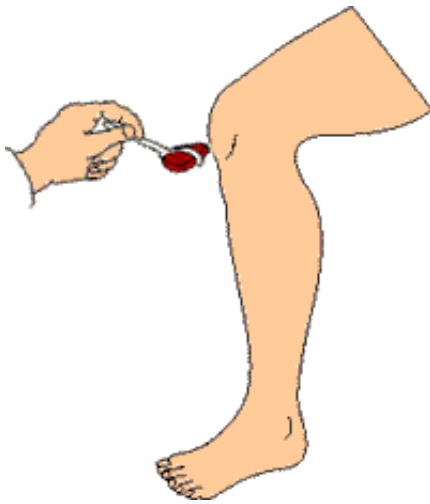


Reflexes are used to protect the body automatically. They get us away from objects that might hurt us, before they hurt us. For example, if you put your hand on a hot stove, you immediately remove your hand BEFORE the message, "Hey, my hand is on a hot, burning stove," gets to your brain.



## Materials

- A large book or other heavy object to make a noise



## Knee Jerk Reflex (Patellar Reflex)

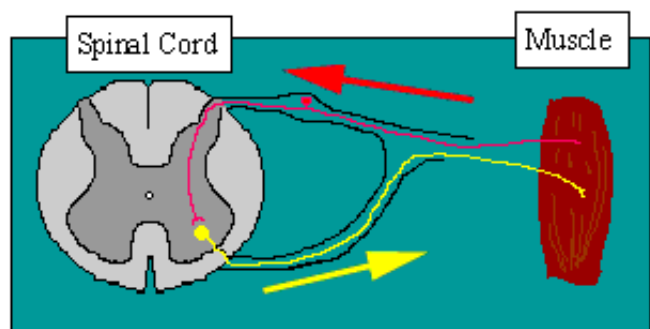
For grades 6-12



## Methods

The **knee jerk reflex** is one that you may have had tested at a check up at the doctor's office. In this test, the doctor hits your knee at a spot just below your knee cap and your leg kicks out. Try it! Have a partner sit with his or her legs crossed so that his leg can swing freely. Hit his leg just below the knee with the side of your hand. **DO NOT USE A HAMMER!!!!** The leg will kick out immediately (if you hit the right place).

The knee jerk reflex (seen in the figure to the right) is called a **monosynaptic reflex** because there is only one synapse in the circuit needed to complete the reflex. It only takes about 50 milliseconds between the tap and the start of the leg kick. That is fast! The tap below the knee causes the thigh muscle to stretch. Information is then sent to the spinal cord. After one synapse in the ventral horn of the spinal cord, the information is sent back out to the thigh muscle that then contracts.



## Materials

NONE