

Bio Psychology

General assumptions about the approach:

- Humans have two major physiological systems that regulate behaviour in response to the environment. These are the **nervous system** and the **endocrine system**.
- The brain and the chemicals in the brain communicate with each other through electrical and chemical messages. They focus on **Neurons and Synaptic transmissions**.

What biology do you already know?

Use your resources to draw a detailed image of neuron. Label the following features and include a sentence about each features function:

- Myelin Sheath
- Dendrites
- Axon
- Cell body
- Sensory neuron
- Motor neuron
- Relay neuron
- Nodes of Ranvier

*There are 100 billion neurons in the human nervous system. It all starts with an **action potential** (electrical charge)*

Neurons communicate with each other within groups known as neural networks. Each neuron is separated from the next by a tiny gap called the **synapse**. Signals within neurons are transmitted electrically, however signals between neurons are transmitted chemically across the synapse.

Use your resources to draw a detailed image of a synaptic transmission. Label the following features and include a sentence about each features function:

- Axon
- Synapse
- Neurotransmitter
- Post synaptic receptor sites
- Pre synaptic receptor sites
- Synaptic vesicle

Neurotransmitters are chemicals that diffuse across the synapse to the next neuron in the chain.

Find out what the difference is between an **EXCITORY** and an **INHIBITORY** neurotransmitter.

Use your resources to find out more examples of neurotransmitters. What are they called? What do they do? How are they transmitted in brain / neurons?

The Nervous System

The Nervous System is a specialised network of cells in the human body and is our primary internal communication system. It has two main functions:

- a) TO collect, process and respond to information in the environment
- b) TO co-ordinate the working of different organs and cells in the body

It is divided into two sub systems.

Use your resources to find out information about the two sub systems:

Central Nervous System

Peripheral Nervous System

Use your resources to draw the parts of the body that are involved in the fight or flight response to stress, which is activated during stress and the Autonomic Nervous System.

Indicate the difference between the SYMPATHETIC and the PARASYMPATHETIC nervous system.

Include in your diagram, the following features:

- ACTH
- ADRENAL MEDULLA
- ADRENAL CORTEX
- CORTISOL
- ADRENALINE

The Endocrine System

The Endocrine system works alongside the nervous system to control vital functions in the body. The endocrine system acts much more slowly than the nervous system but has very widespread and powerful effects. Various glands in the body (for example, the thyroid gland) produce hormones. The hormones are then secreted into the bloodstream and affect any cell in the body that has a receptor for that particular hormone.

Use your resources to find out examples of hormones that are released, and their effect on the body, by the:

a) Thyroid gland

b) Pituitary gland