NOTE: This workshop was originally designed for a 60 minute session, and cutting it down to 45 minutes for GLPA was going to be hard enough. However, given the distance between buildings and the lack of travel time, we ended up with just over 30 minutes. Kudos to all of you for working so quickly!

Group 1, 1-ESS1B: Earth and the Solar System (Grade 1)

Text of the Standard: Seasonal patterns of sunrise and sunset can be observed, described, and predicted.

Ideas:
- Extension: How does this relate to moon phases?
  - Light in the center of the room and moon on a stick for moon phases, pre-tilted Earth globe (for seasons)
  - Graphic of Earth in space (fulldome)
- Further discussion topics:
  - What's good and bad about models?
  - Why use a particular model?
  - What do you see?

Group 2, 5-ESS1.B: Stars and the Solar System (Grade 5)

Text of the Standard: The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year.

Ideas:
1. Place a flashlight on a stick and point it toward where the sun is at sunrise, noon, and sunset, or more points.
2. Move to different dates and mark the shadows.
3. Measure the marks and graph the position or angle vs time for each time.
4. Gather data for solstice days and have students make hypotheses about the equinoxes based on the graphics.

Group 3, MS-ESS1B (Grades 6-8), third bullet point

Text of the Standard: The solar system appears to have formed from a disk of dust and gas, drawn together by gravity.

Ideas:
- Discuss the solar system: How does it form from an accretion disk?
- Students need to make their thinking public—i.e., communicate/express it somehow.
- Start with pictures of accretion disks in order (young star to older)?