MRC Laboratory of Molecular Biology

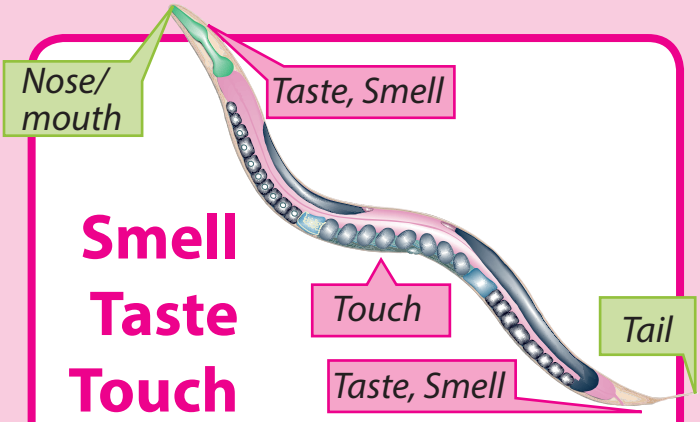
Using senses to find food

All animals use senses. We use them to react to our surroundings, to find food and avoid danger.

Mammals like us have 5 senses.

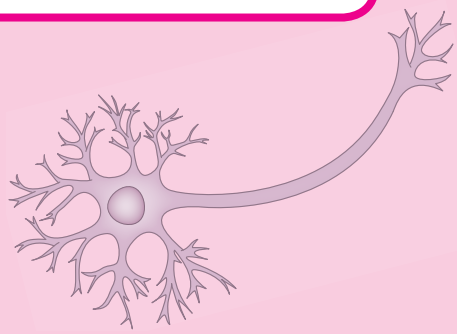
Sight
Hearing
Smell
Taste
Touch

Our worms have 3.



Smell
Taste
Touch

To sense things, we need neurons



Neurons are special cells in our body that receive and send messages.

Sensory neurons sense the world around us.

Interneurons act as connectors, passing on the message.

Motor neurons tell muscles how to move, controlling how we react to sensory information.

Worm neurons are amazingly similar to ours, so they help us understand how our neurons work. Worms only have 302 neurons, while we have 100 billion!

The detail

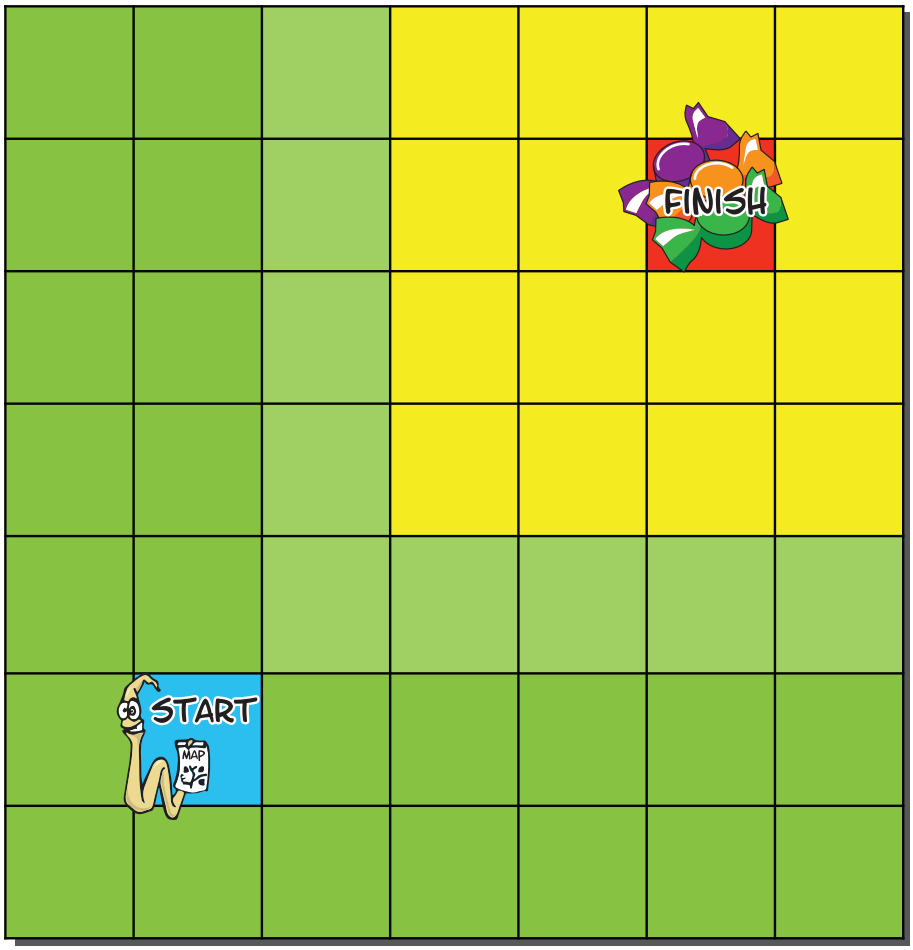
When you compare worm and human genes, they are remarkably similar, so studying a worm gene (and the protein it encodes) helps us to understand its human homologue.

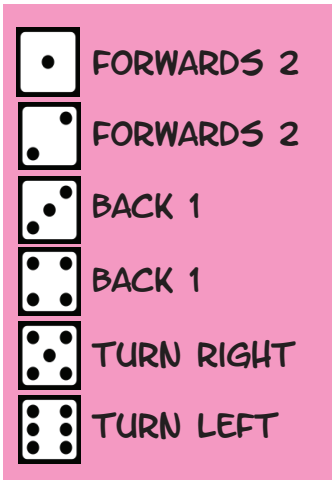
For example, we are interested in human deafness genes. Some of these are needed for sensing touch in worms. By studying the cellular and molecular details of their role in touch, we can understand more about their role in deafness (which is a form of touch sensation) in humans.

MRC Laboratory of Molecular Biology

Using senses to find food - the game!

Imagine you are a hungry worm. You need to find food, without using too much energy. What if you couldn't use your senses? You would need to use random search.





Roll to decide how to move

- Keep rolling until you reach the yellow zone.
- Now you can use your **senses** (you can smell the sweets).
  Each turn, **you decide** how to move without rolling the die *(forwards, backwards, turn right, turn left)*.

Can you reach the sweets in less than 30 turns?

- Now imagine your sense of smell is better. You can smell the sweets in the light green zone.

Does this help you to find the sweets quicker?

You can play this game at home. You'll need counters with a "head" and "tail" (so you know which way they are facing).