

Put Your Finger on It

Fun game to explore the sense of touch

Materials Needed

- Scarf or bandana
- Ruler
- Paper (8 ½ X 11) in.

Grade Range

- 3-5
- 6-8

Topics/Skills

Life Science: Sense of touch;
Structures and Processes;
Measurement

Learning Standards

NGSS: From Molecules to
Organisms

Duration

20 minutes

Prep Time

5 minutes

Activity Challenge

Can you tell how many fingers are touching you while you are blindfolded?

Preparation

1. Review the materials list and gather items.
2. Decide who is Player A and Player B for the first trial.
3. Draw a scorecard like the template on the next page on your sheet of paper.

To Do

1. With Player A blindfolded or with A's eyes closed, Player B should touch an area on Player A's arm with either 1 finger, or simultaneously with 2 fingers separated by about 1 inch.
2. While still blindfolded, Player A states whether they are being touched by 1 finger or 2 fingers.
3. Remove the blindfold, or open A's eyes. Write down on A's scorecard whether A's guess of 1 or 2 fingers was right or wrong and write down the distance between B's fingers if 2 fingers were used for each trial on A's scorecard.
4. Repeat steps 1 through 3 for up to eight trials, with Player B randomly choosing 1 or 2 fingers, and altering the spacing between fingers when 2 fingers are used for the trial. B should vary the location that they touch on Player A's arm and write down the location for each trial.
5. Switch roles and repeat steps 1 through 4.

The winner of the game is the *touched person* with the larger number of correct answers over all of the trials.

Observations

Is it easy to determine if 1 finger or 2 fingers are touching you? Does the difficulty change based on where you are being touched? Does the distance between the 2 fingers affect your ability to guess correctly? If yes, why?

Extensions

Try testing the ability to determine the number of fingers that are touching you on different parts of the body, such as the fingertips, lower calves of the legs, shoulders, back, and knees. The areas can be bare skin or lightly clothed. On which parts of the body is it harder to determine the number of fingers touching you? On which parts is it easiest?

Try playing another game where one player places between 1 and 5 fingers on the other player for each trial. The touched player must accurately count the number of fingers touching them.

The Science behind the Activity

The skin is the largest and outermost sensory organ of the body. The sensory receptors in the skin receive information from the environment through several kinds of **stimuli**, such as touch, pain, and temperature. The sensory receptors transmit electrochemical signals along nerve fibers to the **somatic sensory cortex** in the brain.

The skin on different parts of the body contain a different number and arrangement of sensory receptors. Some areas have few receptors spaced far apart, while other areas may have many closely spaced receptors. Where the sensory receptors are sparse and well separated, it is difficult to determine how many fingers are touching the area. Fingertips are packed with sensory receptors – they have one of the largest number of receptors of any part of the body; the lips and tongue also have many receptors. **Braille** is a **tactile code** which allows the excellent sense of touch in the fingertips to be used to represent languages. The sensory receptors in the fingertips transmit information about the texture pattern in the braille letters to the brain, which then interprets the texture pattern as specific letters of the alphabet.

Scorecard Template

Player Name:					
Trial	Fingers Felt (1 or 2)	Fingers Touching (1 or 2)	<input type="checkbox"/> / <input type="checkbox"/>	Distance Between 2 Fingers or N/A (inches)	Location Touched
1					
2					
3					
4					
5					
6					
7					
8					
Number of correct answers					

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