



Combined Science Biology Learning Journey – B5 Homeostasis

Ad Astra

What have I done previously in my learning journey?			
Previously....	You have learnt previously about reproduction. This has involved: <ul style="list-style-type: none"> Learning about reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems. Learning about the menstrual cycle, gametes, fertilisation, gestation and birth. This has also included the effect of maternal lifestyle on the foetus through the placenta 		
In this topic...	You will learn that cells in the body can only survive within narrow physical and chemical limits. They require a constant temperature and pH as well as a constant supply of dissolved food and water. To do this the body requires control systems that constantly monitor and adjust the composition of the blood and tissues. These control systems include receptors which sense changes and effectors that bring about changes. We will explore the structure and function of the nervous system and how it can bring about fast responses. We will also explore the hormonal system which usually brings about much slower changes.		
We will develop our learning by studying the following each lesson:		RAG	Skills in Science checklist
B5.01 Homeostasis <ul style="list-style-type: none"> Describe what homeostasis is and why it is important stating specific examples from the human body Describe the common features of all control systems 			<input type="checkbox"/> Scientific methods <input type="checkbox"/> Practical <input type="checkbox"/> Number skills <input type="checkbox"/> Application <input type="checkbox"/> Communication
B5.02 The Nervous System <ul style="list-style-type: none"> State the function of the nervous system and name its important components Describe how information passes through the nervous system Explain how features of the nervous system are adapted to their function 			<input type="checkbox"/> Scientific methods <input type="checkbox"/> Practical <input type="checkbox"/> Number skills <input type="checkbox"/> Application <input type="checkbox"/> Communication
B5.03 Reflexes and Synapses <ul style="list-style-type: none"> Describe what happens in a reflex action and why reflex actions are important Explain how features of the nervous system are adapted to their function, including a reflex arc (inc all types of neurones and the synapse) 			<input type="checkbox"/> Scientific methods <input type="checkbox"/> Practical <input type="checkbox"/> Number skills <input type="checkbox"/> Application <input type="checkbox"/> Communication
B5.04 Reaction Time RP <ul style="list-style-type: none"> Describe what is meant by reaction time. Investigate a factor and its effect on the reaction time of a person. Evaluate methods used to investigate reaction times. 			<input type="checkbox"/> Scientific methods <input type="checkbox"/> Practical <input type="checkbox"/> Number skills <input type="checkbox"/> Application <input type="checkbox"/> Communication
B5.05 The Endocrine System <ul style="list-style-type: none"> Describe the principles of hormonal coordination and control by the human endocrine system Identify the position of glands in the human body 			<input type="checkbox"/> Scientific methods <input type="checkbox"/> Practical <input type="checkbox"/> Number skills <input type="checkbox"/> Application <input type="checkbox"/> Communication
B5.06 Controlling Blood Glucose <ul style="list-style-type: none"> State that blood glucose concentration is monitored and controlled by the pancreas Describe the body's response when blood glucose concentration is too high Explain what type 1 and type 2 diabetes are and how they are treated Describe the body's response when blood glucose concentration is too low (HT Only) Explain the interaction between glucagon and insulin as an example of negative feedback (HT Only) 			<input type="checkbox"/> Scientific methods <input type="checkbox"/> Practical <input type="checkbox"/> Number skills <input type="checkbox"/> Application <input type="checkbox"/> Communication
B5.07 Puberty and the Menstrual Cycle <ul style="list-style-type: none"> Describe what happens at puberty in males and females, inc knowledge of reproductive hormones Describe the roles of the hormones involved in the menstrual cycle (FSH, LH and oestrogen) Explain the interaction of hormones involved in the menstrual cycle (HT Only) 			<input type="checkbox"/> Scientific methods <input type="checkbox"/> Practical <input type="checkbox"/> Number skills <input type="checkbox"/> Application <input type="checkbox"/> Communication



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B5.08 Controlling Fertility (Contraception) <ul style="list-style-type: none"> Describe how fertility can be controlled by hormonal and non-hormonal methods of contraception (giving specific examples from the specification) 		<input type="checkbox"/> Scientific methods <input type="checkbox"/> Practical <input type="checkbox"/> Number skills <input type="checkbox"/> Application <input type="checkbox"/> Communication
B5.09 Infertility treatments (HT Only) <ul style="list-style-type: none"> Describe the use of fertility drugs in women with low FSH levels. Use a model, e.g. a flow diagram to explain the process of In Vitro Fertilisation (IVF). Evaluate the use of fertility treatments 		<input type="checkbox"/> Scientific methods <input type="checkbox"/> Practical <input type="checkbox"/> Number skills <input type="checkbox"/> Application <input type="checkbox"/> Communication
B5.10 Feedback Systems- Thyroxine and Adrenaline (HT Only) <ul style="list-style-type: none"> Understand the role of negative feedback in the body Understand the role of adrenaline in the body Understand the role of thyroxine in the body 		<input type="checkbox"/> Scientific methods <input type="checkbox"/> Practical <input type="checkbox"/> Number skills <input type="checkbox"/> Application <input type="checkbox"/> Communication

Key Vocabulary

Barrier contraception	Blood glucose concentration	Central nervous system	Contraception	Control systems	Effectors	Endocrine system	FSH	Gland
Homeostasis	Hormone	IUD	LH	Menstrual cycle	Motor neurone	Nervous system	Nervous response	Oestrogen
Pituitary gland	Progesterone	Puberty	Reaction time	Reflex	Relay neurone	Sensory neurone	Spermicide	Sterilisation
Synapse	Target organ	Type 1 diabetes	Type 2 diabetes					

Future Learning	Studies at A-Level Biology involves further study of how organisms respond to changes in their internal and external environments. This also includes how plants control their response using hormone-like growth substances.
In careers	Hormonal coordination is particularly important in reproduction since it controls the menstrual cycle. An understanding of the role of hormones in reproduction has allowed scientists to develop not only contraceptive drugs but also drugs which can increase fertility.