**Brain Games!**

Activity 1: The Online Reaction Test

<https://faculty.washington.edu/chudler/java/stopl.html>

 -Attempt to hit the button when the light turns green! Record your average time here:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Activity 2: Colorful Reaction Time Tester

<https://faculty.washington.edu/chudler/java/backtime.html>

 -Hit the button when the screen turns a color

 -Record your best time here:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Activity 3: Hit-the-Dot

<https://faculty.washington.edu/chudler/java/dottime.html>

 -Hit the dots as fast as you can

 -Record your best time here:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Reach Out and Touch Someone**

**Multicellular animals** have nervous systems that generate behavior. Nervous systems are formed from specialized cells that conduct signals rapidly through the long cell extensions that make up nerves. The nerve cells communicate with each other by secreting specific excitatory and inhibitory molecules. In sense organs, specialized cells detect light, sound, and specific chemicals and enable animals to monitor what is going on in the world about them.

**What You'll Need:**

* Two "picks" used for hair rollers or the ends of two paper clips that you've partially opened
* A millimeter ruler
* Eye protection

**Keeping Safe:**

Whenever there is a chance of any object coming near the eyes wear eye protection. Don't forget to wash or sterilize it between uses.

**Procedure:**

Find a partner. Ask your partner to shut his or her eyes. Then very gently place two points on the skin on the back of your partner's hands, 5 mm apart. Ask: "Can you feel two points or one?" (Most students will be able to tell that there are two points.)

Next, try to find the minimum distance that a student can distinguish two points instead of one. Do this by trying to place your points 4 mm apart, then 3 mm, 2 mm, and 1 mm from each other. Record your subject's response on the table below.

Next try the same experiment on the top and bottom of the forearm. Is there a difference?

Finally, ask your partner to put on eye protection (just in case!) and try it on the cheek.

**Two Points or One?**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Area of body:  | Back of hand | Top of forearm | Bottom of forearm | Cheek |
| Distance between points: |
|   5 mm |   |   |   |   |
|   4 mm |   |   |   |   |
|   3 mm |   |   |   |   |
|   2 mm |   |   |   |   |
|   1 mm |   |   |   |   |

**Questions:**

1. In which area of the skin are touch receptors closest?
2. What is the survival value of touch receptors?
3. Is there any part of the body where touch receptors would be a disadvantage?