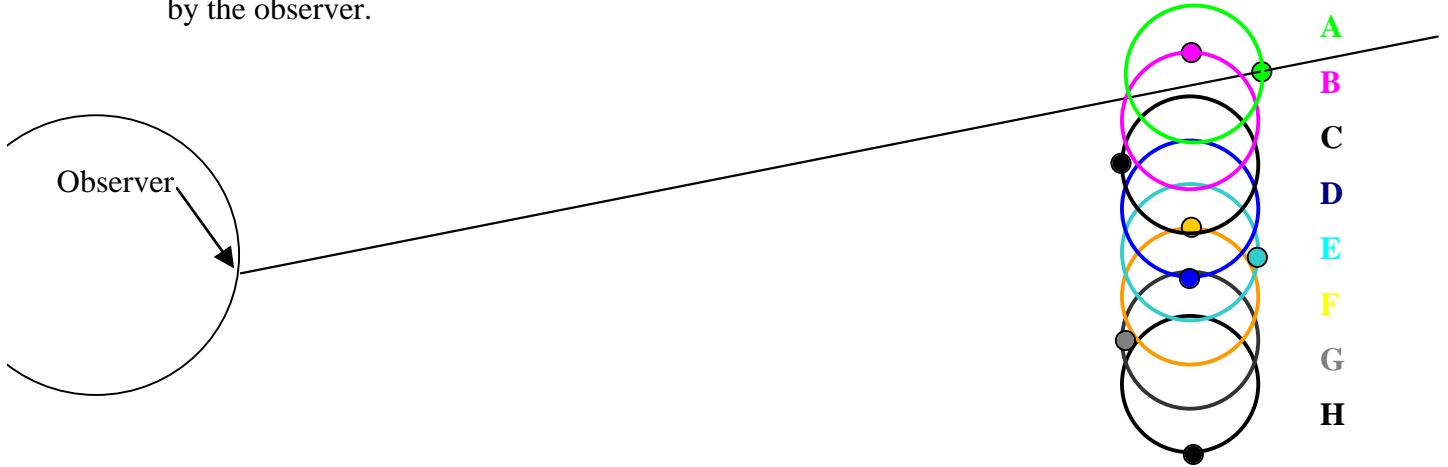


Activity 2: Retrograde loops – two ways.

The most striking thing planets do is their retrograde loops - changing direction once and then again. There are two ways to represent the apparent motion of the planets on the sky. Ptolemy's model did this in a very direct and one might say mechanical way. He envisioned a wheel on another wheel. On the illustration below, use a ruler to draw a line from the observer through points B, C, D etc. as has been done for point A. You will see how this model allows the planet to appear to swing back and forth across the sky as seen by the observer.



The other way fits better with our modern view of the solar system. The Earth speeds around the Sun much faster than Mars does, so it passes Mars once every couple of (Earth) years. Print out this picture (Heliocentric.pdf) and use your ruler to connect points B, C, D etc. as has been done for points A. For an observer on Earth, the apparent motion obtained this way is quite similar to the apparent motion obtained by Ptolemy's method, which explains why his method was accepted for so long.

