



MISSOURI BOTANICAL GARDEN

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Grades K-2

Objective: To introduce young students to the concept of a solar eclipse, observe its effects on the environment (light and temperature), and compare the behavior of insects before, during, and after the eclipse.

- Pre-Eclipse Discussion
 - Begin the lesson by gathering the students in a comfortable learning area.
 - Explain what a solar eclipse is using simple language suitable for their age group. You can say, "A solar eclipse is when the sun temporarily disappears behind the moon, and it gets dark for a little while."
- Ask the students to share their thoughts and hypotheses about how they think an eclipse might affect insects. Encourage creative thinking and curiosity.
 - To explore how eclipses might affect insects, a great resource for educators is the Eclipse Soundscapes Project by NASA. This project, focused on studying the impact of solar eclipses on life on Earth, provides a unique opportunity for students to engage in citizen science. It revisits a century-old study which found that solar eclipses affect animals and insects, observing changes in behavior and the natural environment. For instance, during the near totality of an eclipse, crickets have been noted to start chirping as they do at dusk.
 - <https://eclipsesoundscapes.org/>
- Insect Observation Activity
 - Take the students to a safe outdoor area.
 - Provide bug-catching equipment to the students (magnifying glasses, butterfly nets, jars).
 - Instruct the students to observe insect life through both listening and seeing before, during, and after the eclipse.
 - Create a chart on a large piece of paper or whiteboard with three columns: "Before Eclipse," "During Eclipse," and "After Eclipse."
 - Go over each phase briefly with the students:
 - Before Eclipse: This is the phase before the eclipse begins. The Sun is fully visible.
 - During Eclipse: This is the phase when the Moon starts to cover the Sun, creating a partial eclipse or, if you are in the path of totality, a total eclipse.
 - After Eclipse: This is the phase after the eclipse has passed, and the Sun becomes fully visible again.
 - Hand Out Observation Journals:



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- Distribute observation journals to each student. These will be used for them to record their observations and drawings during each phase of the eclipse.
- Safe Eclipse Viewing:
 - Emphasize the importance of safe eclipse viewing. Provide eclipse glasses or solar viewers to each student and ensure they know how to use them properly to protect their eyes during the eclipse.
- Observation Time:
 - As the eclipse progresses, encourage students to use their observation journals to document what they see and experience during each phase.
 - Documenting Observations in Observation Journals:
 - Before Eclipse:
 - Before the eclipse begins, instruct students to make their first entry in their observation journals. They should describe the appearance of the Sun, the sky, and their surroundings.
 - Encourage them to draw a simple sketch of what the Sun looks like at this stage.
 - Ask them to note any initial feelings or thoughts they have.
 - During Eclipse:
 - As the eclipse progresses and the Moon starts covering the Sun, prompt students to make detailed observations.
 - Ask them to describe any changes in the Sun's shape (if it's a partial eclipse), color, and brightness.
 - Encourage students to draw what they see, paying attention to the Sun-Moon alignment.
 - Have them note any changes in the environment, such as temperature drops, changes in animal behavior, or changes in the quality of light.
 - If they're using eclipse glasses or viewers, ask them to describe the view through those as well.
 - After Eclipse:
 - After the eclipse has passed and the Sun becomes fully visible again, guide students to make their final entry in their journals.
 - Have them describe the Sun's appearance at this point and any noticeable changes compared to before the eclipse.



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- Encourage them to reflect on their overall experience, including any emotions or thoughts that arose during the eclipse.
 - If there were any specific events or observations during this phase, such as the return of animals to their normal behavior, ask students to document those as well.
- Filling in the Chart:
 - After the eclipse is over, gather the students and ask them to share their observations. Use their input to fill in the chart on the whiteboard or paper. Write down their observations in each of the three columns based on the phases.
- Discussion and Reflection:
 - Engage in a discussion with the students about what they observed. Ask questions like:
 - What did you notice about the Sun's appearance before the eclipse?
 - How did the Sun change during the eclipse?
 - What differences did you see in the environment before, during, and after the eclipse?
 - Did you notice any changes in animal behavior or temperature?
 - How did the eclipse make you feel or what thoughts did it inspire?
- Wrap-Up:
 - Conclude the activity by summarizing the key points of the eclipse and its phases. Encourage students to keep their observation journals as souvenirs of this unique experience.