

# Velocity and speed compare and contrast essay sample



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## Velocity

The word, velocity, originates from the Latin word, *vēlōcitās*, meaning swiftness or speed. Velocity is one of the basic words used in mathematics and physics and forms the basis for the more important formulae used in high level study of these subjects.

According to the dictionary, the definition of velocity is the rate of change of position of an object. In simple words, velocity means the distance travelled by an object over some time divided by the time taken by the object to travel this distance. Velocity is also a vector quantity which means that it has both direction and magnitude. Magnitude means the size or extent of something. An example would help us learn better what velocity and vector mean. For example, if an object is traveling in the north-south direction at 55mph, its velocity will be 55mph in the south direction. There is a common misconception that speed and velocity are the same thing. but this is not true. Speed is a scalar quantity, meaning that it only has size and no direction. This is the most essential difference between speed and velocity. Thus, velocity is an equivalent of speed but just with the direction i. e. velocity without the direction would be called speed.

Velocity can be divided into two types depending upon the use of the type. The two types are Instantaneous velocity and Average velocity.

Instantaneous velocity means the velocity at a single point of time. For example if a car is moving at 40 km/h in the west direction and we have been asked to find the instantaneous velocity, the velocity of the car at that second, for example, at 10: 40: 30, velocity at the 30th second of 10: 40 will

be called instantaneous velocity. So basically, the speed that a speedometer reads at a given instant is called the instantaneous velocity. Average velocity on the other hand, is the velocity of the car over a period of time. For example, a bus travels 100 km from 9am to 11am i. e. in two hours. Thus, the average velocity for these two hours will be the distance travelled divided by the time taken to travel this distance. So, average velocity will be 50 km/h. Average velocity may be calculated between an interval, such as between 2 hours or even 15 seconds.

As it was said earlier, velocity is used to calculate other significant terms in high level physics and mathematics, which is in turn, used in daily life and in mechanics, i. e. almost everything that we see around, be it bridges, cars, airplanes, buildings or any other thing that uses mechanics to build, we will see the use of velocity in it, directly or indirectly. For example, velocity is used in advanced calculus to find out the acceleration of vehicles which forms the groundwork for building airplanes, rockets, cars and other vehicles. Velocity can also be used to find the path of an object and the distance it will travel before stopping and coming to rest. In missiles and rockets, where each meter of distance can make a huge difference, velocity can be used to find where the missile or rocket will land and at what time. Thus, without the use of velocity in our lives, we would not be traveling in cars and airplanes. The mission to other planets would not be possible since there would be no rockets and missiles. Velocity of tornados and storms is used to find out their extent and how much destruction they will cause in the cities and, hence, measures are taken accordingly to evacuate people from the areas.

Hence, velocity is one of the most significant terms in modern physics and maths and helps to make the human race progress in different fields like engineering and technology.