

Chapter 2: Motion

Section 2: Velocity and Momentum

Velocity: the speed of an object and the direction of its motion

- You travel to Dickinson
 - You have a velocity of 75 miles/hr East
- Your friend is traveling back to Belfield
 - Your friend has a velocity of 75 miles/hr West

Examples of velocity and speed

- Think of a race car going around a track
 - If the car is going a constant speed but is changing direction, then its velocity is changing
- Think of an escalator going up and one going down
 - Both have the same speed but have opposite velocities

Momentum: a measurement of mass in motion

- Momentum is symbolized by p
- Momentum ($\text{kg}\cdot\text{m/s}$) = mass (kg) x velocity (m/s)
 - $p = m \cdot v$

Comparing momentums

- If a car and a truck are traveling at the same speed, which has the greater momentum?
 - Truck because it has greater mass
- If two cars have the same mass but car A is traveling at 75 miles/hr and car B is traveling at 65 miles/hr, which car has the greater momentum?
 - Car A because it has a greater velocity