**• For fun, what happens to the Earth's orbit in the 2-body case when you increase the initial velocity to 35 km/s?** It pulls out of orbit of the sun. As a orbit is the balance between gravity and speed.

**• What is the behavior of your code if you alter the time step? That is, what happens when the time step is longer than necessary? What happens if it is shorter than necessary?**

When you increase the time step the simulation runs faster but is less accurate to the real data. Decreasing the time step creates more steps for the simulation making the data more accurate to that of the real data.

**• 25 Percent Extra Credit: model your solar system using both the Euler-Cromer and Leapfrog methods for the full 10 million years (or as long as you can to determine the long-term behavior of your code). Describe the differences between these two methods in terms of computation time and accuracy in the conserved quantities. Note that you will have to "turn off" the visualization for this part of the assignment since that will dominate the computation time.** Euler-Cromer is less accurate over time due to the increase in error per step while leapfrog is more accurate since it stays at a constant timestep compared to that of the Euler-Cromer.

**• (yet another) 25 Percent Extra Credit: Add an asteroid belt to your solar system using massless test particles (that is, they interact with the larger bodies but not each other)**