

A. Keywords:

Hemisphere – half of the brain
 Frontal lobe – the area at the front responsible for decision-making and impulse control
 Lateralisation of function – the different jobs that are done by each half of the brain
 Asymmetrical – the two hemispheres are not equal in terms of what they do
 Corpus callosum – a thick bundle of nerve fibres connecting the two hemispheres so they can communicate with each other
 Broca's area – part of the left hemisphere that controls speech production
 Central nervous system (CNS) – the brain and spinal cord
 Neurotransmitters – chemicals found within the nervous system that pass messages from one neuron to another across a synapse
 Synapse – a gap between two neurons that allow messages to pass from one cell to another
 Neurological damage – damage to the body's central and peripheral nervous system
 Temporal lobe – helps with hearing and understanding sounds, understanding and creating speech.
 Parietal lobe – role in perception. Front of PL is responsible for sense of touch.
 Occipital lobe – deals with seeing, contains the visual cortex.
 Cerebellum – role in movement, coordination and balance.

B. Structure and function of the brain

The brain is a very complex organ that has to control a lot of different functions and behaviours. It is divided into two halves (hemispheres) one on the left and one on the right. The upper part of the brain is called the cerebrum. This has an outer cortex that acts like a 'shell'. The brain is able to communicate with the rest of the body through the spinal cord. The key areas of the brain perform different functions. These areas are: frontal lobe, temporal lobe, parietal lobe and occipital lobe.

C. Impact of neurological damage Visual agnosia is an inability to recognise objects even though they can be seen. This is often caused by damage to the parietal lobe and is a disorder of perception. Prosopagnosia or face blindness is an inability to recognise faces even though they can be seen. It can be caused by damage to the part of the brain at the back of the temporal lobe, next to the occipital lobe called the fusiform face area. Damage to the pre-frontal cortex can make it difficult for people to control their emotions and their personality can seem to change a lot.

D. Expert Modelling:

Define what is meant by 'prosopagnosia'. (2)
 Prosopagnosia is the inability to recognise faces of familiar people (1), while other aspects of visual processing and intellectual functioning remain intact (1).

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E. Lateralisation of function in the hemispheres

Due to the complexity of the brain it is difficult to pinpoint exactly what functions are controlled in each separate area of the brain. The left hemisphere plays a big role in the processing of language. If the Broca's area gets damaged people might find it difficult to talk. The right hemisphere has a large role to play in our spatial awareness. The right hemisphere is also seen as being more creative. The corpus callosum allows messages to be passed between the two hemispheres.

F. The role of the CNS The CNS helps the brain and body communicate with one another by passing messages backwards and forwards between them. The sensory nerves in the body send messages to the brain via the spinal cord. If the brain gets damaged the messages that are normally passed around may get interrupted. Synaptic functioning; an electrical impulse triggered inside a neuron, passes a small impulse down the axon to the terminal buttons & releases neurotransmitters into the synapse where it is picked up the dendrites of the next neuron.

G. Wider thinking / further reading:

<https://learndojo.org/gcse-revision/aqa-psychology/brain-neuropsychology/>