Designing a Solar System

Using pattern recognition to find stable orbits for celestial bodies

Name:_____

1. When the simulation opens, click the blue planet. Record the following information about it:

    Mass: _____

    Distance from star: _____

    Speed: _____

2. Click somewhere between the blue planet and the star and add a planet that has a mass close to **1.53e+23Kg** and an initial speed close to **47000 m/s**. Record your observation about what adding the new planet did to the ORGINAL planet:

    When I added the new planet, the original planet _____

    _____

    _____

3. Restart the simulation. Click somewhere past blue planet so the blue planet is between the star and your new planet. Make your new planet have a mass close to **3.30e+26Kg** and an initial speed close to **23859 m/s**. Record your observation about what adding the new planet did to the ORGINAL planet:

    When I added the new planet, the original planet _____

    _____

    _____

4. Restart the simulation. Try and create a solar system that has the planet you made in 2 and the planet you made in 3. Record your observation about what adding the new planets together did to the ORGINAL planet:

    When I added the new planets, the original planet _____

    _____

    _____

5. Using your simulation from 4, see what happens if you had different amounts and sizes of meteors and/or asteroids. Record your observation about what adding the meteors/asteroids did to the ORGINAL planet:

How many meteors did you add? _____

What was their initial speed? _____

Where did you add them? (circle one) Between the blue planet and star After the blue planet

How many asteroids did you add? _____

What was their initial speed? _____

Where did you add them?(circle one) Between the blue planet and star After the blue planet

When I added the meteors / asteroids, the original planet _____

_____

_____

6. Choose a solar system to create from the options below.

Easy: Create a stable solar system with 5 orbiting planets of different sizes. Record the mass of each of your 5 planets.

Planet #					
Mass					

Medium: Create a stable solar system with 4 orbiting planets, where every planet that is between the sun and blue planet must have a smaller mass than the blue planet, and every planet with a larger orbit than the blue planet must have a mass larger than the blue planet. Record the mass of each of your 4 planets. Then add is at least 12 meteors / asteroids that orbit in a stable pattern anywhere around your star.

Planet #				
Mass				

Hard: Create a stable solar system with 4 orbiting planets and an asteroids belt with at least 10 meteors / asteroids. In a wider orbit, add 4 larger planets all with masses greater than **1.00e** +25kg and an asteroid belt with at least 10 asteroids. Record the mass of each of your 4 larger planets. Finally, add at least 12 meteors / asteroids that orbit in a stable pattern anywhere around your star

Planet #				
Mass				