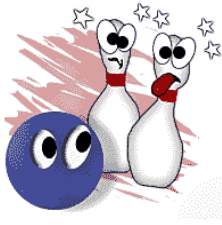## Kinetic Energy (Ek)

Moving objects have the ability to do work as well; they can exert a force over a distance. For example, a moving bowling ball can cause a bowling pin to fall over and a moving golf club can exert a force on the golf ball causing it to move.   **Kinetic energy** = **energy of a moving object**.

<u>What gives an object more kinetic energy</u>?

If I roll a ping pong ball and a bowling ball at the same speed, which one can do more work? Obviously the bowling ball would have the ability to do more work. So mass is influential. The more mass a moving object has, the more Ek it has.

If I could gently roll a golf ball at your toe and I could roll that same golf ball really really fast at your toe, which one could do more work? Obviously the faster ball would do more work (and hurt more!).   So the more velocity an object has, the more Ek it has.

<u>Formula</u>:

$$Ek = \frac{1}{2} mv^2$$

where Ek = kinetic energy (J)

m = mass (kg)

v = velocity (m/s)

Ek varies directly with mass

Ek varies directly with velocity _squared_.

Which has a greater impact on Ek: mass or velocity? _____

Think about what would happen if you double mass versus doubling velocity.