

Year 9 Biology: HOMEOSTASIS Knowledge Organizer

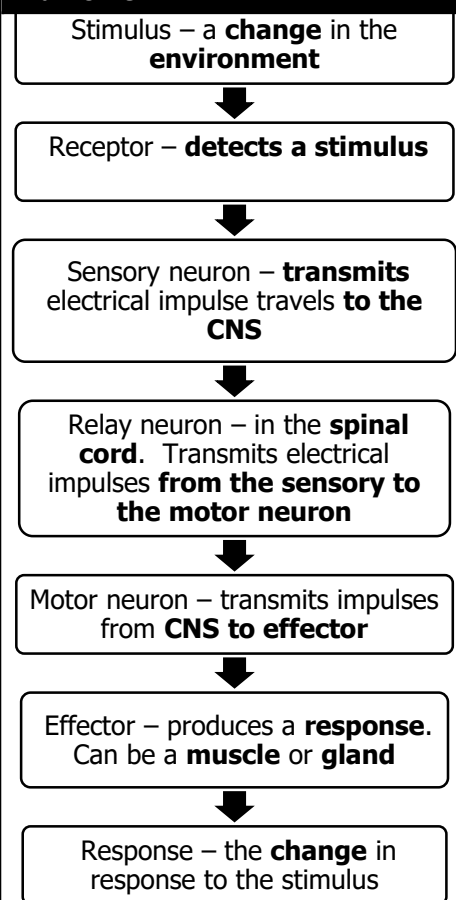
End Point A:

1 Homeostasis	Regulating internal conditions to keep them at an optimum, despite internal and external changes .
2 Negative Feedback	Negative feedback ensures that changes are reversed and returned back to the optimum level .

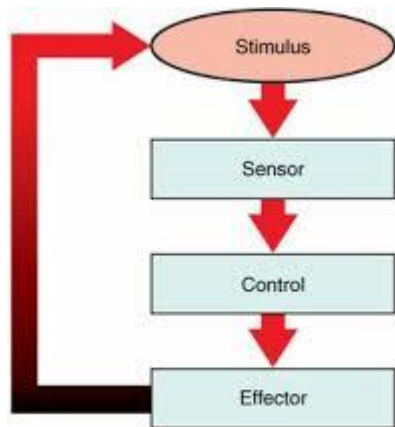
End Point I & J

Central nervous system (CNS)	The brain and spinal cord together. Co-ordinates the response of effectors .
Reflex action	A fast, automatic reaction. Does not involve thinking parts of the brain.
Coordination Centre	Receives and processes information from receptors e.g. CNS, pancreas.
Myelin sheath	Some neurons are surrounded by myelin. Myelin insulates the neuron and speeds up the transmission of electrical impulses .

End Point K:



End Point C:

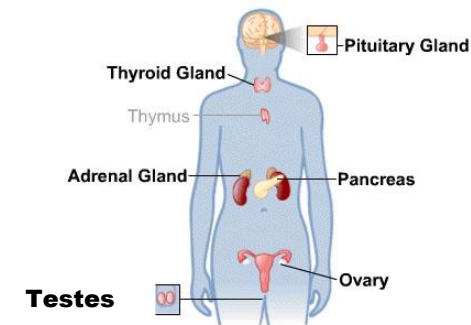


(a) Negative feedback loop

End Point B:

Endocrine System	The system of glands that secrete hormones .
Hormone	A chemical secreted by a gland that travels in the blood and has an effect on a target organ . The effects are slower and longer-lasting than responses from the nervous system.
Pituitary Gland	A gland that secretes several hormones into the blood. These hormones in turn act on other glands to stimulate other hormones to be released to bring about effects.
Testosterone	Male hormone produced by testes . Stimulates sperm production .

End Point B:

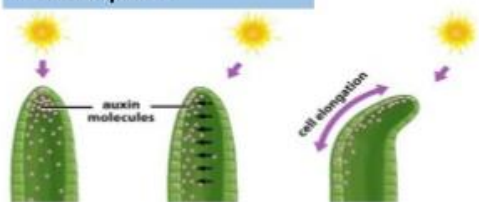


End Point D and E:

Pancreas	The gland that monitors and controls blood glucose concentration .
Insulin	A hormone produced when blood glucose concentration is too high . Causes glucose to move from the blood into the cells . In liver and muscle cells excess glucose is converted to glycogen .
Glucagon	A hormone produced when blood glucose concentration is too low . Causes glycogen to be converted into glucose and released into the blood .
Glycogen	A storage molecule made from many glucose molecules bonded together . Found in liver and muscle cells .
Type I Diabetes	Disorder in which the pancreas fails to produce enough insulin . Causes uncontrolled high blood glucose levels. Treated with insulin injections .
Type II Diabetes	Body cells no longer respond to insulin produced by the pancreas . A carbohydrate controlled diet and exercise are common treatments. Obesity is a risk factor .

End Point N:

Phototropism:

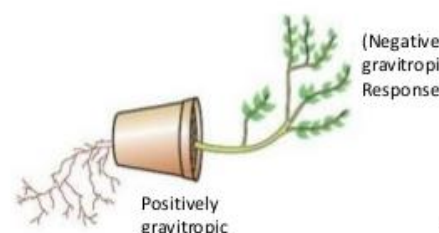


In light, auxin is concentrated on the shaded side of the stem. Auxin causes cell elongation so the stem will grow towards the light.

2.14 2.15
2.16 2.17

Gravitropism:

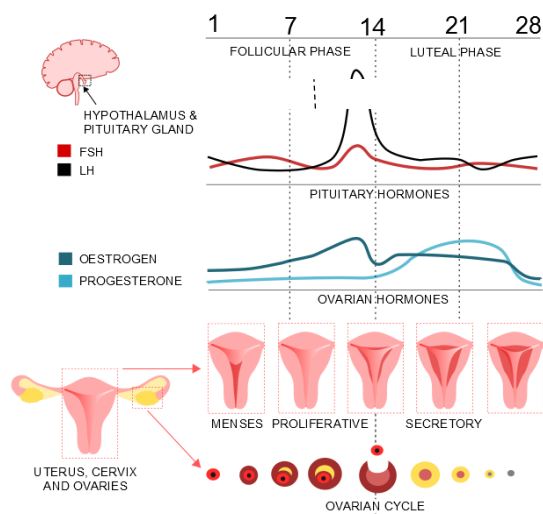
Gravitropism, or Geotropism, is caused by the plant hormone auxin. Auxin slows the growth of cells in the root and stimulates growth in stems. As a result stems grow up and roots grow down.



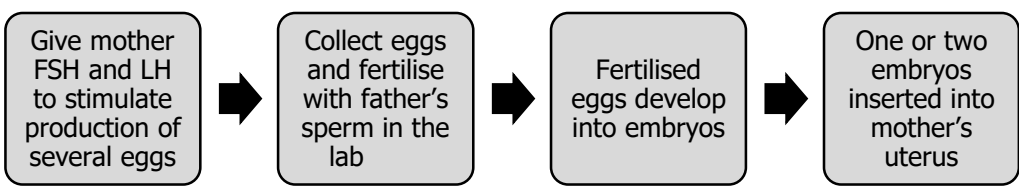
Gibberellins are plant hormones that also regulate development and growth.

End Point G:	
Ovulation	The release of an egg cell . Occurs approximately every 28 days .
FSH	Produced by the pituitary gland . A hormone that causes an egg to mature in the ovary . Causes oestrogen to be produced .
Oestrogen	Produced by the ovaries . Causes blood lining of uterus to develop . Stops FSH being produced . Stimulates release of LH .
LH	Produced by the pituitary gland . A hormone that causes ovulation .
Progesterone	Produced by the ovary . Maintains blood lining in uterus. Stops production of LH and FSH .

End Point G:



End Point H:

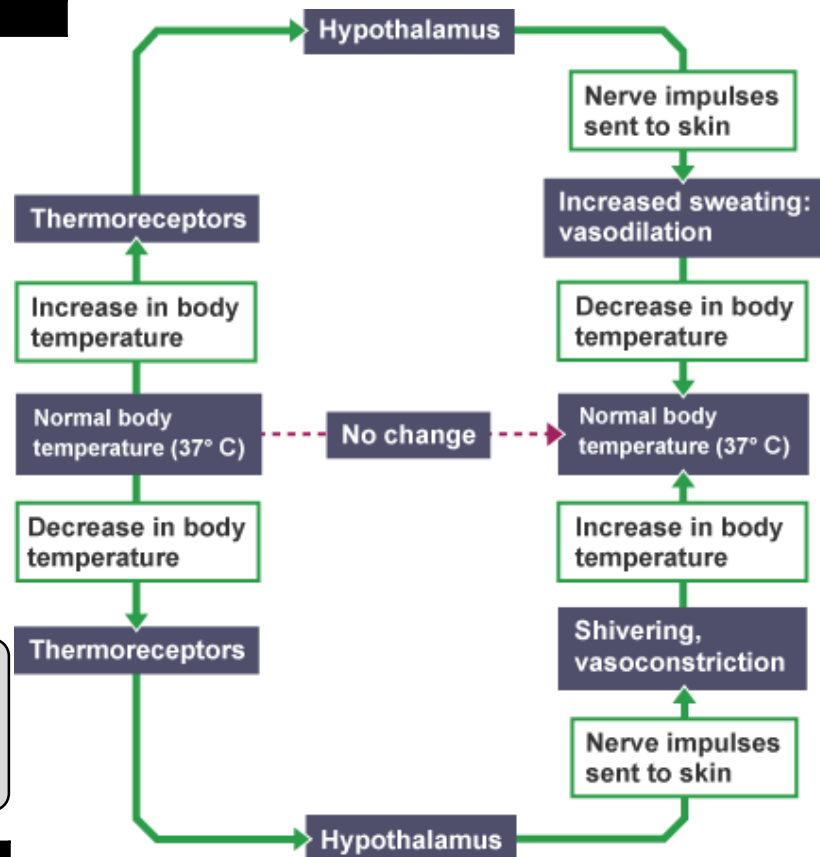


End Point H:
Emotionally and physically stressful.
Success rates are low.
Can lead to multiple births which are risky for mother and babies

End Point H:	
Method	How it works
Oral contraceptives	The contraceptive pill. Contain hormones to inhibit FSH production so eggs do not mature .
Progesterone	Injection, implant or skin patch of slow-release progesterone to stop eggs maturing and being released .

Pros (+) and Cons (-)
+ 99% effective + Reduces risk of some cancers - Can cause side effects e.g. nausea
+ Fewer side effects than pill. + Doesn't need to be taken daily so less likely to be forgotten - Less effective than pill

End Point M:



End Point L:

