Name: ________________________________ Date: __________

Skill and Practice

4A Applying Newton's Laws of Motion

Read:

In the second column of the table below, write each of Newton's three laws of motion. Use your own wording. In the third column of the table, describe an example of each law. To find examples of Newton's laws, think about all the activities you do in one day.

Newton's laws of motion	Write the law here in your own words	Example of the law
The first law		
The second law		
The third law		

Practice:

1. When Jane drives to work, she always places her pocketbook on the passenger's seat. By the time she gets to work, her pocketbook has fallen on the floor in front of the passenger seat. One day, she asks you to explain why this happens in terms of physical science. What do you say?

2. You are waiting in line to use the diving board at your local pool. While watching people dive into the pool from the board, you realize that using a diving board to spring into the air before a dive is a good example of Newton's third law of motion. Explain how a diving board illustrates Newton's third law of motion.

3. You know the mass of an object and the force applied to the object to make it move. Which of Newton's laws of motion will help you calculate the acceleration of the object?

4. How many newtons of force are represented by the following amount: $3\ kg \cdot m/s^2$? Select the correct answer (a, b, or c) and justify your answer.

   a. 6 newtons b. 3 newtons c. 1 newton

5. Your shopping cart has a mass of 65 kilograms. In order to accelerate the shopping cart down an aisle at $0.30\ m/s^2$, what force would you need to use or apply to the cart?

6. A small child has a wagon with a mass of 10 kilograms. The child pulls on the wagon with a force of 2 newtons. What is the acceleration of the wagon?

7. You dribble a basketball while walking on a basketball court. List and describe the pairs of action-reaction forces in this situation.

8. Pretend that there is no friction at all between a pair of ice skates and an ice rink. If a hockey player using this special pair of ice skates was gliding along on the ice at a constant speed and direction, what would be required for him to stop?