



Name: \_\_\_\_\_

Class: \_\_\_\_\_

## 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?

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- 2 What change did the hand detect when it moved from the ice water to the room temperature water?

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- 3 Is there a set temperature that acts as a stimulus for your hand?

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- 4 Why do scientists use a thermometer rather than their hands to test the temperature of solutions?

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## 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.
- 2 Place the toothpicks 50 mm apart in the cork.
- 3 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'.
- 4 If two points are felt, move the toothpicks closer together and repeat step 3.
- 5 Repeat steps 3 and 4 until the blindfolded person reports 'one point' for the first time.
- 6 Record your results in a table using the space below.

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- 7 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?

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

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

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