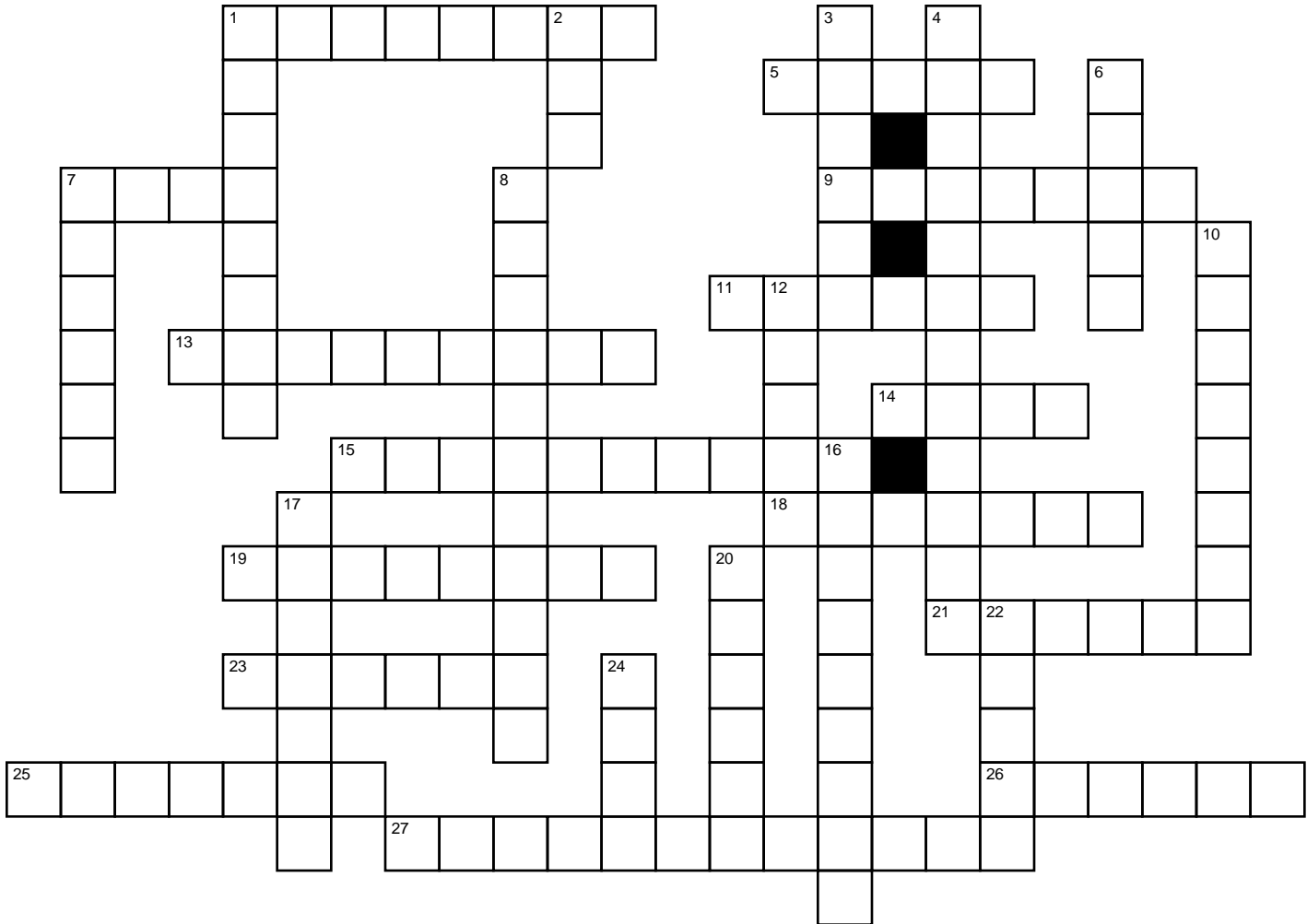


# Chapter 6: Newton's Laws of Motion

Integrated Science: Physics & Engineering Design

Name \_\_\_\_\_ Period \_\_\_\_\_



## Across

1. The Law of Conservation of Momentum states that, as long as interacting objects are not influenced by outside forces, the total amount of momentum is \_\_\_\_.
5. \_\_\_\_ has the ability to change motion.
7. The same force acting on more mass causes \_\_\_\_ acceleration.
9. Property of an object that resists motion.
11. Because action and reaction forces act on different objects, they don't \_\_\_\_ each other out.
13. Acceleration is \_\_\_\_ proportional to mass.
14. If a bowling ball has 100 times more \_\_\_\_ than a golf ball, it will have 100 times more inertia (resistance to changes in motion).
15. Changes in motion come from \_\_\_\_ forces.
18. The mathematical relationship between force, mass and acceleration in Newton's Second Law is "acceleration equals force \_\_\_\_ by mass."
19. the mass of an object times its velocity is the \_\_\_\_.

## Down

1. For a long time, scientists thought that \_\_\_\_ motion required constant force. They were wrong.
2. The \_\_\_\_ force determines how an object will move.
3. You must have a force to change \_\_\_\_.
4. \_\_\_\_ is the result of unbalanced forces.
6. Forces always come in \_\_\_\_.
7. A \_\_\_\_ force makes for a larger acceleration (change in motion).
8. Newton's Third Law applies to forces between \_\_\_\_ objects.
10. Usually, moving objects come to rest because \_\_\_\_ acts in the direction opposite of motion until there is no longer any motion.
12. Newton's First Law is states that objects will continue the motion they already have unless they are \_\_\_\_ upon by a net force greater than zero.

## Across

21. Lived from 1642 to 1727
23. SI unit of force
25. If force \_\_\_\_, acceleration doubles.
26. Every \_\_\_\_ force creates a reaction force that is equal in strength and opposite in direction.
27. Acceleration is \_\_\_\_ to net force.

## Down

16. Acceleration is always in the same \_\_\_\_ as the net force.
17. If there were no friction, a golf ball that had been struck would keep moving in a straight line \_\_\_\_.
20. When 2 objects collide, they exert equal and opposite forces on each other. However, the \_\_\_\_ of the forces may not be the same.
22. Rockets push mass at high speed out the end of the engine in the form of exhaust gases from burning fuel. The forward momentum of the rocket is \_\_ to, but opposite in direction from, the momentum of the escaping mass ejected from the end of its engine.
24. When the net force is \_\_\_\_, objects at rest stay at rest and objects in motion keep moving with the same speed and direction.