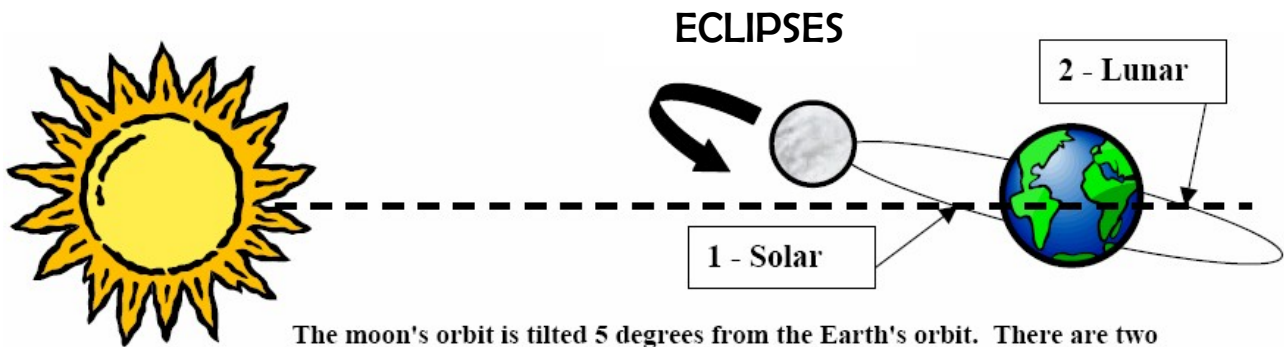
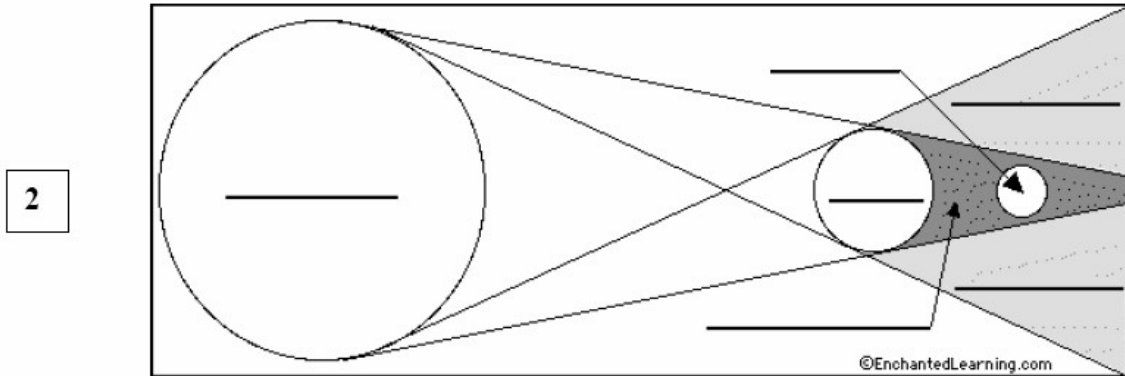
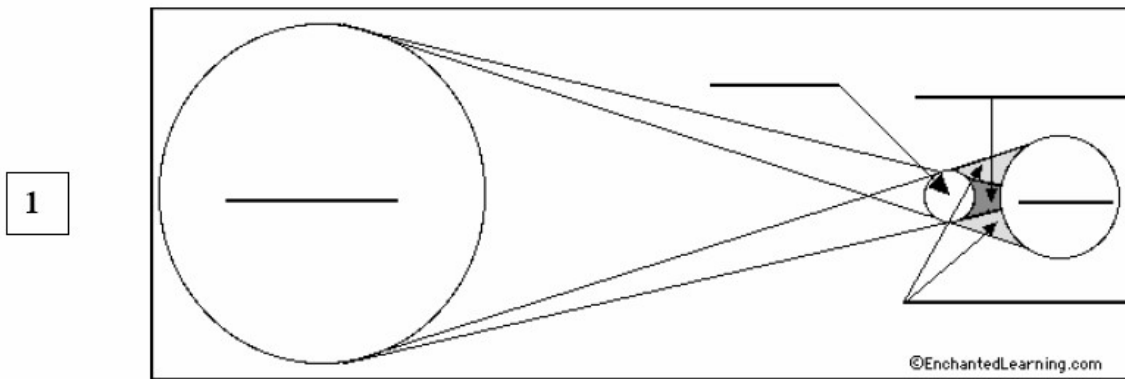


Name: _____



The moon's orbit is tilted 5 degrees from the Earth's orbit. There are two points in this orbit that can cause an eclipse to occur.



Fill in the blanks using this word bank & then color in the diagram:

Earth – (BLUE) the planet on which we live.

Moon – (WHITE) the natural satellite of the Earth.

Penumbra – (GRAY) the area in which the shadow of an object (the moon on the Earth) is partial, and the area in which a partial solar eclipse is experienced.

Sun – (YELLOW) the star in our Solar System.

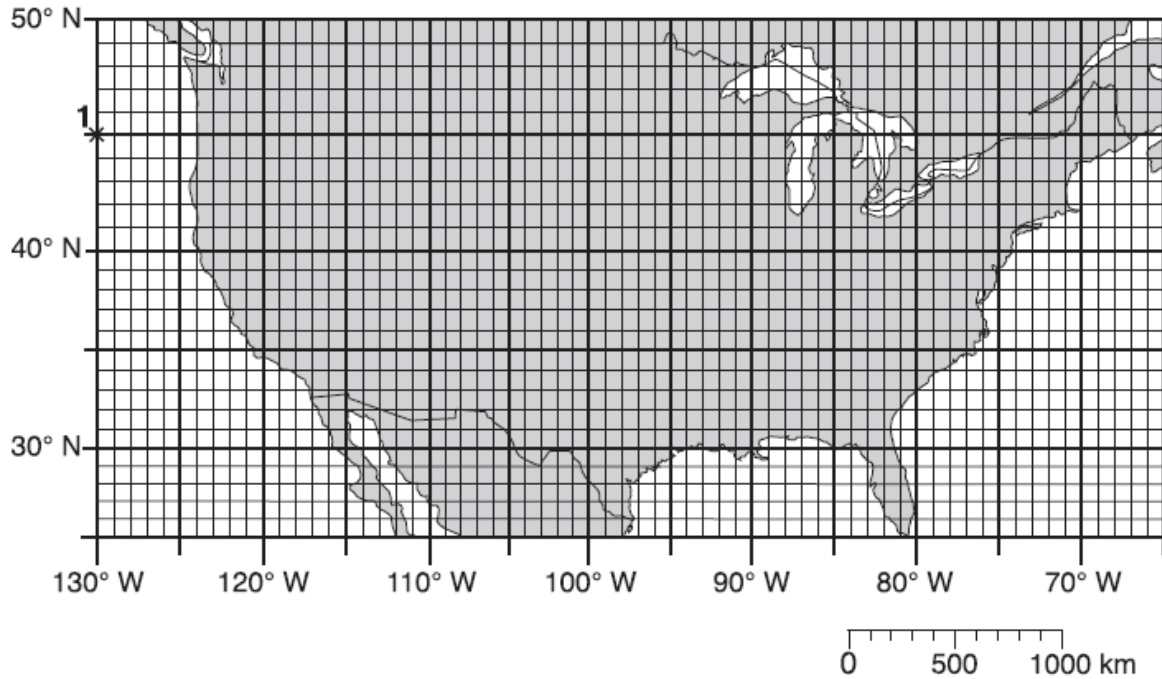
Umbra – (BLACK) the area in which the shadow of an object (the moon on the Earth) is total, and the area in which a total solar eclipse is experienced.

A solar eclipse will occur on August 21, 2017. The latitude and longitude coordinates for the movement of the center of the Moon's shadow across Earth's surface are given in the table.

Data Table

Shadow Position Number	Latitude (° N)	Longitude (° W)
1	45.0	130.0
2	44.0	114.5
3	42.0	103.0
4	39.5	94.0
5	36.0	86.0
6	32.5	78.5
7	28.5	71.0

- On the graph *below*, plot with an X the path of the center of the Moon's shadow for each position given in the data table. Connect the Xs with a smooth, curved line. Shadow position number 1 has been plotted on the graph.



- The new-moon phase occurs when the Moon is positioned between the Earth and the Sun. However; these positions do *not* always cause an eclipse (blocking) of the Sun because the
 - Moon's orbit is tilted relative to the Earth's orbit
 - night side of the Moon faces toward the Earth
 - apparent diameter of the Moon is greatest during the new-moon phase
 - new-moon phase is visible only at night

- Draw in the **location of the Moon** for each type of eclipse.

Lunar Eclipse	Solar Eclipse