5 Homeostasis and response

Homeostasis	Keeping the conditions in the body the same
Optimum conditions	The perfect conditions for an organism to survive and grow. E.g. blood glucose level, body temperature and water level.
Nervous response	Uses electrical signal in nerves to make fast changes
Chemical response	Uses hormones in the blood to make changes.
Reflex arc	A nervous response that is fast and automatic for protection. Does not involve the conscious brain. The steps are: Receptor→ sensory neuron → relay neuron in CNS → motor neurone → effector
CNS (Central nervous system)	The brain and the spinal cord
Neurone	Nerve cell. Carries an electrical signal from one end to the other
Stimulus	Something in the environment you respond to e.g. a sound, a touch, pain
Receptor	A specialised nerve cell that detects a stimulus e.g. light receptors in the eye
Effector	A muscle or gland that reacts to a stimulus e.g. your eyelid blinks in response to light
Endocrine system	A chemical response where glands secrete hormones into the blood which make changes around the body
Glands	Special tissues designed to secrete (release) specific chemicals such as hormones
Pituitary gland	The 'master gland' makes hormones which affect other glands causing them to secrete hormones
Thyroid gland	Controls metabolism
Adrenal gland	Found near the kidneys it makes adrenalin
Pancreas	As well as its role in digestion, it monitors blood sugar and releases insulin
Ovary	Produces female sex hormones
Testes	Produce male sex hormone
Type 1 diabetes	When the pancreas is damaged from infection and cannot make insulin. Needs injections to treat
Type 2 diabetes	When poor diet and obesity cause body cells to not respond to insulin anymore. Treated with diet and exercise
Insulin	Hormone made in pancreas that reduces glucose levels in the blood
Glycogen	A store of sugar in the body. Made in the liver
Glucagon	A hormone which increases blood glucose concentration by turning glycogen back into glucose
Testosterone	Creates male sexual changes at puberty including sperm production. Made in the testes
Oestrogen	Cause the uterus lining to develop and stimulates LH. Made in the ovary.
FSH	Causes egg to mature in ovary. It is made in the pituitary gland.
LH	Causes egg to be released by ovary. It is made in the pituitary gland.
Progesterone	Maintains lining of womb
Oral contraceptive (the pill)	Stops FSH so no egg released
Injection/implant	Release progesterone which prevents egg maturation for months or years
Barrier methods (e.g. condoms or diaphragm)	Prevent sperm and egg meeting
IUD (the coil)	Prevents embryo implanting
Spermicides	Kill sperm

Abstinence	Not having sex
Surgical (vasectomy/hysterectomy)	Surgically sterilising the adult permanently
Negative feedback	A system where the product reduces the stimulus to return the change to normal levels
Adrenalin	Fight or flight hormone. Increases heart rate and boosts blood supply of oxygen and glucose
Thyroxine	Controls metabolic rate and affects growth and development. Controlled by negative feedback.
Fertility drugs	Drugs which stimulate the production and release of eggs. Eg FSH and LH
IVF (in vitro fertilisation)	The process of creating an embryo in the lab when couples struggle to conceive a baby