

## Episode 5

Strand <b>6.1</b>	Standard <b>6.1.1</b>	Big Idea <b>Eclipses occur due to the different orbital planes of the Earth and moon in the Sun-Earth-Moon system.</b>
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Title <b>Eclipses</b>	Time <b>40 minutes</b>	CCCs <b>Cause and Effect</b>	Practices <b>Obtain information Construct an explanation Argue from evidence</b>
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**Phenomenon:** The moon or Earth covers the sun, blocking the light coming from the sun.

### **Gathering**

#### **Obtain Information**

Students will watch a video clip of a solar eclipse. While watching, students will record their observations and ask questions about the phenomenon. Ideas and predictions will be shared with the class. Students will be given an article on solar and lunar eclipses to read.

#### **Construct an Explanation**

Students will discuss as groups what they think causes what is happening. From their reading, students will construct an explanation of the cause of a solar eclipse as well as what is happening when there is a lunar eclipse.

### **Reasoning**

#### **Argue From Evidence**

Using their observations and constructed explanations, students will argue from evidence that solar eclipses happen when the moon's orbital plane and the earth's orbital plane cross, placing the moon in front of the earth and causing the view of the sun and the sun's light to be covered. Students will also argue from evidence that when the earth is between the sun and the moon, a lunar eclipse happens, preventing solar energy from reaching the moon.

*(Teacher Support: Because the moon's orbital plane is tilted with respect to the plane of the earth's orbit around the sun, for a majority of time during an Earth month, the moon is not in a position to block solar energy from reaching Earth and Earth is not in a position to block solar energy from reaching the moon. [Unpacked Standards])*

## ***Communicating***

### **Construct an Explanation**

Individually, students will write an explanation of the cause of solar and lunar eclipses to another “student” who doesn’t know anything about eclipses. Their explanations should be written clearly and so that a fifth grader could understand them. They may want to include drawings to help explain their models.

<p><b>Assessment:</b> Students’ explanations should demonstrate an understanding of how the orbital planes of the earth and moon interact with one another and why that is a factor in eclipses.</p>	<p><b>Materials, resources, handouts, etc.</b> Solar Eclipse Video: <a href="#">2017 solar eclipse</a> <a href="#">Eclipse Reading</a></p>
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