**Chapter 4…Motion, Energy, and Gravity**  Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. How do we describe motion?

2. How is mass different from weight?

3. What is the average acceleration of gravity near Earth’s surface?

4. What is momentum?

5. What is a force?

6. How did Newton change our view of the universe?

7. What are Newton’s three laws of motion?

1.

2.

3.

8. Why do objects move at constant velocity if no force acts on them? Law of conservation of\_\_\_\_\_\_\_\_\_\_\_\_

9. What keeps a planet rotating and orbiting the Sun? Law of conservation of \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. Where do objects get their energy?

11. Name two forms of energy.

1.

2.

12. Distinguish between potential and kinetic energy.

13. Name the three measures of average thermal energy.

1.

2.

3.

14. An object’s mass, the distance it could potentially fall and the local strength of gravity together determine …

15. The formula for mass-energy relationships is

16.The total energy in the universe remains constant and energy may not be created nor destroyed, only changed expresses the law of conservation of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

17. What determines the strength of gravity?

18. How does Newton’s law of gravity extend Kepler’s laws?

19. What is the “center of mass?”

20. How do gravity and energy together allow us to understand orbits?

21. How does gravity cause tides?

22. Why do all objects (regardless of differences in mass) fall at the same rate?

23. What is escape velocity?