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Modeling Plan
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The Simple Reflex and You

Purpose: To demonstrate a simple reflex arc, i.e. a sensory, interneuron and motor neuron, the function and efficiency of reflexes and why the doctor taps your knee during a physical.

Materials: Ten feet of drain piping, ring stands, cardboard, Styrofoam, gumballs, funnels, other materials to set up piping and funnels, white board with markers, knee jerk mallets and flashlights.

Procedure: We will be creating a Rube Goldberg mechanism using the above materials. The gumball is going to represent the action potential traveling from one neuron, which will be at the start and activated by hitting a flap, down the piping, which represents our axon. The gumball will then travel through the synapse represented by the gap in piping to the funnel, which will go back down another section of pipe. After going through the second pipe the gumball will reach our representation of a leg, which will then kick out. If time allows we would like to test the students understanding by either having them draw a reflex arc on a whiteboard or by having them assemble into a human reflex arc. Finally, we would like the students to pair up and demonstrate common reflexes on each other, such as the knee jerk reflex with a mallet, the pupillary reflex and the blink reflex.

Issues: Reflex arcs are not as simple as three neurons. We will not discuss in detail action potentials or chemical signaling. The students may be too rough when demonstrating reflexes.