## **GRAVITATION STUDY GUIDE**

Name	
Period	

## Universal Gravitation - Ch. 11

- 1. Define gravity and list results of the effects of gravity.
- 2. State Newton's Law of Universal Gravitation using words and a formula.
- 3. Calculate the gravitational attraction between two 1500 kg objects, 2 m away.
- 4. Give examples to illustrate the effect of distance and mass on the gravitational force between two objects.

## Gravitational Interactions - Ch. 12

- 5. What is the gravitational field strength near the surface of the Earth?
- 6. Give the formula for weight and the acceleration of gravity on a planet.
- 7. Understand how changes in mass or radius affect the acceleration of gravity on a planet.
- 8. Understand the acceleration of gravity inside the Earth's surface.
- 9. Understand how gravity affects tides on Earth.
- 10. Understand how black holes are formed.
- 11. Explain what happens to the mass and radius of a star when it becomes a black hole.

## Satellite Motion - Ch. 13

12.	Explain Newton's "mountain cannon" drawing and his analysis of the "falling moon".
13.	Explain how tangential velocity determines whether an object will hit the ground, go into circular or elliptical orbit, or escape the gravitational field completely.
14.	Sketch and differentiate between circular and elliptical orbits and specify the affects of each on its kinetic energy, gravitational potential energy, and speed done on it by the gravitational force.
15.	Give the formula for tangential velocity of a satellite in circular orbit.