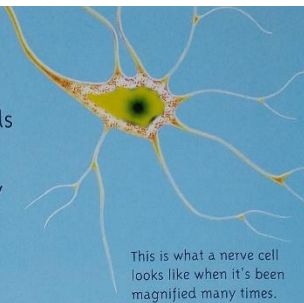


# Test your reactions first, then try these experiments on your family. Who has the fastest reactions?

## Test your reactions

Every time you move or touch something, hundreds of messages pass from your muscles and skin to your brain. The messages travel around your body through long fibres called nerves. Put your nerves to the test with these experiments.



This is what a nerve cell looks like when it's been magnified many times.

### Icy fingers



1. Sprinkle a few grains of rice on a small plate. Then put lots of ice cubes in a small bowl next to it.



2. Put your hand in the bowl of ice for 30 seconds. Dry your hand and try to pick up the rice. What happens?

#### What's going on?

Your hand gets cold from being in the ice cubes. When your body is cold your skin is less sensitive, which dulls your sense of touch. This makes it harder to feel the grains of rice and pick them up.

### Hand thermometer



1. Fill one bowl with cold water and another bowl with lukewarm water. Put one hand in each bowl.



2. After a minute, move the hand in the cold water to the lukewarm water. Does the water feel hotter than before?

#### What's going on?

The sensors in your skin that detect hot and cold get less sensitive as they adapt to different temperatures. The cold water makes the cold sensors in your hand less sensitive and the hot ones more sensitive. So, when you move your hand to the warm water, the water feels hotter than it is.

For links to websites where you can test your reaction times, go to [www.usborne-quicklinks.com](http://www.usborne-quicklinks.com)

## Quick catch

1. Ask a friend to hold the top of a long ruler. Curl your fingers and thumb around the zero mark at the bottom but don't touch the ruler.



2. Ask your friend to drop the ruler without warning you. Try to catch it between your fingers and thumb.



3. Check where your thumb ends up on the scale. This measurement shows how far the ruler has fallen.



4. Repeat the experiment a few more times. Can you catch the ruler any quicker with practice?



#### What's going on?

You catch the ruler because a message travels from your eyes to your hand via your brain. There's a slight delay between the ruler dropping and you catching it while the message gets there. With practice, you can catch more quickly, but there's still a limit to how fast the messages can travel.

## Sensitive skin



1. Hold two pencils together, like this. Scribble with them to blunt the ends a little, so they aren't too sharp.



2. Keeping the pencils side by side, touch your fingertip with the points. Can you feel one point or two?



3. Touch your thigh with the pencil points. Can you feel both points? Move the points apart until you can.



4. Measure the distance between the points. This distance is a measure of your skin's sensitivity.

#### What's going on?

Some parts of your body, such as your fingertips, are very sensitive and have lots of touch sensors. This means you can feel two points even if they are close together. But other parts, such as your legs, don't need to be so sensitive, so the sensors are further apart. That's why the points of the pencil have to be further apart on your leg before you can feel both of them.