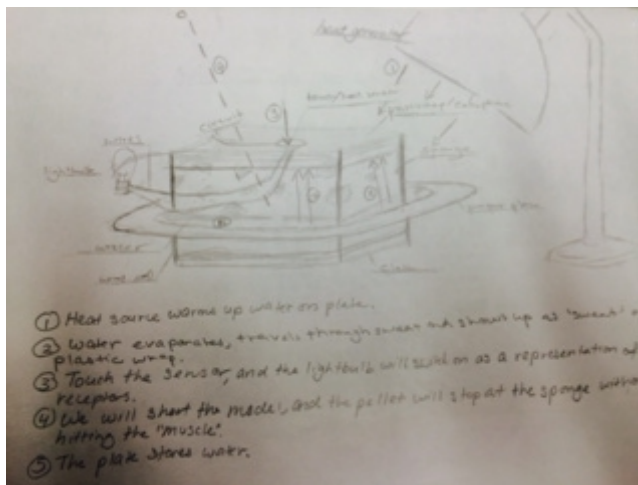


The Integumentary System

Functions:

- Store Water
- Recognize Touch(symbolize nerve receptors)
- Protect an Internal System
- Maintain Temperature

Model Drawing:



Description:

The main body of our model is a sponge with four rods, like "legs". The sponge will directly sit on a plate or bowl of water, and at the ends of the stick, there will be a relatively strong piece of cloth to represent muscle. Above the sponge will be several layers of plastic wrap/cellophane with a touch/heat sensor resting on top. A circuit with a light bulb will go through the wrap and rest on the side. A heat generator will stand right next to the main body to make the water evaporate and stand out as "sweat" against the plastic(temperature management). From a distance, we will also shoot the model with an airsoft gun to symbolize that the integumentary system is strong enough to withstand the force and not let the pellet rip the muscle, like in real life.

Materials:

Sponge
Water
Wires
Lightbulb

Plastic Wrap/Cellophane

Cloth

Airsoft Gun

Circuit

Touch Sensor

Paper Plate

Wood Rods/.,m

Heat Generator

http://www.amazon.com/Aokdis-Quality-Travel-Element-Immersion/dp/B00IWRCUWO/ref=sr_1_7/191-5288116-9360919?ie=UTF8&qid=1421084172&sr=8-7&keywords=immersion+water+boiler#productDetails

Construction Plan:

We are going to start by cutting a block of sponge into a reasonable size. At the four edges, we will fasten 4 relatively medium-sized wooden rods and drill 4 holes in either a shallow bowl or a deep plate so that we can secure it right below the sponge as water storage. At the very end of the rods, we will fasten a piece of cloth. Above the sponge with a centimeter or two of space and fasten a couple layers of plastic wrap or cellophane. At the surface of the top, we will put a touch or heat sensor with the needed wires attached and take that through the plastic wrap and take them to the side to form a circuit with a lightbulb. After that, we just need to find a reliable heat source, an airsoft gun, and water to pour into the plate/bowl.

Biology/Physics/Chemistry:

Osmosis - The tendency of a fluid(ex. water), to pass through a semipermeable membrane into a solution where the solvent concentration is higher. This equalizing the concentrations of materials on either side of the membrane.

Evaporation - To pass from a liquid state to a gaseous state(ex. water to water vapor). This only happens at the surface of a liquid.

Current - The flow of electric flow.

Heat - The form of energy that causes a difference in temperature, or the perception of warmth.

Circuit - An electric circuit is a path in which electrons from a voltage or current source flow. Electric current flows in a closed path called an electric circuit.

The General Processes and Structure of the Integumentary System - see PowerPoint

Special Requirements and Requests

We need to build a circuit with a heat sensor, which might be relatively hard to find. Also, as far as we know, none of us have access to a mobile heat generator. Thirdly, we need approval to bring an airsoft gun to school to shoot our model.

Unresolved Issues and Questions:

We definitely need to experiment with our model because some aspects seem advanced and/or unrealistic.

