

Coordination-The working together of various organs of the body of an organism in a proper manner to produce appropriate reaction to a stimulus is called coordination.

Stimulus- The changes in the environment to which an organism **responds** and **reacts** is called Stimulus

Control & coordination in animals- takes place by

(i) **Nervous system** & (ii) **Endocrine system**

ANIMALS – NERVOUS SYSTEM

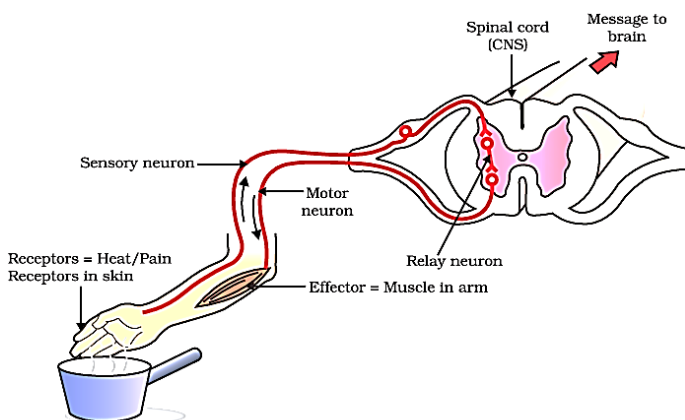
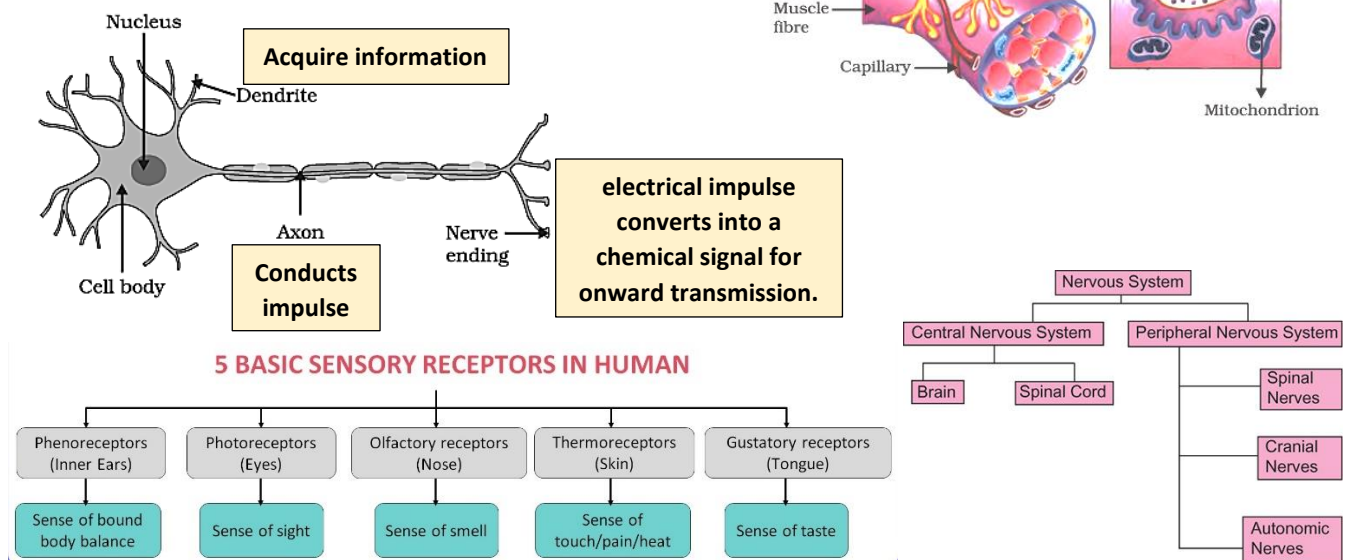


Figure 6.2 Reflex arc

Reflex Action

• Reflex Action is an **automatic** and **rapid response** to a stimulus.

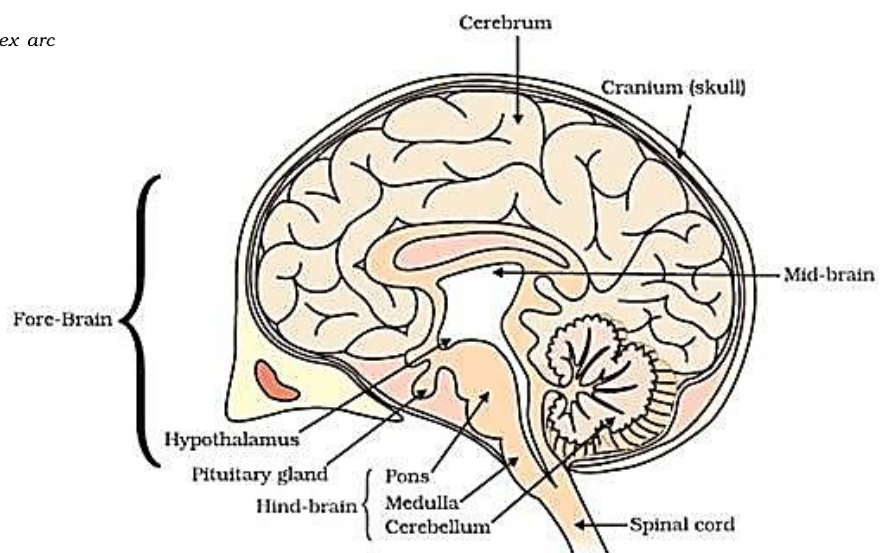
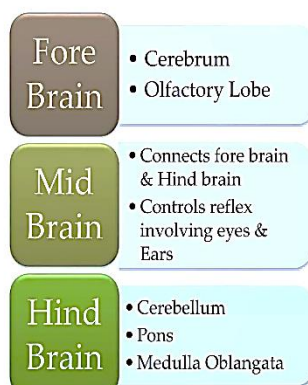
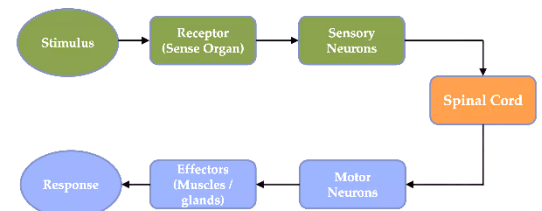


Figure 7.3 Human brain

Protection of the brain & the spinal cord-

- (i) Bony outer covering: skull for the brain & vertebral column for the spinal cord.
- (ii) Cerebrospinal fluid present in between the three membranes.

FUNCTION OF PARTS OF BRAIN

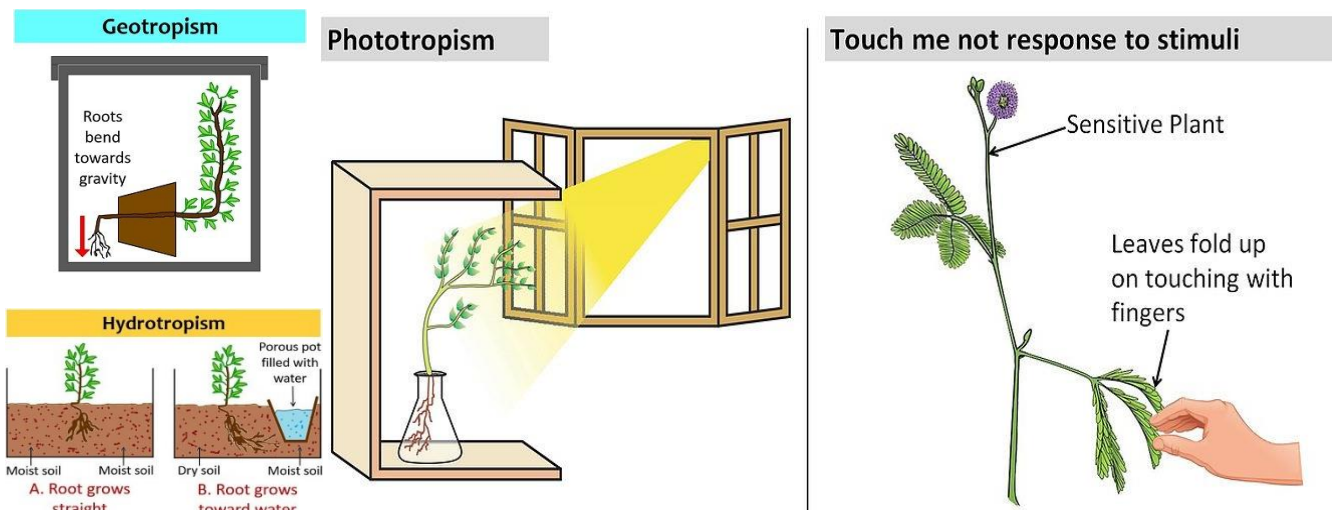
Part	Function
Cerebrum	<ul style="list-style-type: none"> • Main thinking part of brain • Responsible for reasoning, speech, intelligence, sight, hearing and usage of information.
Thalamus	<ul style="list-style-type: none"> • Send sensory information to Cerebrum
Hypothalamus	<ul style="list-style-type: none"> • Controls body temperature • Maintain Water Balance • Controls urge of eating, drinking • Controls pituitary Gland
Cerebellum	<ul style="list-style-type: none"> • Controls and coordinates different muscular actions • Maintains posture and equilibrium of the body during various activities such as walking, drinking riding etc.
Pons	<ul style="list-style-type: none"> • Controls breathing rate • Controls facial expression, mastication of food etc.
Medulla Oblangata	<ul style="list-style-type: none"> • Controls involuntary actions such as Breathing, Blood Pressure, Movement of alimentary canal etc. • Regulates reflex responses like salivation and vomiting.

Coordination in plants- Only chemical coordination is present in plants.

Tropic movements- The movements of plants in the direction of stimulus (positive) or away from it (negative) are called tropic movements. E.g. Phototropism, Geotropism. Chemotropism.

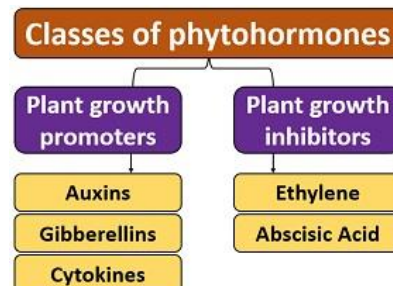
Nastic movements -The movements of plants independent of stimuli are called nastic movements. E.g.- Touch me not plant leaves close when touched.

TROPIC MOVEMENTS Vs NASTIC MOVEMENTS



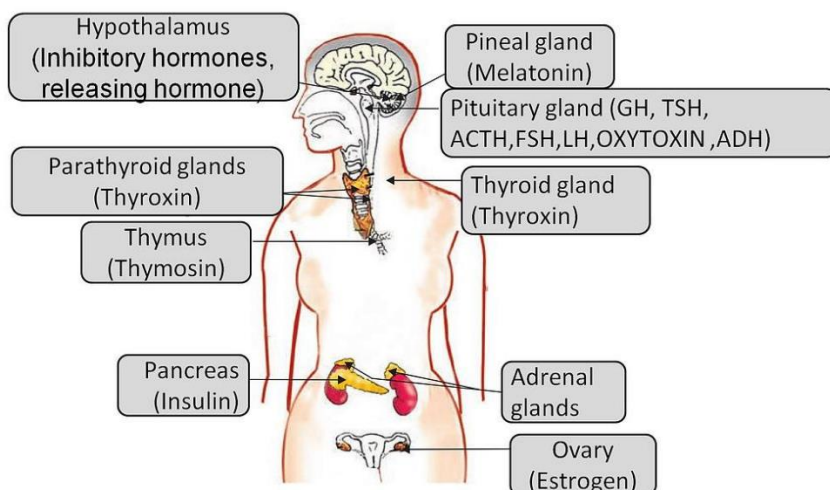
Plant hormones (Phytohormones)

- Examples-
1. Auxins- Help in growth of root & shoot tips.
 2. Gibberellins- Help in vegetative growth
 3. Cytokinin- Promote cell division
 4. Absciscic acid - Inhibits growth & causes wilting (falling) of leaves
 5. Ethylene – Ripening Hormone, Growth inhibitor



Hormones in Human Being :

- (i) are chemical messengers secreted by endocrine glands
- (ii) Are secreted in **small amounts** & may act in nearby places or distant places.
- (iii) Do not take part in the reaction & are destroyed immediately.



ENDOCRINE GLAND	HORMONE	FUNCTION	Hyper secretion	Hyposecretion
PITUITARY	Growth Hormone	Regulate growth and development	ACROMEGALY (Adult) GIGANTISM (Child)	DWARFISM
THYROID	Thyroxine	Regulate carbohydrate, protein and fat metabolism	Exophthalmic Goitre	Endemic Goitre, Cretinism
ADRENAL	Adrenaline	Stress hormones (enable the body ready to deal with the stressed condition), Increase heartbeat, Increase breathing rate		
PANCREAS	Insulin	Regulate blood sugar level		Diabetes Mellitus
TESTES	Testosterone	Changes associated with puberty in male(Hair on body, Deep Voice etc). Sperm Production		
OVARY	Oestrogen Progesterone	Changes associated with puberty in female.(Development of Breast, Feminine curves etc) ,Menstrual Cycle		