <https://www.youtube.com/watch?v=lcRp1jKJmJU>
  + Question storm

9/18 - YWBAT identify the causes of both solar and lunar eclipses.

Success is: modeling and explaining the causes of eclipses

* Students make a list of questions they still have about eclipses
  + Discuss/share
* Hand out eclipse data. Students annotate it, looking for patterns that emerge.
  + Patterns should include: lunar and solar eclipses happen two weeks apart; there are 6 months between one solar eclipse and the next; solar eclipses happen during new moon, while lunar are only during full moon
  + Discuss the patterns that students noticed
* Using globes, a lamp, and styrofoam balls, students model when eclipses happen; as the earth goes around the sun, there are eclipse seasons in which an eclipses is possible because the moon's orbital plane crosses the earth's orbital plane. Students should see from their models that this happens twice during the earth's revolution, or about every 6 months
* Students write in journals why eclipses don't happen every month. They also draw a model of each type of eclipse
  + Discuss/revise

9/20 - YWBAT describe the timing and conditions for a lunar and solar eclipse.

Success is: constructing answers to our remaining questions arguing your point using evidence.

* + Brainpop video: eclipse
    - <https://www.brainpop.com/science/space/eclipse/>
    - guided notes
    - They should learn the terms umbra and penumbra
  + Eclipse power point lesson (science, moon phases-seasons-eclipse folder, moon phases lunar and solar eclipse folder, eclipses ppt)
  + Check in
  + Exit ticket: use evidence learned from reading and videos to answer:
    - Does the moon have to be in a particular phase for an eclipse to occur? Why?
    - Why do more people get to see a lunar eclipse than a solar eclipse?