

Scheme of Learning: Homeostasis & Response

Topic Sequence:

1	2	3	4	5	6	7	8	9	10	11
Organisation	Electric Circuits	Chemical Changes	Mains Electricity	Quantitative Chemistry	Using Resources	Electro-Magnetism	Homeostasis & Response	Energy Changes	Ecology	Waves

Topic Overview:

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. In order 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. In this section 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. 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

Lesson Sequence:

Starting with an introduction to homeostasis, we look at how the nervous system allows us to respond to changes in our environment. We carry out the required practical to investigate reaction time before moving onto the endocrine system with a focus on blood glucose control and the menstrual cycle and the control of fertility.

Separate biology students then learn about plant hormones and look in more detail about homeostasis with a focus on temperature control and the function of the kidney.

Sequence of Lessons:

1	Homeostasis
2	Structure & Function of the Nervous System
3	Reflexes & Synapses
4	Reaction Time <i>Required Practical & Mid-Topic Assessment</i>
5	The Brain – <i>Separate Biology Only</i>
6	The Eye – <i>Separate Biology Only</i>
7	The Endocrine System
8	Blood Glucose Control
9	Diabetes <i>Mid-Topic Assessment</i>
10	Hormones at Puberty
11	Control of Fertility
12	Plant Hormones – <i>Separate Biology Only</i>
13	Temperature Control & the Kidney – <i>Separate Biology Only</i>
14	Kidney Failure & ADH – <i>Separate Biology Only</i>
15	Revision
16	Test

Resources:

1	Resources in shared folder
2	Resources in shared folder
3	Resources in shared folder
4	Metre sticks
5	Resources in shared folder
6	Resources in shared folder
7	Resources in shared folder
8	Resources in shared folder
9	Diabetes test strips, 'urine' samples – diabetic, healthy, concentrated, dilute
10	Resources in shared folder
11	Contraceptive fact sheets (laminated)
12	Cress seeds, cotton wool. Boxes with holes cut on different sides.
13	Resources in shared folder
14	Resources in shared folder
15	Resources in shared folder
16	Resources in shared folder

Supportive Reading:

Comprehension activity	
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Assessment:

Knowledge:	Multiple choice and short answer questions
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Application of Knowledge:	End of topic test
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