# Module map

| *GCSE Science* | Module story | Science ideas and explanations | *GCSE Additional Science* |
|---|---|---|---|
| | **What is behaviour?** | Behaviour is all of the actions an organism makes. Living organisms respond to stimuli to maintain themselves in favourable conditions. Simple organisms rely on reflex actions for survival. More complex organisms have patterns of behaviour which allow them to adapt more readily to new situations, increasing their chance of survival. | |
| Simple reflexes are introduced in B3 *Life on Earth*. | **Reflex arcs** | The human nervous system is made up of the central nervous system (CNS – brain and spinal cord) and the peripheral nervous system. Reflex arcs produce involuntary responses to stimuli. Stages in a reflex arc follow stimulus, receptor, sensory neuron, CNS, motor neuron, effector, response. In some circumstances the brain can modify a reflex response. Neurons transmit electrical impulses throughout the nervous system. Certain drugs affect behaviour by interfering with the transmission of impulses across synapses. | The effect of certain drugs on ADH production is covered in B4 *Homeostasis* |
| | **The brain** | The mammalian brain is composed of billions of neurons. During development, neuron pathways are formed, and as a result of experience, certain pathways become more likely to transmit impulses than others. This allows some skills to be learnt through repetition. Scientists have used a variety of techniques to map the function of different areas of the brain, for example the cerebral cortex. | |
| | **Learned behaviour** | The great variety of potential neuron pathways allow the animal to adapt to new situations. Some learned behaviour may only be acquired at a particular age, for example language development. | |
| | **Conditioned reflexes** | A reflex response to a stimulus can be learned by introducing a secondary stimulus in association with the primary stimulus. Conditioned reflexes may increase the animal's chances of survival. | |
| Several modules in *GCSE Science* focus on IaS3 *Developing explanations*. | **Memory** | Memory is the storage and retrieval of information. Humans are more likely to remember information if it is presented as, or can be arranged into, a pattern. Explanations for memory identify short-term and long-term memory. Scientists have produced more complex models for memory, but to date these do not account for all the observations. | |


© University of York (UYSEG) and the Nuffield Foundation • This page may be copied solely for use in the purchaser's school or college