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Asynchronous Activity 1.1

The Basics: circular and elliptical orbits

1. Instructions

2. Instructions

3. Instructions

4.

a) For the path to the right my measurement was 91,405 thousand miles

b) The distance from the star to the planet on the left was 94,802 thousand miles therefore these numbers are not the same.

5. If this orbit was perfectly circular then the number measurement from the planet to the stars would be the same, no matter how many days the planet has traveled around the circle.

Gravity

1. Instructions

2. If you deactivate gravity the planet will travel in a straight line moving away from the star

3. If you keep the force of gravity activated, but click and drag it further away from the star, the force of gravity weakens the further the star and planet are separated.

4. If you change the length of the velocity arrow, it completely changes the orbit as the planet started moving in the shape of an oval instead of a circle and the length of the arrow also changed based on what part of the rotation was occurring.

Kepler's Law

1. Instructions

2. For my circular orbit, when I changed the mass of the planet, I noticed the gravity grew stronger between the star and the planet in proportion to the mass of the planet. The rate of acceleration to gravity is dependent on mass for Earth and other planets.

3. Instructions