**CHAPTER 9: STUDY GUIDE**

**ACCELERATION IS THE RATE OF CHANGE IN VELOCITY**

**VOCAB: Be able to define the following terms. Make VOCAB cards if you need to.**

* acceleration
* acceleration due to gravity
* air resistance
* average acceleration
* constant acceleration
* change in velocity
* deceleration
* gravity
* velocity-time graph

**9.1 Describing Acceleration Questions**

1. What two things can happen to cause a change in velocity of an object?
2. Describe positive changes in velocity.
3. Describe negative changes in velocity.
4. What is the change in velocity for constant velocity?
5. Can two objects have the same change in velocity but different acceleration? Explain.
6. Differentiate positive and negative acceleration.
7. Explain the change in velocity and acceleration of a car driving forward increasing its velocity.
8. Explain the change in velocity (positive or negative) and acceleration (positive or negative) of a car driving backward increasing its velocity.
9. Explain the change in velocity and acceleration of a car driving forward decreasing its velocity.
10. Explain the change in velocity and acceleration of a car driving backward decreasing its velocity.
11. If acceleration is in the same direction as the velocity, what happens to the speed of an object?
12. If acceleration is in the opposite direction as the velocity, what happens to the speed of an object?
13. Make sure you have completed the Checking Concepts and Understanding Key Ideas on p. 391
14. Complete Quiz 9.1 at <http://www.bcscience.com/bc10/>

**9.2 Calculation Acceleration Questions**

1. What kind of graph provides information about an object’s velocity and the slope of the best-fit line is average acceleration?
2. What are the SI units for acceleration?
3. What is constant acceleration?
4. Differentiate positive, zero and negative acceleration using a velocity-time graph.
5. What are two ways to determine the acceleration of an object?
6. In words, describe how to calculate acceleration.
7. Rearrange the equation for acceleration to solve for change in velocity and time interval.
8. Complete the Practice Problems on p. 397.
9. What is gravity?
10. Be able to describe the motion of a ball being thrown in the air, with reference to the motion diagram and velocity-time graph on p. 398.
11. Why does a baseball hit the ground before a sheet of paper if they are dropped at the same time from the same height? What would happen if the sheet of paper was crumpled up and then you repeated the experiment? Why?
12. What is acceleration due to gravity? What is its symbol? What is its value?
13. What is the value for in the equation for any object falling or being thrown upward?
14. Complete the practice problems on p.400.
15. Complete the Checking Concepts and Understanding Key Ideas on p. 405
16. Complete Quiz 9.2 at <http://www.bcscience.com/bc10/>

**Work book and Text Book Questions**: Complete all workbook pages for Ch. 8 and 9 and complete the section and chapter review from the textbook.