

# Momentum

## Key words

**mass, momentum, force, velocity, time**

*mass = the amount of substance in a body*

*momentum = see below*

*force = a push or pull that acts on an object due to the interaction with another object*

*velocity = speed in a particular direction*

*time = how long to move from point A to B*

## The Science Bit

- Momentum is a term that describes **the strength or force of a moving object** (mass in motion).
- The momentum tends to keep it moving in the same direction. It is difficult to change the direction of movement of an object with a lot of momentum.
- A slow moving or lightweight object has **less** momentum. A fast moving or heavy object will have **more** momentum.
- $Momentum (kg\ m/s) = mass (kg) \times velocity (m/s)$

## Taking it further

Newtons Cradle. This fun 'executive desk toy' also has a strong scientific basis and beautifully demonstrates the conservation of momentum in a fun and engaging manner. Either have fun exploring a ready made one. Or for an extra challenge have a go at constructing one yourself using wooden doweling, cardboard, string, marbles and a hot glue gun.



## Fun Cycling Facts and Information

- The world's longest bike was 135 feet and 10.7 inches long
- Damien Hirst designed the world's most expensive bike Trek Madone, or the Butterfly Bike which was auctioned for \$500,000 at Sotheby's.
- Bikes don't actually need riders! A bicycle can stay upright without a rider as long as it's moving at 8mph or faster.
- The rider's balance and momentum help keep the bike stable while traveling along a path.
- On a bicycle, you can travel three times faster than you can walk, for the same amount of energy
- A bicycle can convert up to 90 percent of a person's energy and movement into **kinetic energy**. This energy is then used to move the bike.

*That's why bikes are so clever: they make good use of the most powerful muscles in our body.*

