

2017 Eclipse: Research-Based Teaching Resources

Homework Questions: Eclipse Fundamentals

Description: These open-ended homework prompts encourage students to reveal their thinking about eclipses and help to familiarize them with the frequency and location of visible eclipses.

Prerequisite:

- Students should complete the Eclipses Lecture Tutorial in advance of attempting to respond to these homework questions.

Homework Questions:

1. Write a letter to your grandma describing the phenomenon of solar eclipses. Include two diagrams in your letter. This first diagram should show how an eclipse will transpire as seen from Earth. In your second diagram, draw a bird's eye view from above the solar system, showing the required geometry for a solar eclipse to occur. Make sure you explain why eclipses don't occur each month.
2. Look at NASA's eclipse calendar and find out when the next solar eclipse is happening.
 - a. Will you be able to see it from your home?
 - b. If not, where would you have to go to see it?
 - c. From the calendar, estimate how wide the Moon's shadow is as its cast upon Earth.
 - d. How long will totality last?

Find more teaching resources at aapt.org/Resources/Eclipse2017

This resource was developed by J. Bailey, R. Vieyra, and S. Willoughby. The co-authors acknowledge useful discussions with B. Ambrose, X. Cid, and R. Lopez, and the support of a subcontract from the NASA Heliophysics Education Consortium to Temple University and the AAPT under NASA Grant/Cooperative Agreement Number NNX16AR36A.



3. Look at NASA's eclipse calendar (<https://eclipse.gsfc.nasa.gov/eclipse.html>) and write down the dates for the next 6 solar and the next 6 lunar eclipses. Place the dates in this table.

Solar eclipse dates	Lunar eclipse dates

4. From your table, can you estimate how many solar and lunar eclipses occur each year? If so, make that estimation.

5. Do you see a pattern in the dates you have listed above? If so, what is that pattern?

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