Analysis and Conclusions

1. What type of eclipse have you drawn in Figure 1?

2. How do you know that your answer in #1 is correct?

3. What type of eclipse have you drawn in Figure 2?

4. How do you know that your answer in #3 is correct?

5. What is the name of the darker shadow in each eclipse above (black area)?

6. What is the name of the lighter shadow in each eclipse above (purple area)?
Analogies:

7. Solar Eclipse: Moon's Shadow as Lunar Eclipse: ____________________.

8. (B) Umbra: ___________ shadow as Penumbra: Lighter shadow.


10. (B) East: West as Sunrise: ________________________.

11. (B) Rotation: Revolution as Spinning on its axis: ________________________.

12. Earth's Rotation: Day & Night as Earth's Revolution: ____________________.


14. (B) Time of Moon's Rotation: Time of Moon's Revolution as 29 Days: __________

Application:

15. Describe another possible eclipse situation in our solar system (not including our moon).

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CLASS SET

Directions for Making Eclipse Models

Background

Types of Eclipses: As the moon moves around the Earth and the Earth moves around the sun, they block some of the sun’s light. When the sun is blocked out because of the moon or when the moon is blocked out because of the Earth, an eclipse occurs. There are two kinds of eclipses, a lunar eclipse and a solar eclipse.

Lunar Eclipse – the moon passes through the Earth’s shadow. The Earth is between the sun and the moon.

Solar Eclipse – the moon passes directly between the sun and the Earth.

** Eclipses are named for what you cannot see!

Shadows cast by Eclipses: An eclipse casts two kinds of shadows.

Umbra – the completely dark inner shadow

Penumbra – the outer shadow where the sun is only partially blocked.

Materials: Ruler and colored pencils

Objective: Students will be able to draw a lunar and solar eclipse and correctly identify the sun, Earth, moon and the shadows produced.

Procedures: Do not write draw or color on these directions.

1. On Figure 1 and 2, on your paper, color the sun orange, the moon blue and the Earth green.

   Figure 1

2. On Figure 1, use the ruler to draw a line from the north and south axis of the sun to the same side of the moon and extend these lines until they touch the Earth as seen below.
3. On Figure 1, use the ruler to draw lines from the sun’s axis to the opposite sides of the moon. Extend these lines until they touch the Earth, as seen below.

4. Color the umbra black and the penumbra purple.

Figure 2

5. On Figure 2, use the ruler to draw a line from the sun’s axis to the same side of the Earth and extend these lines just beyond the moon as seen below.

6. On Figure 2, use the ruler to draw lines from the sun’s axis to the opposite sides of the Earth and extend these lines beyond the moon as seen below.

7. Color the umbra black and the penumbra purple.

8. Answer questions 1 through 3.
Analogies:

7. Solar Eclipse: Moon’s Shadow as Lunar Eclipse: _________________.

8. (B) Umbra: ___________ shadow as Penumbra: Lighter shadow.


10. (B) East: West as Sunrise: ________________.

11. (B) Rotation: Revolution as Spinning on its axis: ____________________.

12. Earth’s Rotation: Day & Night as Earth’s Revolution: ________________.


14. (B) Time of Moon’s Rotation: Time of Moon’s Revolution as 29 Days: ________________.

Application:

15. Describe another possible eclipse situation in our solar system (not including our moon).