MY SENSES AND ME

LIFE EDUCATION
Learning with Harold

Our senses are the way in which our brains connect with the world around us. Messages received by our brain tell us about our environment, and the messages that our brain sends in return tell our body how to react.

What senses do I have?

Sight

When we look at an object, light enters our eye through the pupil in the middle. **Photoreceptors**, (made up of structures called '**rods**' and '**cones**') in the **retina** at the back of the eye convert the light into electrical signals for the brain to interpret. Our brains use clues such as shadowing and textures, as well as knowledge from our prior experiences, to help us recognise and make sense of this complex information.

Good ways to look after our eyes include wearing sunglasses to protect our eyes from sun glare, and protective eyewear when doing activities that might cause things to damage our eyes – for example, in woodwork classes or the chemistry lab.

Touch

Receptors in our skin detect touch and relay the information to our brains.

We have two main types of touch receptors. **Thermoreceptors** detect hot or cold, whereas **mechanoreceptors** detect pressure, texture, and vibration.

These receptors convert the signals into electrical impulses, and then, via the nervous system, send them on to the areas of the brain which can interpret and use the information.

Hearing

Sound waves enter our ears, and travel down the **ear canal** (also called the **auditory canal**). When they hit the **ear drum**, it vibrates, and these vibrations travel into the middle ear.

Inside the middle ear are three tiny bones called the **hammer**, the **anvil**, and the **stirrup**. These bones amplify the sound waves, which are then transmitted into the fluid-filles inner ear, or **cochlea**, which is shaped like a spiral.

Here, the sound waves are turned into nerve impulses, which are sent on to the brain via the **auditory nerve**. Our brain then interprets these electrical signals into the sounds and noises that we hear.
It is important to take care of our ears by never poking or putting anything in them, and to protect them from very loud noises.

Smell

In the nasal cavity behind our nose, is an area called the **olfactory epithelium**.
This contains about 10 million special receptor cells that respond to odour molecules that are carried on the air that we breathe in.

Signals travel from here to the **olfactory bulb**, which then passes them on to other parts of the brain, to be interpreted as a specific smell.
Our brains can recognise approximately 10,000 different smells!

Our sense of smell is far more sensitive than our sense of taste and, in fact, we need to be able to smell in order to taste things properly.
We can see this in action when we have a cold and not only have trouble breathing, but also in tasting our favourite foods.

Taste

We have approximately 10,000 **taste buds** on our tongue, mouth, and throat. Each taste bud has about 1000 **taste receptor cells** which respond to different substances in our food – and send the information about them to our brain. As well as detecting flavours, the tongue can also detect hot and cold temperatures, and the molecules that make spicy food 'hot'.

Flavours are usually divided into five main categories: sweet, salty, sour and bitter - along with 'umami', which is a savoury flavour found in foods such as meat and cheese.

References

Kids Health.org – October 2012 Retrieved from http://kidshealth.org/kid/htbw/eyes.html and http://kidshealth.org/kid/htbw/nose.html# 29 April 2015

Science Museum of UK '*Your Brain*'. n.d. Retrieved from http://www.sciencemuseum.org.uk/WhoAmI/FindOutMore/Yourbrain/Howdoesyourbrainwork.aspx 29 April 2015

Hearing Association of New Zealand '*Your Ears – How Ears Hear*'. 2014. Retrieved from http://www.hearing.org.nz/ 29 April 2015.

University of Waikato, ScienceLearn Hub '*Touch*' 1 February 2011. Retrieved from http://sciencelearn.org.nz/Science-Stories/Our-Senses/Touch 29 April 2015

Neurological Foundation of New Zealand, '*My Amazing Brain*' author: Sue Giddens

With support from JSB Education

LET NZ 11 May 2015