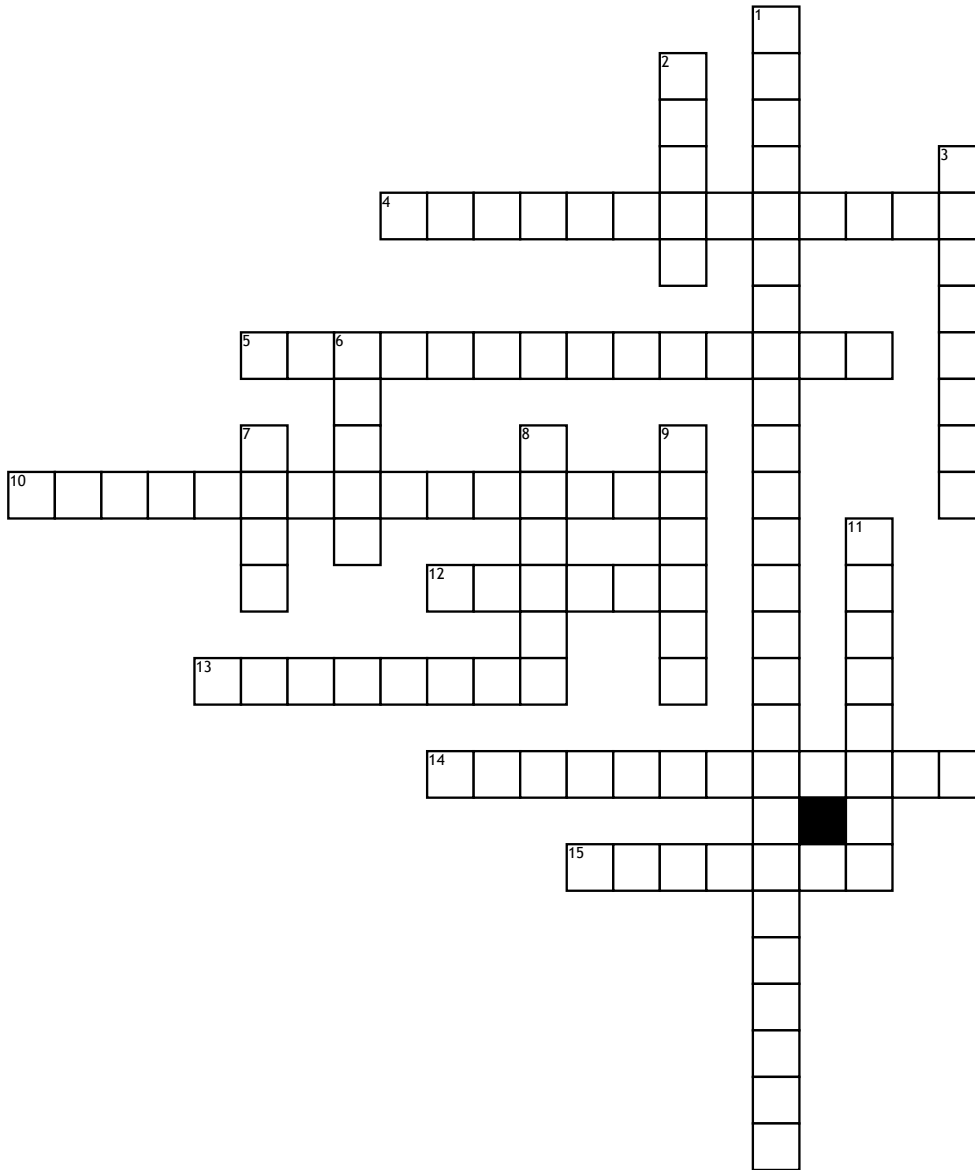


# Matter in Motion



## Across

- 4.** Balance forces are two forces acting in opposite directions on an object, and equal in size. Anytime there is a balanced force on an object, the object stays still or continues moving continues to move at the same speed and in the same direction.
- 5.** a basis or standard for evaluation, assessment, or comparison; a criterion.
- 10.** When balanced forces act on an object at rest, the object will not move. If you push against a wall, the wall pushes back with an equal but opposite force. Neither you nor the wall will move. Forces that cause a change in the motion of an object are unbalanced forces.
- 12.** a body's relative mass or the quantity of matter contained by it, giving rise to a downward force; the heaviness of a person or thing.

- 13.** the resistance that one surface or object encounters when moving over another.
- 14.** a vehicle's capacity to gain speed within a short time.
- 15.** the force that attracts a body toward the center of the earth, or toward any other physical body having mass. For most purposes Newton's laws of gravity apply, with minor modifications to take the general theory of relativity into account.

## Down

- 1.** Newton's law of universal gravitation states that a particle attracts every other particle in the universe using a force that is directly proportional to the product of their masses and inversely proportional to the square of the distance between their centers.

- 2.** the rate at which someone or something is able to move or operate.
- 3.** a body's relative mass or the quantity of matter contained by it, giving rise to a downward force; the heaviness of a person or thing.
- 6.** strength or energy as an attribute of physical action or movement.
- 7.** a coherent, typically large body of matter with no definite shape.
- 8.** the action or process of moving or being moved.
- 9.** the SI unit of force. It is equal to the force that would give a mass of one kilogram an acceleration of one meter per second per second, and is equivalent to 100,000 dynes.
- 11.** the speed of something in a given direction