Science Planning

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

**Week 5 Big Idea: Seasons occur due to the orbit of earth around the sun and the tilt of earth’s axis.**

Week 5 – 9/23 to 9/27

9/24 - YWBAT develop an understanding of why the length of days vary in different parts of the world.

Success is: construct an explanation for why the days are longer in Alaska and shorter in Utah.

* + Introduce Big Idea with a picture book: Arctic Lights, Arctic Nights
    - As you go, students chart the sunrise and sunset times in Fairbanks, Alaska throughout the year.
  + Students then graph the sunrise and sunset times, shading in the amount of night time on their graphs
  + Ask and discuss: what did you notice? What do you wonder?

9/25- YWBAT collect and analyze data on the tilt of the earth

Success is: annotating text and using the information to form an answer for why seasons are opposite.

Phenomena:Seasons are opposite of one another in the northern and southern hemispheres.

* + Pass out sunrise/sunset data for Salt Lake City. As they graph, ask again, what do you notice? What do you wonder?
    - If students have bring up the terms solstice and equinox, they can label these days on their graphs.
  + In partners, students look at both graphs to find patterns. These may include: the changes in daylight from month to month are more drastic in Alaska; summer days in Alaska are longer than those in Salt Lake; winter days in Alaska are shorter than those in Salt Lake
  + Ask students to discuss: What causes these differences in daylight?
  + Students write conjectures on their own

9/27 - YWBAT develop an understanding of why the length of days vary in different parts of the world.

Success is: construct an explanation for why the days are longer in Alaska and shorter in Utah.

Phenomena: The length of day changes in Utah

* Review what they learned about the daylight changes in Fairbanks and Salt Lake City last period
* Students get out their graphs and get average monthly temperature data for each location
  + Discuss/share
* Students look for patterns or unexpected temperatures when compared to the amount of daylight
  + **If they don't find anything irregular point out that even though Alaska has 22 hours of daylight on the summer solstice, while SLC has only 14, SLC is much hotter**
* What might cause this? Why does happen?
* Students make conjectures, before teacher uses a flashlight to show them how concentrated, direct light is different from less concentrated, indirect light. Connect to how much heat gets transferred
* Students write an explanation in pairs of why Alaska is still colder in the summer than SLC, despite having more daylight hours