Thalamus, hypothalamus and pituitary:

Frontal:

- The centre of voluntary movement.
- Often referred to as the motor area.
- Contains areas for the control of fine and complicated muscle movements.
- Frontal and temporal lobes are important behavioural areas, contributing to alertness, intelligence and individual temperament.

Parietal:

- Collects, recognises and organises sensations of pain, touch, temperature, position and movement

Occipital:

- Contains the centres for awareness and correlation of auditory stimuli.
- Lesions are sometimes responsible for behavioural changes such as aggression and compulsive licking.

Temporal:

- The posterior part of each hemisphere
- Involves visual perception and visual memory

Has a role in eye movement:

- Frontal - motor functions
- Parietal - receives & interprets information
- Temporal - hearing & smell
- Occipital - eyesight

Ganglia:

- Deeper in the brain.
- Distributed within the white matter.
- Groups of grey matter = ganglia or nuclei.
- Collect information and send impulses to different areas.

Sagittal section of the Brain:

Thalamus:

- Found deep within the tissue of the forebrain at the base of the cerebral hemispheres.
- Function: to process information from the sense organs and relay it to the cerebral cortex.

Peripheral Nervous System and Autonomic Nervous System

Consists of all nerves given off from CNS. These are; Cranial nerves – leaving the brain, 12 pairs. Spinal nerves – leaving the spinal cord. Autonomic nervous system – contains some nerve fibres from brain, but most arise from spinal cord.

Cranial Nerves: Ventral surface of the Canine Brain:

- 12 pairs
- They leave the brain via foramina in the skull.
- Most supply structures around the head and therefore, they are short.
- Some supply structures some distance from the point at which they leave the brain e.g. the vagus nerve (X) is the longest in the body.
- Cranial nerves may carry sensory fibres, motor fibres or mixed fibres.
- Referred to by their name and a Roman numeral.

Cranial nerve	Type of nerve fibre	Function
I. Olfactory	Sensory	Carries the sense of smell or olfaction from the olfactory bulbs to the brain
II. Optic	Sensory	Carries information about sight from the eyes to both sides of the brain via the optic chiasma
III. Oculomotor	Motor	Supplies the extrinsic muscles of the eye [illegible] it to make delicate and accurate [illegible]
IV. Trochlear	Motor	Supplies the [illegible] of the eye
V. Trigeminal	Mixed	[illegible] fibres from the skin around the face and eyes and motor fibres to the muscles of mastication – mainly the temporal and masseter
VI. Abducens	Motor	Supplies the [illegible] muscles of the eye
VII. Facial	Motor	Supplies the muscles of facial expression including those associated with the movement of the lips, ears and skin around the eyes
VIII. Vestibulocochlear (auditory)	Sensory	Vestibular branch carries sensation of balance from the semicircular canals in the inner ear. Cochlear branch carries sensation of hearing from the cochlear of the inner ear
IX. Glossopharyngeal	Mixed	Carries the sensation of taste or gustation from the taste buds on the tongue and pharynx. Supplies motor fibres to the muscles of the pharynx
X. Vagus	Mixed	Carries sensory fibres from the pharynx and larynx. Supplies motor fibres to the muscles of the larynx. Parasympathetic visceral motor fibres to the heart and various thoracic and abdominal organs including the gastrointestinal tract as far as the descending colon
XI. Accessory (spinal accessory)	Motor	Supplies the muscles of the neck and shoulder
XII. Hypoglossal	Motor	Supplies the muscles of the tongue

Spinal Nerves:

- Spinal cord passes down vertebral column and gives off nerves.
- Nerves leave vertebral canal by the intervertebral foramina, one to the left and one to the right.
- Nerves then travel towards organs they supply.
- Spinal nerves supply whole musculoskeletal system.