Student Name: _____ Date: _____

Lesson Check: Force Pairs

1) When you push a pole downward on Earth to make a pole vault, Earth exerts an equal force on the pole.

- ○ True
- ○ False

2) If you push on a wall with a force of 30 N, the force acting on you from the wall is which of the following?

- ○ **A)** 0 N
- ○ **B)** 10 N
- ○ **C)** 20 N
- ○ **D)** 30 N

3) The statement "for every action, there is an equal but opposite reaction" is a statement of _____.

- ○ **A)** the law of conservation of momentum
- ○ **B)** Newton's first law
- ○ **C)** Newton's second law
- ○ **D)** Newton's third law

4) When a bug hits a windshield of a car, the force of the car on the bug equals the force of the bug on the car.

- ○ True
- ○ False

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Lesson Check: Force Pairs

5) Pick the best example of Newton's third law of motion in action.

- ○ **A)** A rocket accelerating in space as a result of gases and the rocket pushing each other in opposite directions.
- ○ **B)** A rocket being towed to the launch pad while friction acts in the opposite direction.
- ○ **C)** An asteroid moving around the Sun while being pulled toward the Sun.
- ○ **D)** An asteroid continuing to spin because nothing has exerted a force to stop it.

6) Based on Newton's third law of motion, when a person on a skateboard throws a heavy concrete block to the north, the person will be pushed to the _____.

7) If you throw a ball into the air, Earth exerts a force on the ball. The ball in the air exerts no force on Earth.

- ○ True
- ○ False

8) Kelly sits on a rock in a field. Which of the following correctly name force pairs?

- ☐ **A)** Kelly pushes on the rock, and the rock pushes on Earth.
- ☐ **B)** Earth pulls on Kelly, and Kelly pulls on Earth.
- ☐ **C)** The rock pushes on Earth, and Earth pulls on the rock.
- ☐ **D)** Kelly pushes on the rock, and the rock pushes on Kelly.

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Lesson Check: Force Pairs

9) Your friend stated that action and reaction force pairs do not change motion because they cancel one another out. Explain why your friend is incorrect, using an everyday example to clarify your explanation. In your response, identify which of Newton's laws of motion applies to action and reaction forces. Contrast action and reaction force pairs and balanced forces.

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Lesson Check: Force Pairs

10) Amed watched a video of someone using a jetpack rocket at a lake. Water is pumped out of the lake into the jetpack, and then the water is fired out of the jetpack, as shown in the picture. The rider is lifted out of the water and can move around over the lake.

Jetpack

Explain how the height of the rider above the water could be increased. Support your explanation using Newton's third law of motion.

Student Name: _____ Date: _____

Lesson Check: Force Pairs