**year 2 summer work: independent study on Biopsychology**

*Make notes on the material below using the Biopsychology information pack and videos on* <http://www.psych205.com/biopsychology.html>

* **Localisation of function in the brain and hemispheric lateralisation**

**These notes will provide you with the core knowledge you need this topic.**

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| **Skill** | | **Key questions** | **Notes complete** | **How well do you understand this?**  **Write RED, AMBER or GREEN** |
| **Localisation of function** | | | | |
| AO1 | | What is localisation? |  |  |
| AO1 | | What are the roles of these areas of the brain and can you label where they are on a diagram:  Motor, somatosensory, visual, auditory, Broca’s, Wernicke’s |  |  |
| AO1 | | How many hemispheres is the brain divided into? |  |  |
| AO1 | | What is the cerebral cortex? |  |  |
| AO1 | | What are the 4 lobes of the brain called and what are their functions? |  |  |
|  | |  |  |  |
| **Plasticity and Functional Recovery of the Brain after Trauma** | | | | |
| AO1 | | What is brain plasticity? |  |  |
| AO1 | | When do most changes in the brain take place? |  |  |
| AO1 | | What does the term ‘synaptic pruning’ refer to? |  |  |
|  | | Who were Maguire’s participants? Why were they chosen? |  |  |
| AO1 | | Which part of the brain is associated with spatial and navigational skills? |  |  |
| AO1 | | What were Maguire’s main findings? |  |  |
| AO1 | | Which part of the brain tends to be bigger in people who can speak more than one language? (Mechelli et al.) |  |  |
| AO1 | | What is functional recovery? At what speed does it occur? |  |  |
| AO1 | | How does brain recovery actually work? |  |  |
| AO1 | | Can you describe 3 examples of structural changes that can occur in the brain? |  |  |
| **Lateralisation- Split Brain research** | | | | |
| AO1 | What is hemispheric lateralisation? | |  |  |
| A01 | What is the corpus callosum? | |  |  |
| A01 | What does split brain surgery involve and why do people have the surgery? | |  |  |
| A01 | What is the aim of split brain research? | |  |  |
| A01 | What are the key features of Sperry’s sample used in split brain studies? | |  |  |
| A01 | What are the key features of Sperry’s procedure (including the equipment used and the tasks that the participants had to complete? | |  |  |
| A01 | What were Sperry’s key findings? | |  |  |

* **Ways of investigating the brain**

**These notes will provide you with the core knowledge you need for the lessons on this topic.**

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| --- | --- | --- | --- |
| **Skill** | **Key questions** | **Notes complete** | **How well do you understand this?**  **Write RED, AMBER or GREEN** |
| **Functional magnetic resonance imaging (fMRI)** | | | |
| AO1 | How does Functional magnetic resonance imaging (fMRI) work? |  |  |
| AO1 | What does a fMRI brain scan show us? |  |  |
| **Electroencephalogram (EEG)** | | | |
| AO1 | What do electroencephalogram (EEGs) measure? |  |  |
| AO1 | What do the scan recordings represent? |  |  |
| AO1 | What are the 4 types of EEG waves? |  |  |
| AO1 | What are amplitude and frequency? |  |  |
| AO1 | Why are EEGs used by clinicians? |  |  |
| **Event-related potentials (ERPs)** | | | |
| AO1 | What is the difference between an EEG and an ERP? |  |  |
| A01 | What is the statistical averaging technique? |  |  |
| A01 | What has research revealed? |  |  |
| **Post-mortem examinations** | | | |
| AO1 | What is a post mortem? |  |  |
| AO1 | In psychology, whose brain might be used in a post-mortem? |  |  |
| AO1 | Why do Psychologists wants to examine the brain after death? |  |  |
| AO1 | What is spatial resolution? |  |  |
| A01 | What is temporal resolution? |  |  |

* **Biological Rhythms: Circadian, Infradian and Ultradian**

**These notes will provide you with the core knowledge you need for the lessons on this topic.**

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| --- | --- | --- | --- |
| **Skill** | **Key questions** | **Notes complete** | **How well do you understand this?  Write RED, AMBER or GREEN** |
| **Circadian Rhythms** | | | |
| AO1 | What is a circadian rhythm and how long does it last? |  |  |
| A01 | Can you give an example of a circadian rhythm? |  |  |
| AO1 | What is an endogenous pacemaker? Give an example related to the sleep wake cycle. |  |  |
| AO1 | What is an exogenous zeitgeber? Give an example related to the sleep wake cycle. |  |  |
| A01 | How do endogenous pacemakers and exogenous zeitgebers influence our circadian rhythms (sleep-wake cycle)?  Include details of the SCN, pineal gland, melatonin, light |  |  |
| AO1 | Write a summary of 1 piece of research that has investigated circadian rhythms and why it supports the theory e.g. Michael Siffre or Aschoff and Weaver |  |  |
| AO1 | Write a summary of the procedure and findings of research that supports the role of the SCN in the sleep wake cycle. |  |  |
| AO1 | Write a summary of the procedure and findings of research that supports the role of light in the sleep wake cycle. |  |  |
| **Infradian Rhythms** | | | |
| AO1 | What is an infradian rhythm and how long does it last? |  |  |
| AO1 | Can you give an example of an infradian rhythm? |  |  |
| A01 | Give details of the hormones involved in this rhythm. |  |  |
| AO1 | Write a summary of 1 piece of research that has investigated the role of exogenous zeitgebers on the menstrual cycle. |  |  |
| **Ultradian Rhythms** | | | |
| AO1 | What is an ultradian rhythm and how long does it last? |  |  |
| AO1 | Can you give an example of an ultradian rhythm? |  |  |
| AO1 | What occurs in the different stages of sleep? |  |  |
| AO1 | Include a diagram of the sleep cycle in your notes. |  |  |
| AO1 | Write a summary of 1 piece of research that has investigated the distinct stages of sleep and the role of REM sleep |  |  |