

An eclipse happens when one object in space gets right in front of another object in space.

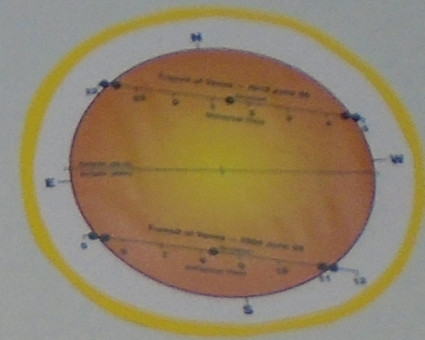
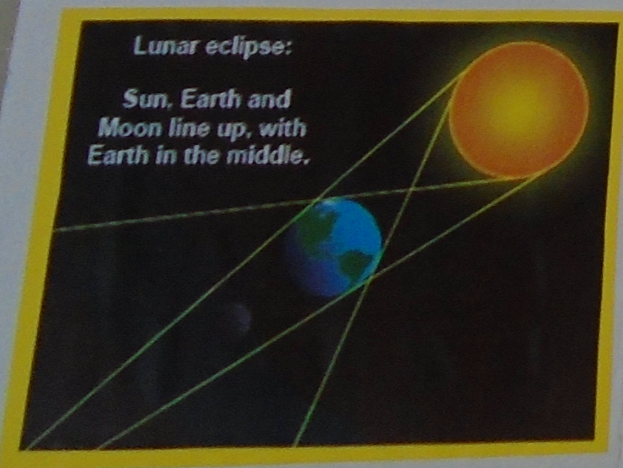
To form an eclipse, the two objects and the observer must be located along a straight line.



Seeing that happen is awesome! And it is a chance to learn more about one or both of the objects.

There is one other very rare eclipse that we can also see happening before our very SHIELDED eyes. That one is called a "Venus transit." Venus orbits closer to the Sun than Earth does. Sometimes Venus passes between Earth and the Sun. When things are lined up just right, we can see Venus as a small black dot moving across the face of the Sun.

Depending on what gets in front of what, we have different names for the eclipse. When the Moon passes between us and the Sun, we call it a solar eclipse. It is the Sun that is being "eclipsed" (meaning hidden or blocked from sight).
When Earth passes right between the Sun and the Moon, we get a lunar eclipse



How often can we see a Venus transit?
The answer is not often! If you are more than 8 years old, you have been very lucky, because there have already been two Venus transits during your life. One occurred June 5 and 6, 2012. The previous one occurred in June 2004. But after 2012, the next one will not occur until 2117! You will have wait until way past your 100th birthday to see the next one.
Since the invention of the telescope, Venus transits have occurred in:
• 1631 (not witnessed) & 1639
• 1761 & 1769
• 1874 & 1882
• 2004 & 2012
Why are Venus transits so unpredictable?
At first, you might think the "schedule" of Venus transits sounds pretty random. But there is a pattern:
• Two transits 8 years apart.
• Then 105.5 years with no transits.
• Then two transits 8 years apart.
• Then 121.5 years with no transits, for a total cycle of 243 years.
So why don't we see a Venus transit more often? Several reasons.
1. Since Venus orbits closer to the sun than Earth does, it has a shorter distance to go to make one "lap." For every 8 laps Earth makes, Venus makes about 13 laps. That means Venus passes us up five times about every 8 years, or once about every 1.6 years.
2. But we don't see Venus lined up in front of the sun every 1.6 years because Venus's orbit is tilted a bit from Earth's orbit. So when we would expect to see Venus passing us up, it is either above or below the Sun, so we don't see it. We see it only if at just that time in its orbit, it happens to be crossing Earth's orbit.
3. Also, neither orbit is exactly circular, which throws off the rhythm of the dance just a bit more.

