Name: Date: Period:

Orbital Motion PhET Simulation

On Schoology, find the link to the "Gravity and Orbits" PhET Simulation

1. Start by looking at the **earth-moon system**. Turn on all four checkboxes on the right hand side
   (a) Is there anything unexpected about the motion of the moon and/or the earth?

   (b) On the right side of the screen, find the button that turns gravity off. What happens when you turn gravity off? Why does this make sense?

   (c) Change the velocity of the moon by dragging on the "v" circle. Decrease the velocity. Explain what happens and why that makes sense.

2. Switch to the **earth-sun system**. Adjust the velocity until you can get an elliptical path. What do you notice about the velocity of the earth as it orbits the sun (when does it speed up, when does it slow down, or is it constant through its entire motion)?

3. Click "stop" and switch to a **sun-earth-moon** system.
   (a) Which object (or objects) is the Moon orbiting (hint: this is kind of a trick question)?

   (b) Turn the "traces" checkmark on. Explain why the moon's path is different on the right side of the sun, than on the left.