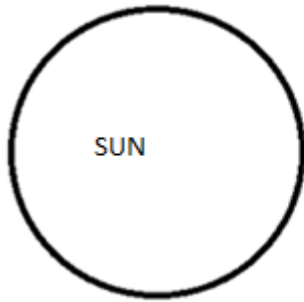
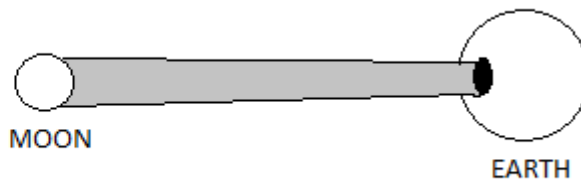
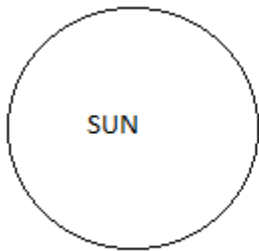


**NAME** \_\_\_\_\_ **hr** \_\_\_\_\_

We know that eclipses don't happen every month, but why not? When we are in the new moon phase, why aren't we having a solar eclipse? When we are at the full moon phase, why aren't we having a lunar eclipse? So when do eclipses occur?



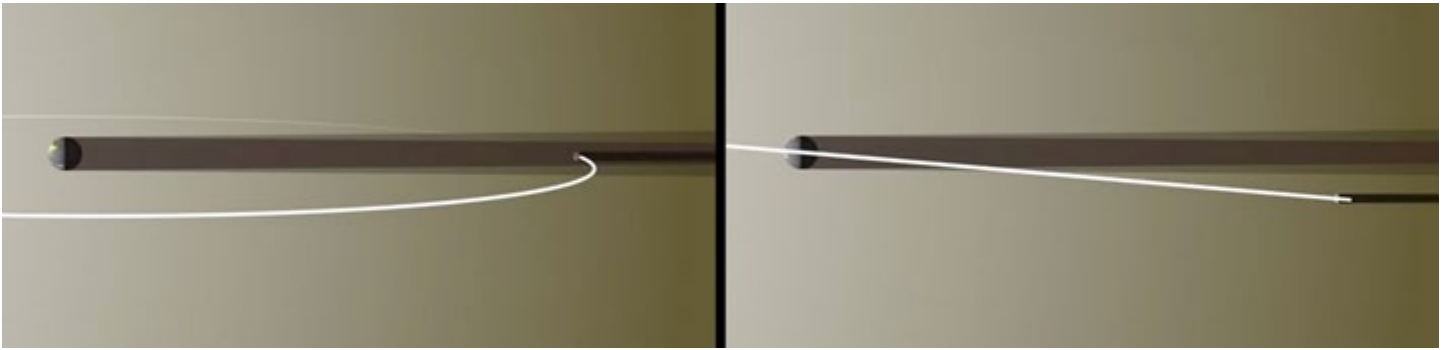
1. What eclipse is this? \_\_\_\_\_
2. What item is being eclipsed? (blocked) \_\_\_\_\_
3. Who is casting a shadow on who? \_\_\_\_\_
4. Who is the monkey in the middle? \_\_\_\_\_
5. What phase is the moon in? \_\_\_\_\_



6. What eclipse is this? \_\_\_\_\_
7. What item is being eclipsed? (blocked) \_\_\_\_\_
8. Who is casting a shadow on who? \_\_\_\_\_
9. Who is the monkey in the middle? \_\_\_\_\_
10. What phase is the moon in? \_\_\_\_\_

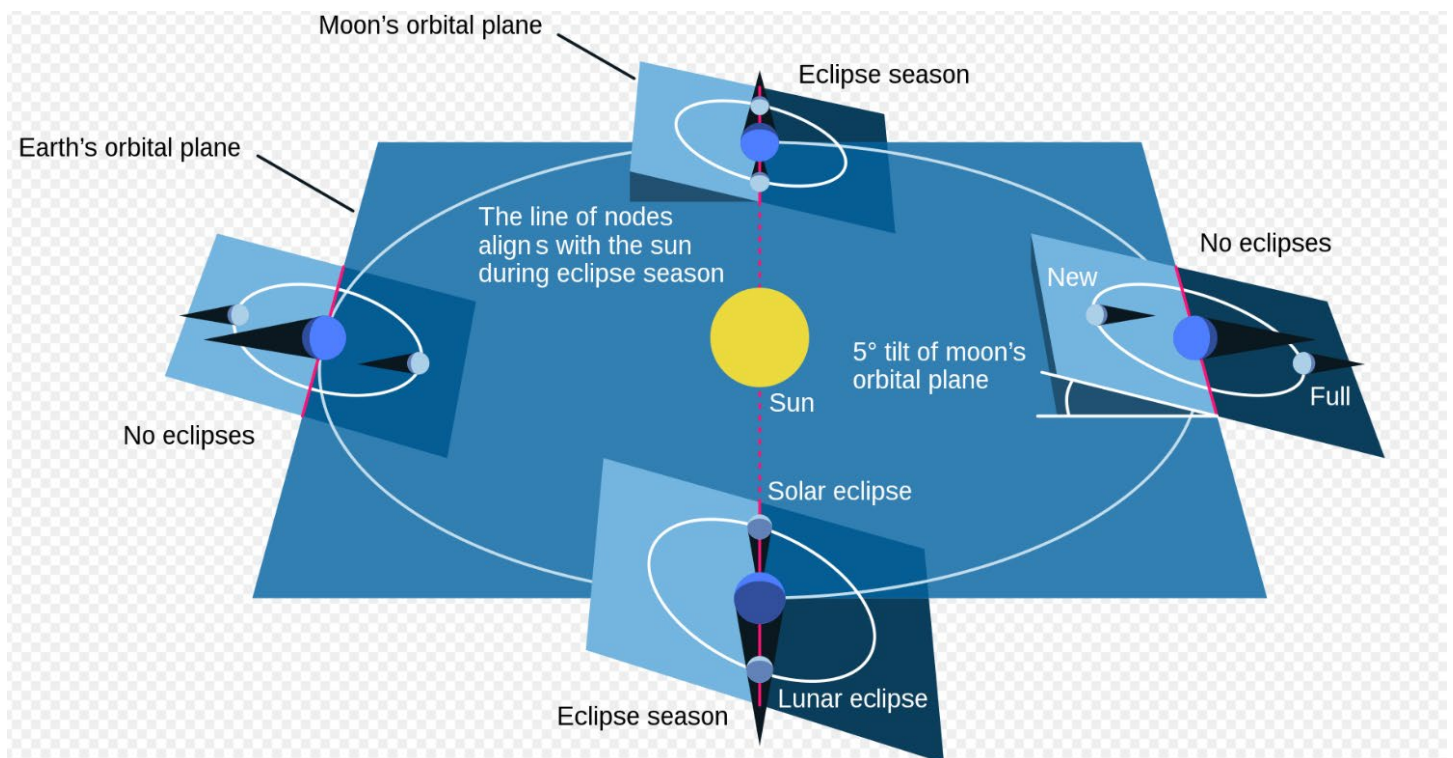
## Background

Eclipses can occur when the Sun, Moon, and Earth align. Lunar eclipses can happen only during a full moon, when the Moon and Sun are on opposite sides of Earth. At that point, the Moon can move into the shadow cast by Earth, resulting in a lunar eclipse. However, during most full moons, the Moon's slightly tilted orbit brings it above or below Earth's shadow.



These side-by-side graphics show how the Moon, Sun, and Earth align during a lunar eclipse (left) versus a non-eclipse full moon (right).

The time period when the Moon, Earth and Sun are lined up and on the same plane – allowing for the Moon to pass through Earth's shadow – is called an **eclipse season**. Eclipse seasons last about 34 days and occur just shy of every six months. When a full moon occurs during an eclipse season, the Moon travels through Earth's shadow, creating a lunar eclipse.



When a full moon occurs during an eclipse season, the Moon travels through Earth's shadow, creating a lunar eclipse.

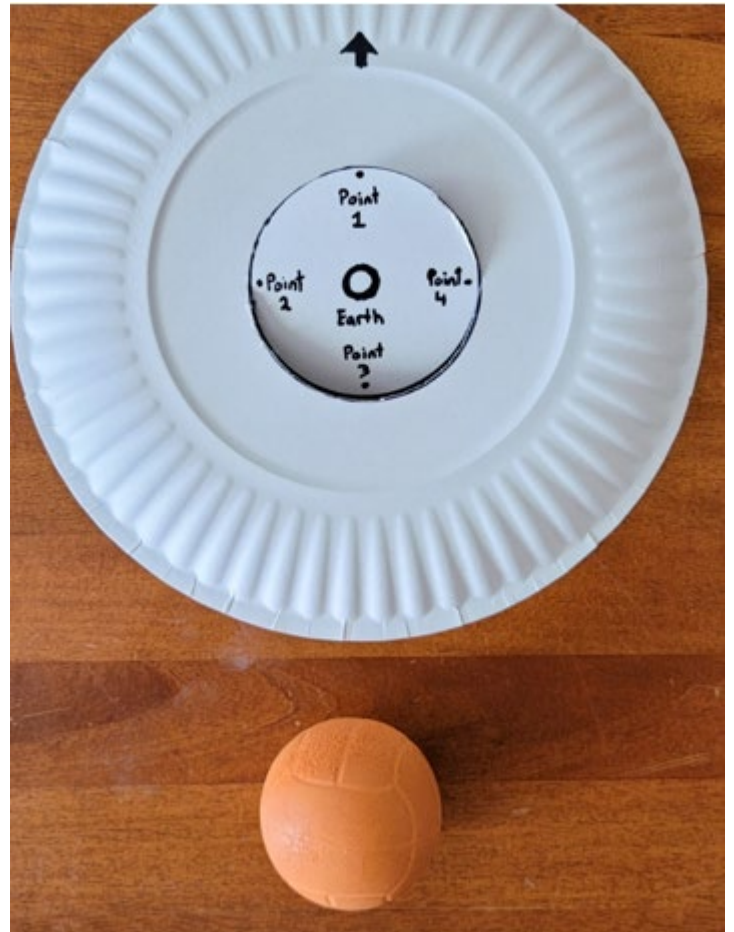
Unlike solar eclipses, which can only be viewed through special glasses or equipment for a few short minutes in a very limited area, a total lunar eclipse can be seen with the naked eye for up to an hour by anyone on the nighttime side of Earth – as long as skies are clear.

**\*\*The edge of the tilted circle represents the tilted orbit of the Moon around Earth.\*\***  
**\*\*The flat part of the plate represents the plane in which Earth's shadow falls.\*\***

Place the Sun on the opposite side of the plate from the reference arrow and answer the following questions.

**PLATE IN 12 OCLOCK POSITION**

11. Would there be a lunar eclipse during this full moon?
12. In this orientation, where would the full moon be located?
13. Is it in the same plane as Earth's shadow?



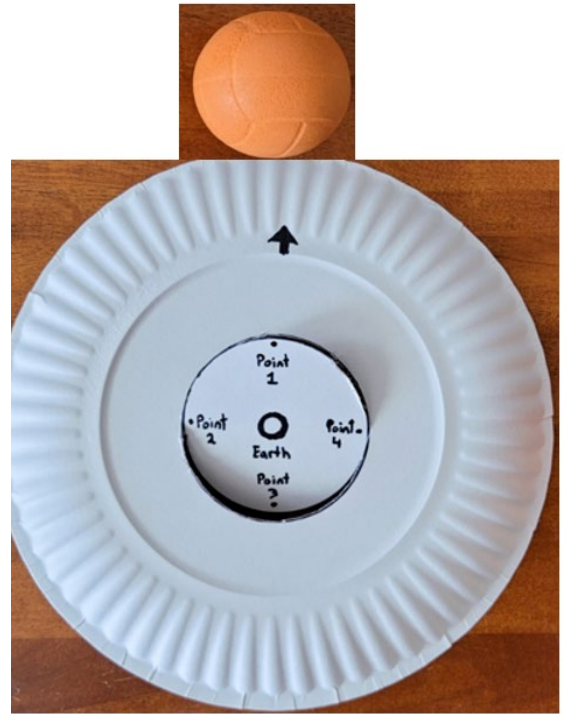
**PLATE IN 9 OCLOCK POSITION**

14. If the moon were at point 2, what type of eclipse would it be?
15. If the moon were at point 4, what type of eclipse would it be?
16. Would there be a lunar eclipse during this full moon?
17. In this orientation, where would the full moon be located?
18. Is point 1 in the same plane as Earth?



**PLATE AT 6 O’CLOCK POSITION**

- 19. In this orientation, where would the full moon be located?
- 20. Is it in the same plane as Earth’s shadow?
- 21. Would there be a solar eclipse during this full moon?
- 22. Would there be a lunar eclipse during the new moon?



**PLATE AT 3 O’CLOCK POSITION**

- 23. In this orientation, where would the full moon be located?
- 24. Is it in the same plane as Earth’s shadow?
- 25. Would there be a solar eclipse during this new moon?
- 26. What is it called when the Moon is in the same plane as Earth’s shadow?
- 27. Based on your model, predict how often eclipse seasons occur.

