**Planning for the Next Big Eclipse: Formative**

**Prompt:** You have just landed a new job as a travel agent and you want to make a good impression to your boss. You realize that, since the Great American Eclipse, people have become very interested in traveling to places where they can get the best views of eclipses. You decide to make a brochure or an advertisement to explain to people how to be in the right place at the right time. Your brochure will need to have the following:

* Advice on when and where the best place will be to see both the next solar eclipse and the next lunar eclipse including why they only happen at certain times of the year.
* An easy to understand explanation using a model of how each type of eclipse works
* Tell which type of eclipse is more rare (people will be more interested in it if it’s rare)
* Explain why it will be very important to be in just the right place for the solar eclipse, but it really will not matter too much for the lunar eclipse as long as they can see the moon

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| **Rubric for Planning for the Next Big Eclipse** |
| **4** | Explanation uses a model, includes each of the 4 key aspects of eclipses, and shows an application of the ideas in a different situation or gives a deeper explanation of underlying mechanisms. For example:* Comparison of eclipses caused by other objects such as inner planets or spacecraft.
* Comparison of lunar or solar eclipses as observed on other planets.
* Inclusion of angle of inclination or elliptical orbit of the moon in explanation.
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| **3** | Explanation uses a model and includes each of the following key aspects of the sun-earth-moon system as related to eclipses:* Both lunar and solar eclipses are caused by specific arrangements of the earth, moon, and sun.
* During solar eclipses, the moon moves between the sun and the earth and causes a shadow over a small portion of the earth’s surface while blocking the sun for those people in that small area. This shadow sweeps across the earth as the moon moves by.
* The sun and the moon both appear to be approximately the same size when viewed from Earth. This allows the moon to just barely cover the sun during a solar eclipse. This is why the path where the eclipse is visible on Earth is so narrow.
* During a lunar eclipse, the moon travels through the shadow of the earth, which blocks the light from the sun from reaching the moon’s surface and reflecting back to Earth.
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| **2** | Explanation uses a model and includes 2 of the 4 key aspects. |
| **1** | Explanation is based on common misconceptions |

Develop and use a model of the earth-sun-moon system to describe the cyclic patterns of solar and lunar eclipses.

Key: Blue - SEPs Green - CCCs Orange – DCIs