

Scheme of Learning: Brain and Neuropsychology

Topic Sequence:

1	2	3	4	5	6	7	8
The nervous system	Emotion	Neurons	Hebb's theory of learning and neuronal growth	The brain	Penfield's study of the interpretive cortex	Neuropsychology + scanning techniques	Tulving's gold memory study

Topic Overview:

This topic focus on the physical structures that make up our nervous system and how they control our behaviours which including learning, emotions, memory and the fight or flight response. We will also investigate how a detailed model of the brain has been developed with the use of case studies and scanning techniques, providing evidence of localisation.

Lesson Sequence:

The topic starts by looking at the nervous system and its subdivisions. Each subdivision is described and then applied to scenarios to outline to the students how each subdivision impacts and controls our behaviours. This is then further reinforced by learning about the fight or flight response more specifically and in greater detail.

The James-Lange theory of emotion is then covered, as are several alternatives, to explain how emotion is created by the brain as a response to physiological arousal. Whilst the James-Lange theory of emotion states that physiological comes first other theories argue that there may be other factors involved.

Next, we look at the 3 main types of neuron and the differences in their structure and function and how they transmit messages both through the neuron body and across the gaps between neurons.

The focus on neurons leads us to Hebb's theory of learning and neuronal growth. Hebb's theory looks at how learning makes physical changes to our brains by strengthening links between neurons, making what Hebb termed "Cell Assemblies".

We continue learning about the brain and localisation of function. The 4 main lobes of the brain, and the cerebellum are identified, and their function described as a build up to the first study of this topic; Penfield's study of the interpretive cortex.

We follow up Penfield's by looking at the development of neuropsychology as a field by looking at famous case studies and scientific advancements in the field of scanning techniques. Each providing insight into how the brain works and again localisation.

Lastly, we combine our knowledge of scanning techniques, localisation and memory (from the 1st topic of the course) when we analyse Tulving's gold memory study and its findings.

Sequence of Lessons:

1	Topic intro – Knowledge map and study guide
2	The structure of the nervous system
3	The autonomic nervous system
4	The James-Lange theory of emotion
5	Neuron structure and function
6	How Neurons transmit messages
7	Hebb's theory of learning and neuronal growth
8	The structure and function of the brain
9	Penfield's study of the interpretive cortex
10	Evaluating Penfield's study
11	Neuropsychology
12	Scanning techniques
13	Tulving's gold memory study
14	Evaluating Tulving's gold memory study

Topic Resources:

Knowledge Map:	Brain and Neuropsychology	Any other Resources:	Study guide
-----------------------	---------------------------	-----------------------------	-------------

Assessment:

Knowledge:	Mid topic test – 20Marks End of topic – 20Marks Assessment – 9Marks
Application of Knowledge:	Longer written apply questions as part of end of topic assessment – 26Marks

Supportive Reading:

The James-Lange theory of emotion	A theory that states that stimuli creates a physiological response first. This is then interpreted by the brain.
Hebb's theory of learning and neuronal growth	A theory that states that learning creates links between neurons and that the links get strong with rehearsal.
Penfield's study of the interpretive cortex	A case study, which supports localisation, in which Penfield stimulated the brains of participants with an electric probe.
Tulving's gold memory study	A study that investigated the effect of semantic and episodic memories on blood flow in the brain.