

Experiment title: Skin Science

Grades: 3rd-6th Grade

If you were to say that our largest organ is our brain or heart you'd be wrong. The largest organ in your body is actually your skin. It protects everything else in our body and sense all the information about the world around us. It lets us know things like... How hot is that pot? And this coat is very itchy. Our skin's ability to "sensate" clue us in on all of the things around us.

With this experiment you will actually make a very simple version of a "Von Frey device". Which scientist use to measure our skin's detection threshold; the smallest sensation necessary for our nerves in our skin to feel something.

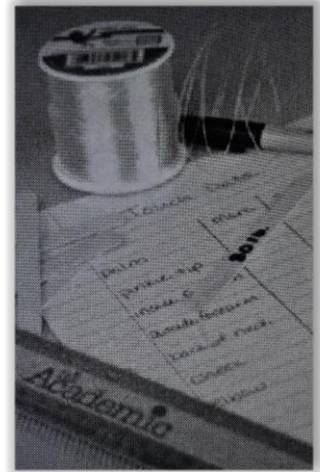
Research: You will want to learn about our skin and how it detects the things around us. You will also want to study how nerves work in our skin to send signal's to the brain. Also look into sensation to learn about how our skin can sense things. This research will help you construct your hypothesis on what your skin can detect and where your skin is the most sensitive.

Materials list:

- 5 popsicle sticks
- A marker
- Paper
- Ruler
- Scissors
- Tape
- Polyester fishing line in 5 different widths
- blindfold
- Volunteers willing to take a "touch test".

Procedure:

1. To make your "Von Frey device" cut 5 2 inch lengths of fishing line- one from each strand width. Write the size of the strand on the Popsicle stick with a marker, and use tape to anchor the end of the fishing line to it.
2. Make a data table: Title your page, "Touch Data" and down the left side write: palm, pinkie tip, inside forearm, outside forearm, back of neck, cheek and elbow. Across the top of the page write the names of your volunteers. Try for a minimum of 5 and a maximum of 8. Use a ruler to draw in the tables' rows and columns.
3. Now you are ready for your volunteers. It works best if they are wearing a short sleeve tee shirt, so that the skin on the arms is exposed. Have the volunteers come to a table one at a time and sit with one arm resting on the table and wearing the blind fold.
4. Now you will start your "Touch Test". Start with the finest strand of finishing line, and touch the tip of your volunteer's skin, just hard enough so that they line bends very slightly. Does your subject feel anything? If so write the diameter of the finishing line in the box of the body part,



and move on to a new part of the body. If they do not feel anything keep going with a thicker fishing line until the subject feels something.

5. Repeat this experiment on the rest of the parts of the arm, and on the subject's neck, as shown on your chart. Do the same for all volunteers.
6. Now that you have finished with everyone it is time to analyze your charts and see if your results match your hypothesis. This will be part of your conclusion. Also how yourself how this information is useful in a real world situation.