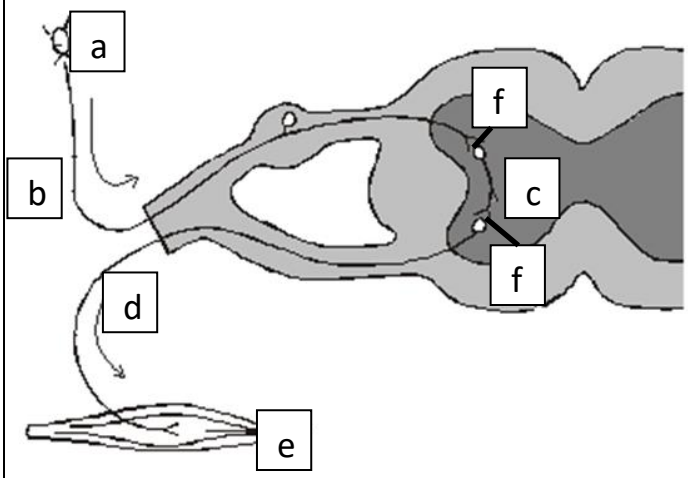
B5 Nerves and Hormones

Reflex Action	
1. State 2 functions of the nervous system	• **React to surroundings** • **Co-ordinate behaviour**
2. What do we call a fast, automatic reaction?	**Reflex**
3. What type of reactions do not involved the conscious part of the brain?	**Reflex**
4. Why are reflex actions important?	**The protect the body from harm**
5. List the 5 stages of a reflex action, in order	**Stimulus → receptor → coordinator → effector → response**
	**a. Receptor** **b. Sensory neurone** c. Relay neurone **d. Motor neurone** **e. Muscle** **f. Synapse**
6. How does information travel along a neurone?	**Electrical impulses**
7. Name the neurone which connects a receptor with the central nervous system (CNS)	**Sensory**
8. Name the 2 parts of the central nervous system (CNS)	**Brain** **Spinal cord**
9. State the function of the central nervous system (CNS)	Coordinates the response of the effectors
10. Name the neurone which connects the sensory and motor neurone	Relay
11. Name the neurone which connects the CNS to the effector	**Motor**
12. What do we call the gap/ junction between neurones?	**Synapse**
13. How does information get across a synapse?	• Chemical released from the first neurone • Diffuses across the gap • Binds to next neurone

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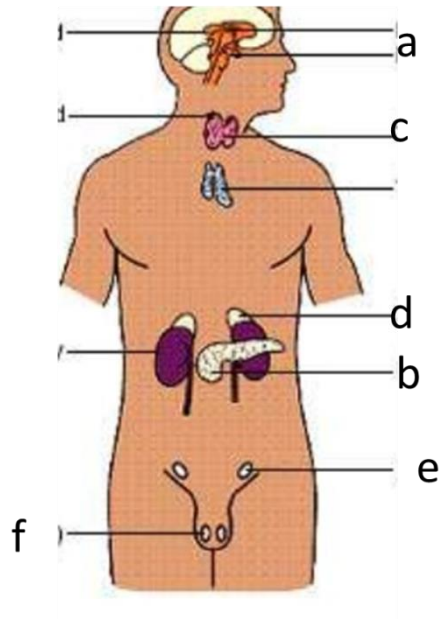
14. Name 2 types of effector	• **Muscles** • **Glands**
15. What do muscles do to bring about a response?	Contract
16. What do glands do to bring about a response?	Secrete hormones
The endocrine system	
1. What is the scientific name of the hormone system?	**Endocrine**
2. Where are hormones produced and secreted from?	Glands
3. How do hormones move around the body?	**Blood**
4. What do we call the organ which the hormone affects?	Target organ
5. Which system, nervous or endocrine, produces effects faster?	Nervous
6. Which system, nervous or endocrine, produces longer lasting effects?	Endocrine
7. Name the 'master gland' which secretes several hormones into the blood	**Pituitary gland**
8. What do many of the pituitary gland hormones do?	Cause other glands to secrete hormones
9. Label the diagram to show the endocrine glands 	**a. Pituitary gland** **b. Pancreas** **c. Thyroid** **d. Adrenal** **e. Ovary** **f. testes**

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Homeostasis	
1. Define homeostasis	• **Keeping body conditions constant** • Even if the external conditions change • So conditions are optimum
2. Homeostasis maintains optimal conditions for ….	Enzymes
3. List 3 conditions which the body keeps constant	• **Temperature** • **Blood glucose concentration** • **Water levels**
4. Name 2 systems the body has to control conditions	• **Nerves** • **Hormones (chemicals)**
5. What do we call a change in the environment?	Stimulus
6. Name the cells which detect stimuli	**Receptor**
7. What do we call parts of the body that receive and process information?	**Coordination centre**
8. What do we call parts of the body that bring about responses?	**Effectors**
Blood glucose and diabetes	
1. **Name the organ which monitors and controls blood glucose concentration**	**Pancreas**
2. **Which organ produces insulin?**	**Pancreas**
3. **What type of chemical is insulin?**	**Hormone**
4. **When is insulin produced?**	**When blood glucose levels are too high**
5. **Name a target organ for insulin**	**Liver**
6. **How do hormones move around the body?**	**In the blood**
7. **What does insulin make the liver and muscle cells do?**	• **Remove glucose from the blood** • Turn it into glycogen to store it
8. **What causes type 1 diabetes?**	**The pancreas doesn't produce enough insulin**
9. **What problem can type 1 diabetes cause?**	**Blood glucose levels get too high**
10. **How can type 1 diabetes normally controlled?**	• **Insulin injections**
11. What must a diabetic person do before injecting insulin?	Test their blood glucose levels
12. **What causes type 2 diabetes?**	**Body cells no longer respond to insulin**

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13. **How can type 2 diabetes be controlled?**	• **Carbohydrate controlled diet** • **Exercise regime**
14. **State a risk factor for type 2 diabetes**	**Obesity**
Hormones in reproduction	
1. What causes secondary sexual characteristics to develop?	**Hormones**
2. Name the main female reproductive hormone	**Oestrogen**
3. Name the gland which produces oestrogen	**Ovary**
4. How often do women's ovaries release an egg	About once every 28 days
5. What is ovulation	**Release of an egg from an ovary**
6. Name the main male reproductive hormone	**Testosterone**
7. Name the gland which produces testosterone	**Testes**
8. What does testosterone stimulate	**Sperm production**
9. Name 4 hormones involved in controlling the menstrual cycle	FSH LH Oestrogen Progesterone
10. Name the hormone which causes an egg to mature	**FSH**
11. Name the hormone which stimulates the release of an egg	**LH**
12. Name 2 hormones which maintain the uterus lining	**Oestrogen** **Progesterone**
13. State where FSH and LH are produced	Pituitary gland
14. State where oestrogen and progesterone are produced	Ovaries
Contraception	
1. State the function of contraceptives	**Reduce the change of pregnancy**
2. How do oral contraceptives work?	• **Contain hormones which stop FSH production** • **So no eggs mature**
3. How do injections/ implants/ skin patches work?	• **Release progesterone** • **To inhibit maturation and release of eggs for months/ years**

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4. Where do intrauterine devices go?	**Uterus**
5. How do intrauterine devices work?	**Prevent implantation of embryo or release a hormone**
6. Name 2 barrier methods	**Condom and diaphragm**
7. How do barrier methods work?	**Prevent sperm reaching an egg**
8. How do spermicidal agents work?	**Kill or disable sperm**
9. When might people abstain from intercourse?	**When an egg may be in the oviduct**
10. What do surgical methods do?	**Sterilise men/ women**

HIGHER TIER SECTION

Homeostasis – negative feedback	
1. HT – State where adrenaline is produced	*Adrenal glands*
2. HT- State when adrenaline is produced	*Times of fear or stress*
3. HT –Describe the effects of adrenaline (3)	• *Increase heart rate* • *Increase delivery of oxygen and glucose to brain and muscles* • *Prepares body for fight or flight*
4. HT – State where thyroxine is produced	*Thyroid gland*
5. HT- State the effect of thyroxine	*Stimulates (increases) basal metabolic rate*
6. HT – name a hormone which plays an important role in growth and development	*Thyroxine*
7. HT – how are thyroxine levels controlled?	*Negative feedback*
8. HT – define negative feedback	*Processes which return a condition to its original level when the condition becomes too high/ low (i.e. if basal metabolic rate is too high, less thyroxine is released. If basal metabolic rate is too low, more thyroxine is released)*
Control of blood glucose	
1. HT- Which organ produces glucagon	*Pancreas*
2. HT - What type of chemical is glucagon?	*hormone*
3. HT - When is glucacon produced?	*When blood glucose levels are too low*
4. HT - Name a target organ for glucagon	*Liver*
5. HT - What does glucagon make the liver and muscle cells do?	• *Turn glycogen into glucose* • *Release glucose into the blood*
6. HT – glucagon and insulin ensure blood	• *Negative feedback*

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glucose levels are kept constant by a process called…	
Menstrual cycle	
1. *HT- Describe the effects of FSH on the other menstrual hormones*	*Stimulates ovaries to produce oestrogen*
2. *HT- Describe the effects of oestrogen on the other menstrual hormones*	*Inhibits release of FSH* *Stimulates release of LH*
3. *HT- Describe the effect of progesterone on the other menstrual hormones*	*Inhibits the release of FSH* *Inhibits the release of LH*
Infertility	
1. *HT - Name the hormones in a fertility drug*	*FSH and LH*
2. *HT - What does IVF stand for?*	*In vitro fertilisation*
3. *HT – What is an embryo*	*Tiny ball of cells that could grow into a baby*
4. *HT - Outline how IVF is done*	• *give mother FSH and LH* • *to stimulate the maturation of several eggs.* • *collect eggs from the mother* • *eggs fertilised by sperm from the father in the laboratory.* • *fertilised eggs develop into embryos.* • *at the stage when they are tiny balls of cells, one or two embryos are inserted into the mother's uterus*
5. *HT- Developments in which field of science have enabled IVF treatments to develop?*	*Microscopy*
6. *HT - List 3 issues with IVF*	• *it is very emotionally and physically stressful* • *the success rates are not high* • *it can lead to multiple births which are a risk to both the babies and the mother*