

What Is Motion?

Science Words

Say each word quietly to yourself. Then read the meaning.

Read the tip to help you remember.

position [puh•ZIH•shuhn] the location of an object in relation to a nearby object or place

Position and *place* begin with the same sound. The *position* of something is its place compared to other objects.



The girl's position is described with reference to the boy.
The boy's position is described with reference to the girl.

The girl is in front of the boy.
The boy is behind the girl.

motion [MOH•shuhn] a change in position

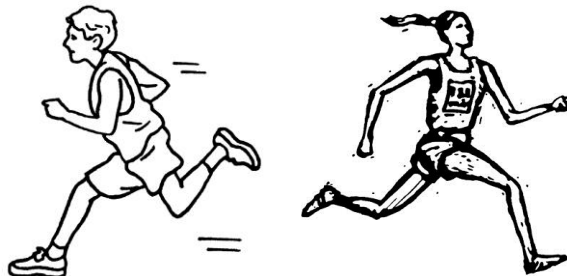
Motion and *move* begin the same way. Something in *motion* moves from one place or position to another.

speed [SPEED] how the position of an object changes during a certain amount of time

Speed and *seconds* begin with the same sound. *Speed* is how many seconds (minutes or hours) it takes to get from one place to another.

velocity [vuh•LAHS•uh•tee] the speed of an object in a particular direction

Velocity ends with the sound at the beginning of *east*. Your *velocity* may be one meter per second east. If you are going in the opposite direction, your *velocity* may be one meter per second west.



These runners may be traveling at the same speed, but not at the same velocity.

What Is Motion?

force [FAWRS] a push or a pull.

A force can change the speed or direction of an object. *Force* and *friction* begin with the same sound. Friction is a *force* that slows things down.

acceleration [ak•sel•er•AY•shuhn] any change in velocity

A car ad may brag about a car's *acceleration*—how fast the car can get from standing still to highway speeds.

In science, *acceleration* is about *any* change in velocity, including how fast a car can stop.

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Science Concepts

Read the Ideas more than once. Do your best to remember them.

1. An object's position is where the object is compared to something else.
2. The "something else" is called a reference point.
3. A reference point may be something in the background, or the whole background or frame of reference.
4. When an object changes position, it is in motion.
5. Speed is a measure of the time it takes for an object to travel a particular distance.
6. Velocity is how fast the object moves and the direction in which it moves.
7. "30 km/hr" describes a car's speed; "30 km/hr, south" describes a car's velocity.
8. A force can change the speed or direction of an object.
9. Friction, which works against the direction of motion, slows things down.
10. Acceleration is any change in velocity—going faster, slower, or in a different direction.