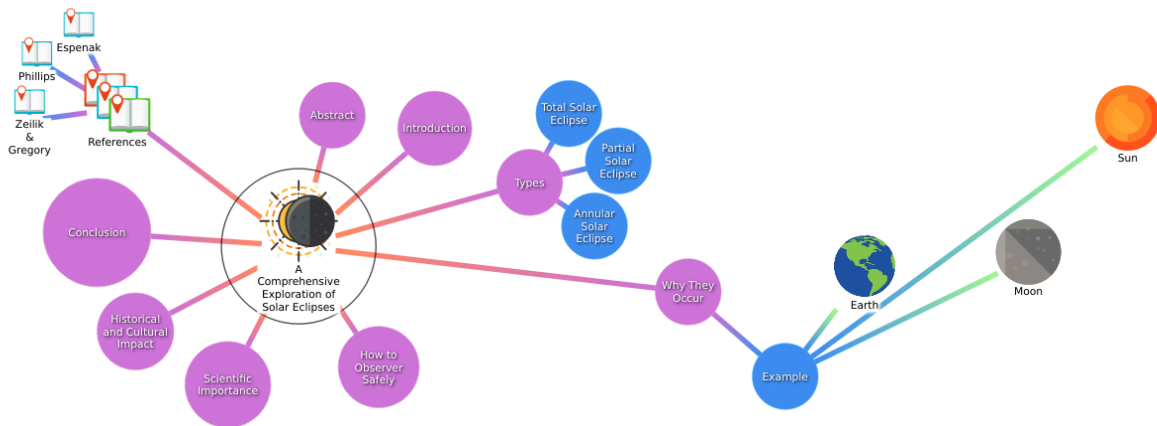


Lesson Title: Solar Eclipse 2024



- I. **Grade Level: 6-8th Grade**
- II. **Subject Area: STEM**
- III. **Aligned Standard(s):**

- **Link to NGSS Standards:**
<https://www.nextgenscience.org/pe/ms-ess1-1-earths-place-universe>
- Students who demonstrate understanding can:
 - **MS-ESS1-1 Earth's Place in the Universe:** Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.
 - **ESS1.A: The Universe and Its Stars:** Patterns of the apparent motion of the sun, the moon, and stars in the sky can be observed, described, predicted, and explained with models.
 - **ESS1.B: Earth and the Solar System:** This model of the solar system can explain eclipses of the sun and the moon. Earth's spin axis is fixed in direction over the short-term but tilted relative to its orbit around the sun. The seasons are a result of that tilt and are caused by the differential intensity of sunlight on different areas of Earth across the year.
[Clarification Statement: Examples of models can be physical, graphical, or conceptual.]
- **Common Core State Standards Connections:**
 - **ELA/Literacy - SL.8.5:** Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.(MS-ESS1-1)
- **Mathematics - MP.4 Model with mathematics. (MS-ESS1-1)**
 - **6.RP.A.1** Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
 - **7.RP.A.2-** Recognize and represent proportional relationships between quantities.

IV. Lesson Goal(s):

- **Developing and Using Models**
 - Explore and understand the concept of eclipses.
 - Develop, use, and revise models to describe, test, and predict more abstract phenomena and design systems.
 - Develop and use a model to describe eclipses as a phenomena.
- **Key takeaways:**
 - Solar eclipses actually happen about twice a year! They only seem rare because they aren't always able to be seen where people live. If you look at the map at the top of this page, you'll see that the path the Moon's shadow takes only covers part of the Earth.

V. Warm up:

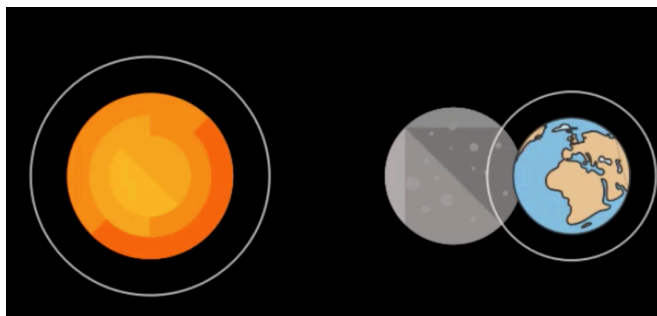
- **Information from the Smithsonian**
<https://airandspace.si.edu/whats-on/soar-together-air-and-space/eclipse>
- **Eclipse Explorer From NASA** - find your spot on the path by entering in your zip code <https://science.nasa.gov/eclipses/future-eclipses/eclipse-2024/where-when/>
- **Videos to stimulate thought**
 - McGraw Hill - [The 2024 Total Solar Eclipse](#) (good for students who learn differently, and/or grades 2-5)
 - KylesExperience - [Solar Eclipse Explained/2024 Solar Eclipse](#)
 - National Geographic - [Solar Eclipse 101](#)

VI. Brainstorming: *Some suggested thematic topics for your students to explore include:*

- What is an Eclipse? Why do they occur?
- What are the different types of eclipses?
- What are some historical and cultural impacts of eclipses?
- What are the dangers of looking directly at an eclipse? How can you watch an eclipse safely?

VII. Mind Mapping

- Now that students have their individually brainstormed ideas, guide them into organizing their ideas by grouping the bubbles (each idea) to make sense and tell a story about what they have learned.
- Some students may want to model an eclipse. They can use the 3d effect and even add motion to replicate an eclipse. [LINK TO SAMPLE 3D MODELING](#)



VIII. Writing:

- Guide students to use the split screen function to view their outline. Time to re-think - what do they want to say? What is your primary point? What are the supporting points? What is your conclusion?
- Use the text view to turn their points into paragraphs. Each supporting detail should be turned into a complete sentence for the paragraph.

IX. Review their work:

- Encourage students to review their work for: clarity, accuracy and complete sentences.
- Provide opportunities for peer review and guidance.

X. Sharing:

- Provide opportunities for students to celebrate and share their work with classmates and (as appropriate) the wider school community.

XI. Additional Resources:

- NASA RELEASES NEW SOLAR ECLIPSE EDUCATIONAL MATERIALS
<https://www.nasa.gov/learning-resources/nasa-releases-new-solar-eclipse-educational-materials/>
 - <https://science.nasa.gov/eclipses/future-eclipses/eclipse-2024/>
 - <https://science.nasa.gov/mission/stereo>