**Experiment worksheet**

# 3.1 Receptors detect stimuli

Pages 42–45 and 188

**Challenge 3.1: Testing your senses**

**CAUTION:** MAKE SURE IT IS SAFE TO PUT YOUR HAND IN THE WATER.

## PART A: TEMPERATURE RECEPTORS What you need

* Very warm water
* Room temperature water
* Ice cubes
* 3 ice-cream containers
* Thermometer
* **What to do**

1. Half-fill one container with cold water and add the ice cubes.
2. Half-fill the second container with room temperature water.
3. Half-fill the last container with very warm water.
4. Place one hand in the cold water and the other in the very warm water for 2 minutes.
5. Remove both hands from the cold water and place them in the room temperature water.

## Discussion

1. What was the stimulus for the hand in hot water?
2. What change did the hand detect when it moved from the ice water to the room temperature water?
3. Is there a set temperature that acts as a stimulus for your hand?
4. Why do scientists use a thermometer rather than their hands to test the temperature of solutions?

## PART B: TOUCH RECEPTORS What you need

* 2 toothpicks
* Ruler
* Cork
* Blindfold

## What to do

1. Work in pairs. One person puts on the blindfold.

1. Place the toothpicks 50 mm apart in the cork.

1. Carefully use the cork to place the pointed ends of the toothpicks on the blindfolded person’s finger. They should indicate whether they feel ‘one point’ or ‘two points’.

1. If two points are felt, move the toothpicks closer together and repeat step 3.

1. Repeat steps 3 and 4 until the blindfolded person reports ‘one point’ for the first time.

1. Record your results in a table using the space below.

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1. Repeat this procedure for the palm of the hand, back of the hand and forearm.

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## Discussion

1. Are the ‘two point’ distances the same on different areas of the skin?

1. Which part of the body was best at detecting when two close points are touching it?

1. Which skin areas do you think have more touch receptors? Use your results to support your answer.