Solar System Orbit Lab

In this activity, you will use the projected simulation of the Solar System to investigate the motions of the planets.

1. Qualitatively, what is the size of the inner Solar System compared to the outer Solar System?

2. Do the planets move at noticeably different velocities? Which ones move fastest?

3. Describe the shape of the orbits. Are they mostly circular, or highly elliptical? Are some orbits more elliptical than others?

4. Do all the planets orbit in the same plane?   Do they orbit in the same direction?

5. Measure the average distance from the Sun (in AU, using the scale) and the orbital period (in years – note the date at the top right of the screen) for the planets your group was assigned. Then calculate the quantity P^2/D^3 for each of your planets, and write it on the board in the table. (You do not need to be exact – limit yourself to two or three significant digits – but try to make your measurements as accurate as you can.)

	Mercury	Venus	Earth	Mars	Jupiter	Saturn	Uranus	Neptune
Average distance from Sun (AU)								
Period (years)								
P^2/R^3 (yr^2/AU^3)								

What do you observe about the bottom row? What law is this a reflection of?

6. If there's time after everybody calculates the above table, we will "freeze" the Solar System as it is today. Based on the Solar System's current configuration, if you went outside just after sunset tonight, which planets would you be able to see in the sky? What about at midnight?

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6. If there's time after everybody calculates the above table, we will "freeze" the Solar System as it is today. Based on the Solar System's current configuration, if you went outside just after sunset tonight, which planets would you be able to see in the sky? What about at 6 AM?