

Startle

Location

Ground floor, All About Us exhibition

In a nutshell

This exhibit allows visitors to trigger and watch their own startle reflex.

What to do

Sit in the chair so that the screen can be seen and press the green button.

Time Required

KS3 & KS4 2 minutes per student.

What's happening?

Our exhibit targets the blink reflex. The same reflex that would occur if a small insect came flying towards your eye. A reflex, or to give it the proper name, a reflex arc, is an example of the nervous system working without the brain inputting. Because of that, a particular event or stimulus can have only one outcome - the spinal cord can't take decisions.

In this reflex arc we can describe the series of events:

1. The sensory receptor in your eye detects the air movement, once this reaches a certain threshold level, the receptor will fire.

Below this the stimulus isn't considered strong enough to make the reflex worthwhile.

2. The sensory neuron is excited to fire by the receptor. This neuron stretches into the spinal cord and connects, or synapses, with an interneuron (also known as spinal relay neurons) which will then connect with a motor neuron.

3. The motor neuron leads out of the spinal cord and connects with the muscle around the eye and causes it to contract, which will blink the eyelids.

It all sounds quite complicated and yet it's all over in less than a second!

There are a number of other reflexes, the classic knee jerk and the withdrawal from pain. With the latter there can be a second part of the reflex where the opposite limb reaches out to push away the problem.



Curriculum links

KS3	English - Reading <ul style="list-style-type: none">- learning new vocabulary, relating it explicitly to known vocabulary and understanding it with the help of context and dictionaries
	English – Spoken <ul style="list-style-type: none">- using Standard English confidently in a range of formal and informal contexts, including classroom discussion
KS4	Science - Nervous coordination and control in humans <ul style="list-style-type: none">- explain how the structure of the nervous system (including CNS, sensory and motor neurones and sensory receptors) is adapted to its functions- explain how the structure of a reflex arc is related to its function
	English - Spoken <ul style="list-style-type: none">- listening to and building on the contributions of others, asking questions to clarify and inform, and challenging courteously when necessary

Relates to:

Workshops & Theme Days	Shows	Trails	Other exhibits
<ul style="list-style-type: none">Brain Lab (KS3 & KS4)	<ul style="list-style-type: none">How my body works (KS3)Boggling Brains (KS3 & KS4)		<ul style="list-style-type: none">Push overPupilReflex & reflectReal brainHigh speed cameraCatch itReaction timer

