

Neuropsychology – Knowledge Organiser

Questions to ask yourself: What is our brain made of? How do we turn thoughts in to action? What are emotions? What happens when we damage our brains?

Key Theories	Summary	Strength	Weakness
James-Lange Emotion	Psychological arousal occurs before the interpretation of emotion.	<ul style="list-style-type: none"> Emotional states come after physiological arousal e.g. phobias. 	<ul style="list-style-type: none"> Challenged by the Canon-Bard Theory.
Hebb's Theory	Synaptic connections become stronger the more they are used.	<ul style="list-style-type: none"> The objective basis gives the theory validity and credibility. 	<ul style="list-style-type: none"> Reductive – reduces learning to neuronal level.

Key Studies	Summary	Strength	Weakness
Penfield – Interpretive Cortex Study	The function of the temporal lobe using the <i>Montreal</i> procedure.	<ul style="list-style-type: none"> Precise and scientific method. 	<ul style="list-style-type: none"> Unusual sample – all participants had epilepsy.
Tulving's 'Gold' Memory Study	Do episodic memories produce different blood flow patterns to semantic ones?	<ul style="list-style-type: none"> Objective evidence using brain scans – unbiased evidence. 	<ul style="list-style-type: none"> Very small sample (6 including Tulving).

	Key Term	Definition
1	Autonomic NS	Operates automatically – e.g. breathing, heart rate, and digestion.
2	Central NS	The brain and spinal cord. It is there all complex commands and decisions are made.
3	Nervous system	A complicated network of cells in the body. Consists of the CNS and PNS.
4	Peripheral NS	Transmits information about voluntary activity, communicating between the CNS and the rest of the body. Coordinates some reflex responses.
5	Somatic SN	Transmits information from sense organs to the CNS. Also receives information from the CNS that directs muscles to act.
6	Fight or Flight	The immediate physiological response when confronted with a stressful situation.
7	Adrenaline	Hormone produced by adrenal glands – strong arousing effect on the heart.
8	Hormone	Chemicals circulated in the blood controlling the activity of target cells/organs.
9	Hypothalamus	Small structure in the brain that controls many important functions e.g. hunger, thirst, body temperature, and fight or flight.
10	Emotion	A strong feeling or mood that has important motivational properties.
11	Excitatory	Neurotransmitters (e.g. adrenaline) which increase the positive charge of the next neuron making it more likely to fire.
12	Inhibitory	Neurotransmitters (e.g. serotonin) which increase the negative charge of the next neuron making it less likely to fire.
13	Neurons	Cells that communicate messages through electrical and chemical signals throughout the nervous system. There are three types: sensory, relay, motor.
14	Neurotransmitter	A chemical that is released from synaptic vesicles. These send signals across the synaptic cleft from one neuron to the next.
15	Synaptic transmission	The process by which neighbouring neurons communicate with each other.
16	Cerebellum	Coordinates movement with sensory input – also has a role in cognition.
17	Cerebral cortex	This outer layer of brain tissue. The main centre of the brain's conscious awareness.
18	Localisation	Theory - different brain areas are responsible for specific functions and behaviours.
19	Interpretive cortex	An area of the temporal lobe where interpretations of memories are stored.
20	CT Scan	Uses X-Rays and a computer to create detailed images of the inside of the body.
21	fMRI Scan	Uses radio waves to measure blood oxygen levels in the brain.
22	PET Scan	Allows live brain activity to be observed. Uses an injection of radioactive substance.

