



Biopsychology 1

AQA A Specification: The divisions of the nervous system: central and peripheral (somatic and autonomic).

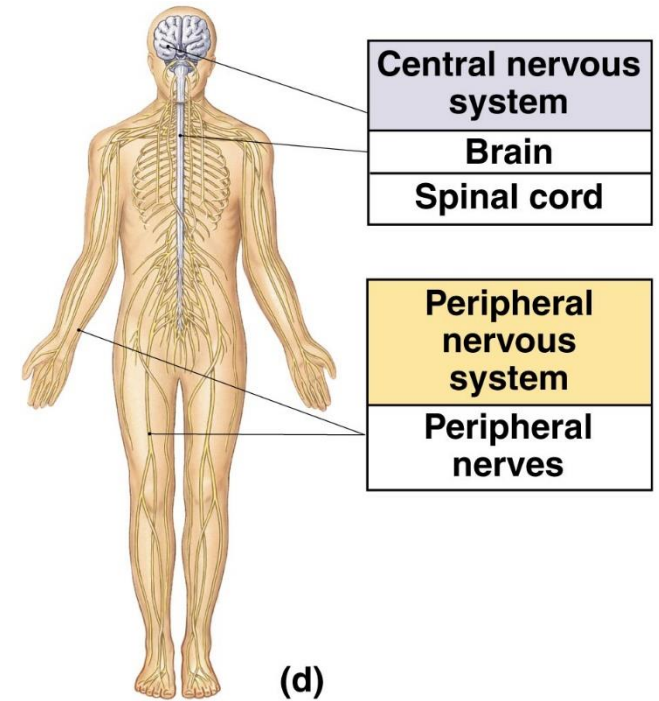


AQA A Psychology Specification: Topic content

- The divisions of the nervous system: central and peripheral (somatic and autonomic).
- The structure and function of sensory, relay and motor neurons. The process of synaptic transmission, including reference to neurotransmitters, excitation and inhibition.
- The function of the endocrine system: glands and hormones.
- The fight or flight response including the role of adrenaline.

The Nervous System

- A specialised network of cells in the human body.
- The primary internal communication system.
- Two main functions: -
 1. To collect, process and respond to information in the environment.
 2. To co-ordinate the working of different organs and cells in the body.
- Subdivided into the central nervous system and the peripheral nervous system.

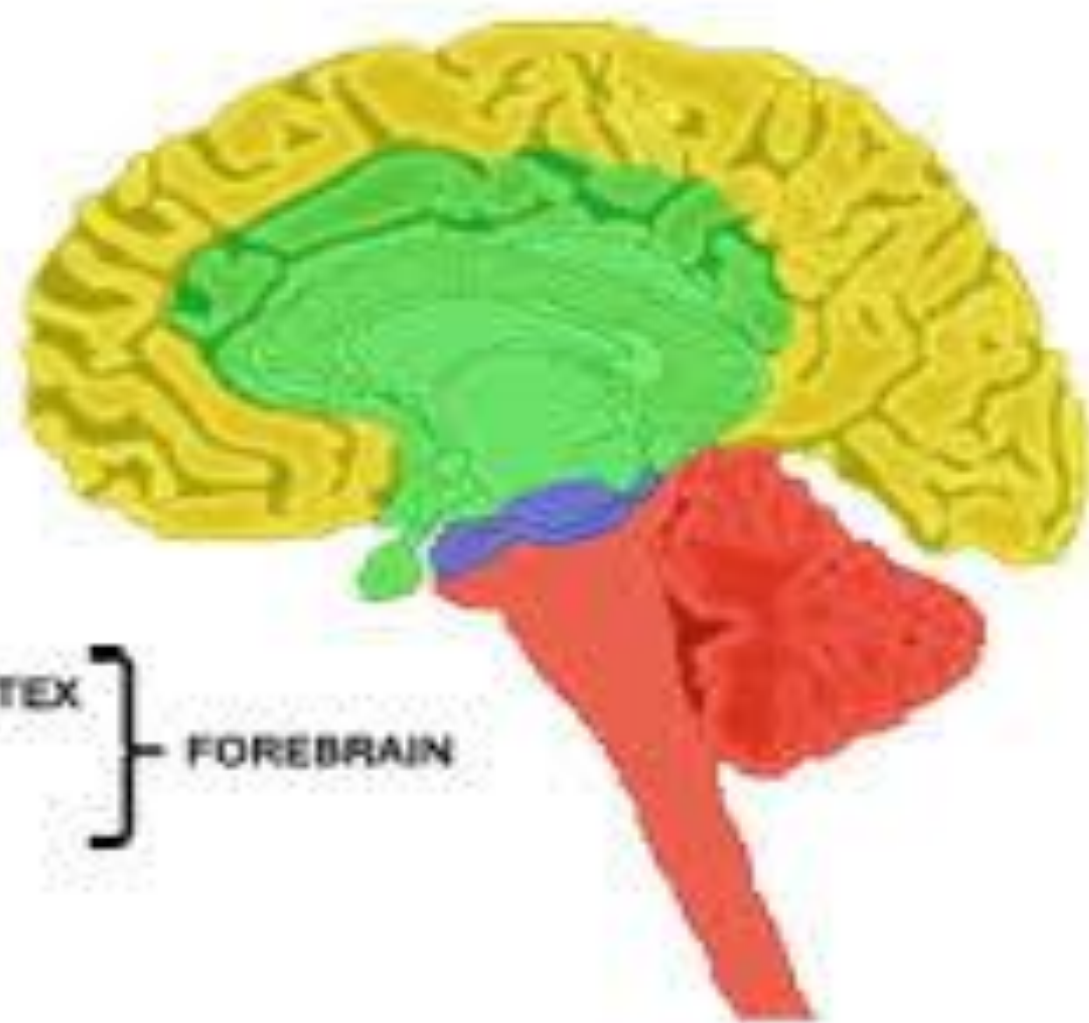


Copyright © 2007 Pearson Education, Inc., publishing as Benjamin Cummings

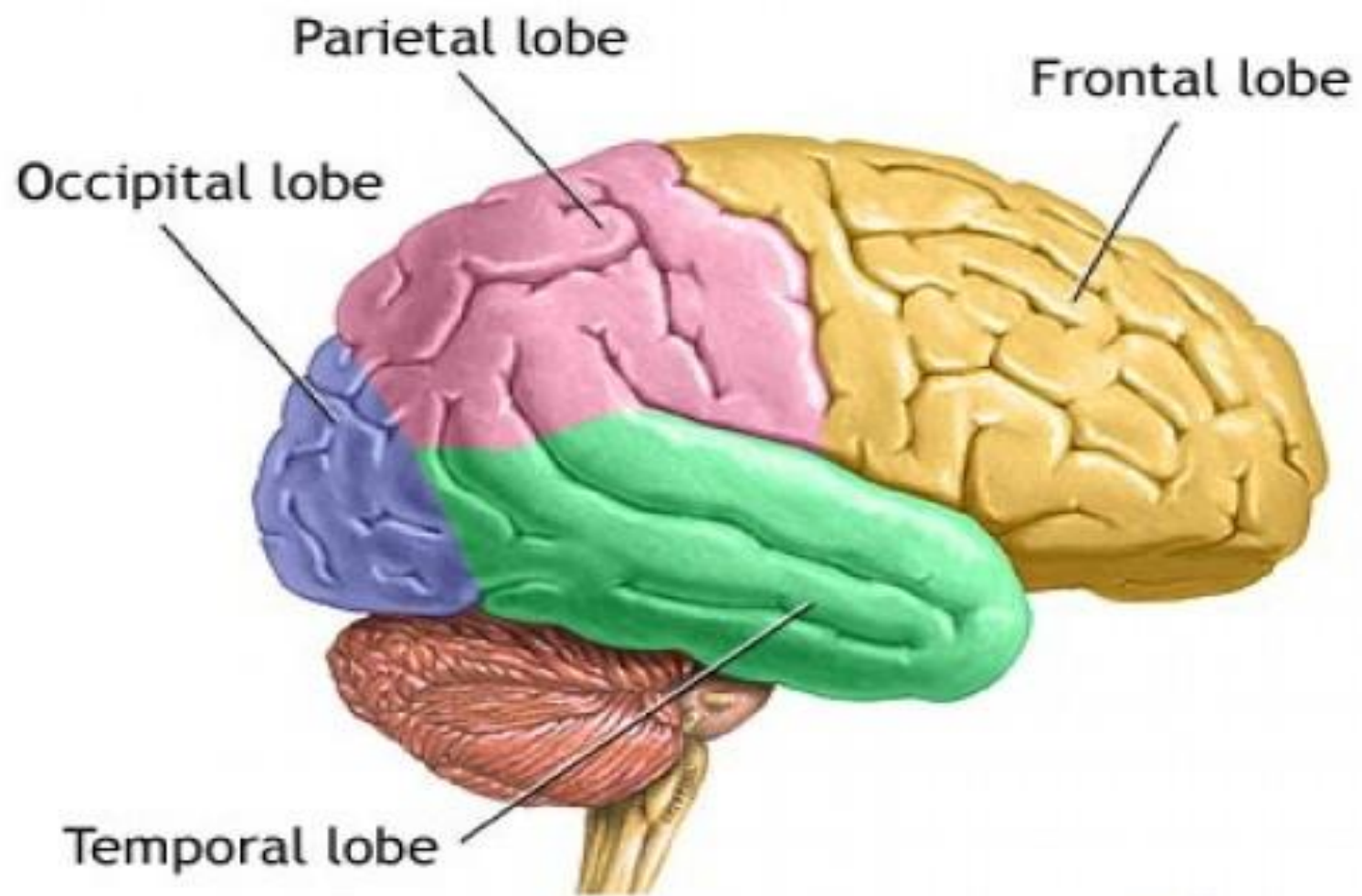
Central Nervous System (CNS)

- Central nervous system (CNS) – consists of the brain and the spinal cord.
- CNS passes messages to and from the brain and connects nerves to the Peripheral Nervous System (PNS).
- **Brain** – centre of all conscious awareness. Outer layer is called the cerebral cortex. Divided into two hemispheres and four lobes.
- **Spinal cord** – extension of the brain. Responsible for reflex actions *e.g. pulling hand away from hot plate.*





- CEREBRAL CORTEX
 - LIMBIC SYSTEM
 - MIDBRAIN
 - HINDBRAIN
- } FOREBRAIN



Independent task

- Cover up page 3
- Answer the 6 questions without looking back, you can quietly confer if necessary
- Challenge

Peripheral Nervous System (PNS)

- Peripheral = on the edge
- Peripheral nervous system – consists of 31 pairs of spinal nerves **outside** of the spinal cord.
- Sends information to the CNS from the outside world via senses, and transmits messages from the CNS to muscles, organs and glands in the body.

Somatic Nervous System

- Somatic nervous system transmits and receives messages from the senses **to** the CNS.
- These are **AFFERENT NERVES** – carry sensory information **to** the CNS.
- For example, visual information from the eyes and auditory from the ears.
- Somatic nervous system also receives information **from** the CNS that directs muscles to react and move.
- These are **EFFERENT NERVES** – carry motor/instructional information from the CNS to muscles, organs and glands in the body.

Pair task – piece of paper

1) Create a diagram to represent afferent nerves and efferent nerves

Ensure it is correct

Ensure you both have a copy

(5 mins)

2) Create a mnemonic – a memory strategy, to help you remember afferent and efferent terms correctly

E.g. AE

E.g. an acronym using A and E to help you remember them

(5 mins)

Extension:

Autonomic Nervous System (ANS)

- Autonomic nervous system (ANS) – transmits and receives information from the organs in the body.
- It is responsible for the control and regulation of internal organs and thus vital functions in the body e.g. breathing, heart rate, digestion, stress responses.
- It is autonomic = automatic, system operates involuntarily.
- The ANS is ultimately controlled by the **hypothalamus**.

Acute stressor

- Short-term/immediate/sudden.
- Requires the animal to move quickly in order to protect itself and survive.
- For example – moving out of the way of a speeding car.

Sympathetic

Parasympathetic

Stress Response
"Fight or Flight"

Relaxation Response
Rest & Recuperation



Breathing Rate
Blood pressure
Heart Rate
Metabolism
Blood Sugar
Adrenaline
Sensory Awareness



Thought processes
Creativity
Concentration
Immune System
Digestive System

Individual task

- Create 5 true/false statements based on the autonomic nervous system, and the sympathetic and parasympathetic branches of this nervous system
- i.e. info on bottom of p.4 and p.5, p.6
- *E.g. the sympathetic nervous system is involved in the fight or flight response – TRUE*
- Make sure you write down the answers, including why statements may be false
- Don't let the person next to you see yours

Independent task

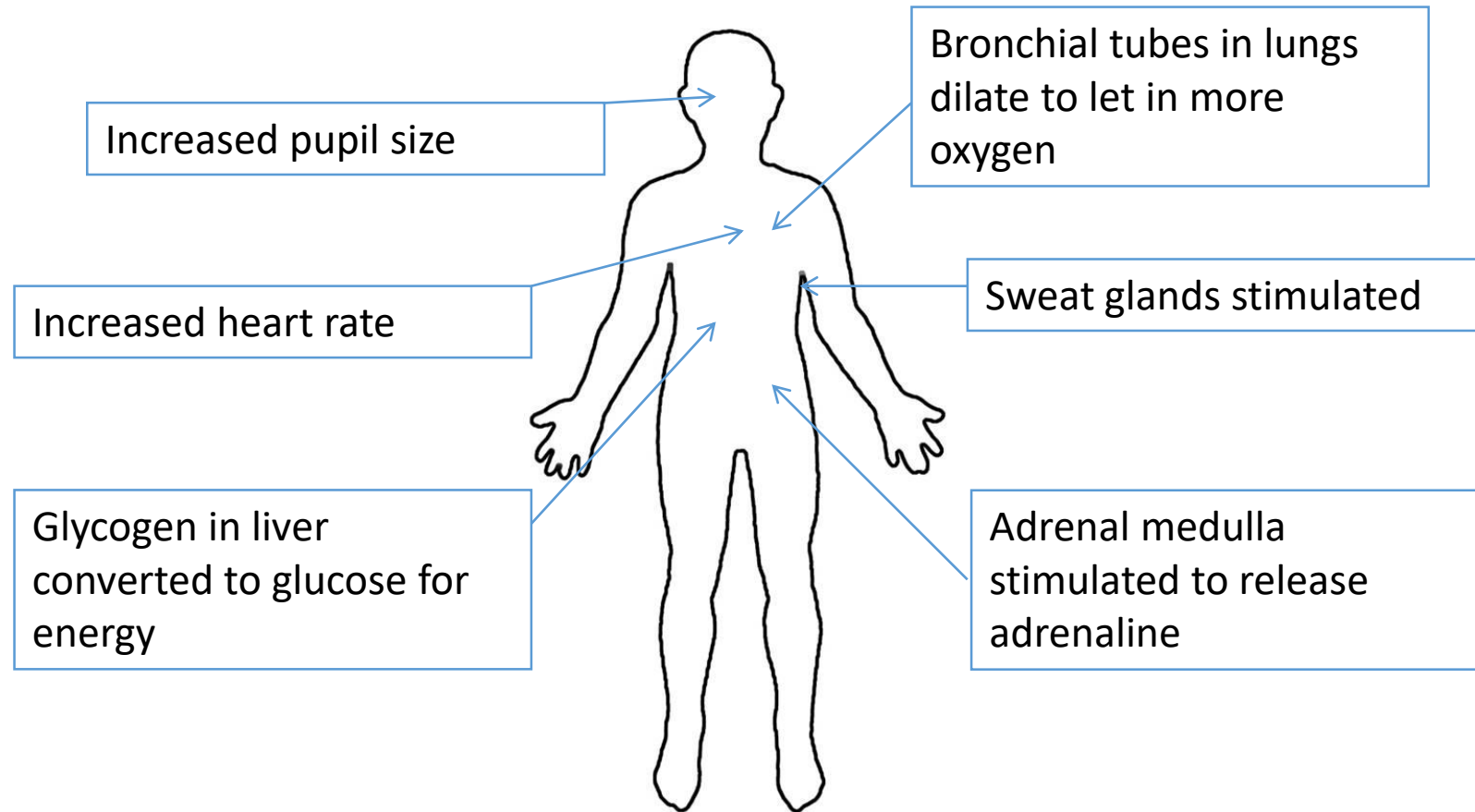
- Use your diagram to answer the exam question.
- **Outline the autonomic nervous system. (4 marks)**
- **5 minutes in silence independently!**
- *Introductory sentence about the ANS in general, and then what it does in response to a stressor*
- *E.g. In response to an acute stressor, the hypothalamus activates the autonomic nervous system, in particular the sympathetic nervous system. This then...*

Independent task

Outline the autonomic nervous system. (4 marks)

- You will need two colours
- Colour 1 – read your answer and highlight any spelling or grammar mistakes.
- Colour 2 – read your answer and highlight all key terms.
- Swap with your partner – peer assessment!
- Read answer and give a comment in a different colour – you must tell them something that they did well (WWW) and something to improve (EBI – target).

Effect of SNS activation on the body



Pair task

- Read the 8 statements in the table in your booklet.
- Identify the key terms.
- 5 minutes.
- Q&A.