**PFC2 Chapter 3 Section 1 Guided Reading**

1. Newton’s laws explain the relationships between the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ acting on an object, the object’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and the object’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a push, pull, or any action that has the ability to change motion.
3. Think about the events of your day so far. Give two examples of changes in motion that you witnessed or experienced. Identify the force that created each one.
4. There can be no change in motion without the presence of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. State Newton’s first law.
6. Define *inertia*.
7. Suppose a small, two-seater sports car and an 18-wheeled tractor-trailer rig are traveling down a highway at 100 kilometers per hour. Which vehicle requires more force to stop?
8. If you triple the mass of an object, how does the object’s inertia change?
9. When you measure an object’s weight in pounds on a scale, you are measuring the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ acting on the object.
10. The SI unit of force is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
11. A force of 1 N is the exact amount of force needed to cause a mass of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to accelerate at \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ per second.
12. Imagine that a 160-newton child is sitting motionless on a swing. Two chains hold up the swing. The child’s feet do not touch the ground.  
    a. What is the net force acting on the child?  
    b. What is the force in the downward direction?  
    c. What is the force in the upward direction?
13. Tasha is driving home from college. She places her physics textbook on the passenger’s seat of her car. When she applies the brakes to stop for a red light, her book slides off the seat onto the floor. Explain why her book moved without anyone touching it.