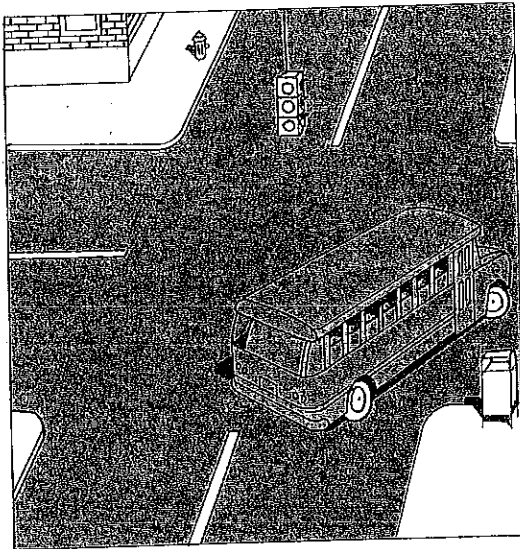
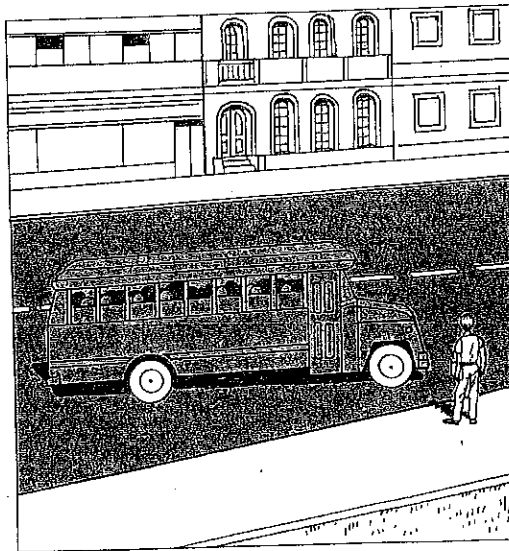


# Speed, Velocity, and Acceleration



If the direction of motion changes, velocity changes.



If the speed of motion changes, velocity also changes.

You know a car is in motion if you see it in one place and then in another place, in relation to an object. Motion can change in several ways.

One thing that can change about motion is its **speed**. Speed is the distance something moves in a certain time. Many people can walk 2 miles in 1 hour. Their speed is 2 miles per hour. It is written 2 miles/hour. Some people can run 7 miles an hour, or 7 miles/hour. The speed of 7 miles/hour is faster than 2 miles/hour.

Another thing that can change about motion is its **velocity**. Velocity is speed in a certain direction. If you are running at 7 miles/hour along a straight path, your velocity is the same as your speed. But if you are running around a track, you are changing your direction. So your speed is the same, but your velocity is changing. Velocity changes when the direction of the motion changes.

You can also change your velocity by changing your speed. This change in velocity is called **acceleration**. If you pedal a bicycle so that it speeds up, that is positive acceleration. If you use the brakes to slow down, that is negative acceleration.

Use the words below to complete the sentences.

acceleration  
motion

negative  
positive

speed  
velocity

1. The distance something moves in a certain time is \_\_\_\_\_.
2. Speed in a certain direction is \_\_\_\_\_.
3. A change in velocity is \_\_\_\_\_.
4. If motion speeds up, it is \_\_\_\_\_ acceleration.
5. If motion slows down, it is \_\_\_\_\_ acceleration.

Underline the correct words.

1. You know a car is (accelerating, in motion) if you see it in one place and then in another place.
2. You can change your velocity by changing your (speed, distance).
3. Motion can change in (one way, several ways).
4. If you use brakes on a bicycle to slow down, that is negative (acceleration, velocity).

Answer the questions.

1. What is the difference between positive and negative acceleration?

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2. What is speed?

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3. In what two ways can velocity be changed?

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