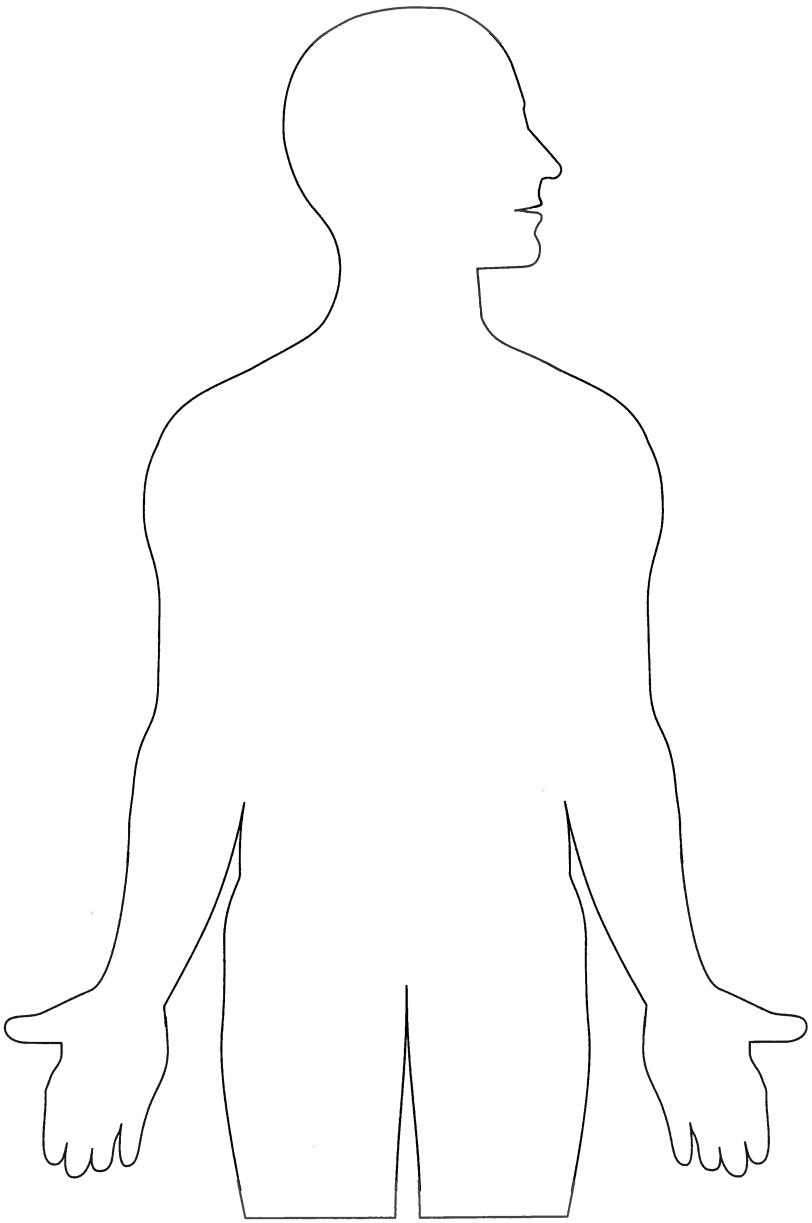
Review Questions

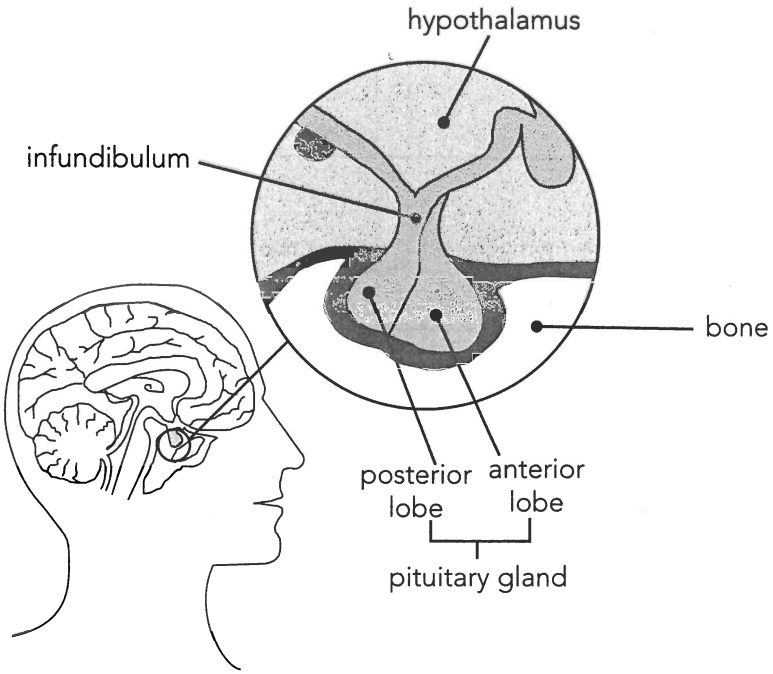
1. In the outline of a human figure, mark in and label the nine main endocrine glands.



2. Where would you find the hypothalamus and what does it do?

3. Where would you find the pituitary gland and what does it do?

4. What is the relationship between the hypothalamus and the pituitary gland?



5. Describe two ways in which hormones can affect target cells.

(a)

(b)

6. Hormones are produced in other organs of the body. List some.

7. Complete the following table by filling in the appropriate information in each space.

Endocrine Gland	Hormone	Target Organ	Function
Pituitary - anterior lobe	Growth hormone		
	Follicle stimulating hormone		
			Ovulation and formation of corpus luteum in females and secretion of testosterone in males.
		Thyroid gland	Stimulates the thyroid to produce and release thyroxine.
	Adrenocorti-cotropic hormone		Stimulates the adrenal cortex to secrete hormones, mainly cortisol.
			Breast development and milk production in females.
- posterior lobe			Increases the permeability of the distal convoluted tubule and the collecting duct so that water is reabsorbed back into the blood and urine production decreases.
	Oxytocin		
Hypothalamus	Releasing and inhibiting factors	Anterior pituitary	Controls the release of various hormones from the anterior pituitary.

Pineal gland		The part of the brain that operates as a biological clock (the suprachiasmatic nucleus, SCN).	Biological rhythms related to reproduction, or skin pigmentation. Light/dark cycles.
Thyroid gland		Most cells	
	Calcitonin		Lowers the levels of calcium and phosphates in the blood by increasing uptake by the bones (inhibits the activity of the osteoclasts).
	Parathormone (parathyroid hormone)	Bone, kidney and small intestine.	
Thymus	Thymosin	Stimulates T-cells	Development of the immune system.
Pancreas – (Beta cells in the Islets of Langerhans)		Most cells	Decreases blood sugar level by increasing sugar (glucose) uptake by cells, changes sugar (glucose) into glycogen (glycogenesis), increases protein synthesis, and lipogenesis, decreases glycogenolysis and gluconeogenesis.
Pancreas – (alpha cells in the islets of Langerhans)			Increases blood sugar (glucose) level, decreases sugar uptake by cells changes glycogen into glucose (glycogenolysis), forms glucose from amino acids and lipids (gluconeogenesis) and increases the release of sugar into the blood.
Adrenal cortex		Kidney tubules	
	Cortisol	Mainly muscle cells, blood vessels and cells involved in the inflammatory response.	
Adrenal medulla			Fight or flight response, i.e. increases heart rate, blood pressure and respiration rate etc.
Ovaries	Oestrogen		
	Progesterone		
Testes	Testosterone		

8. List some lipid-soluble hormones.

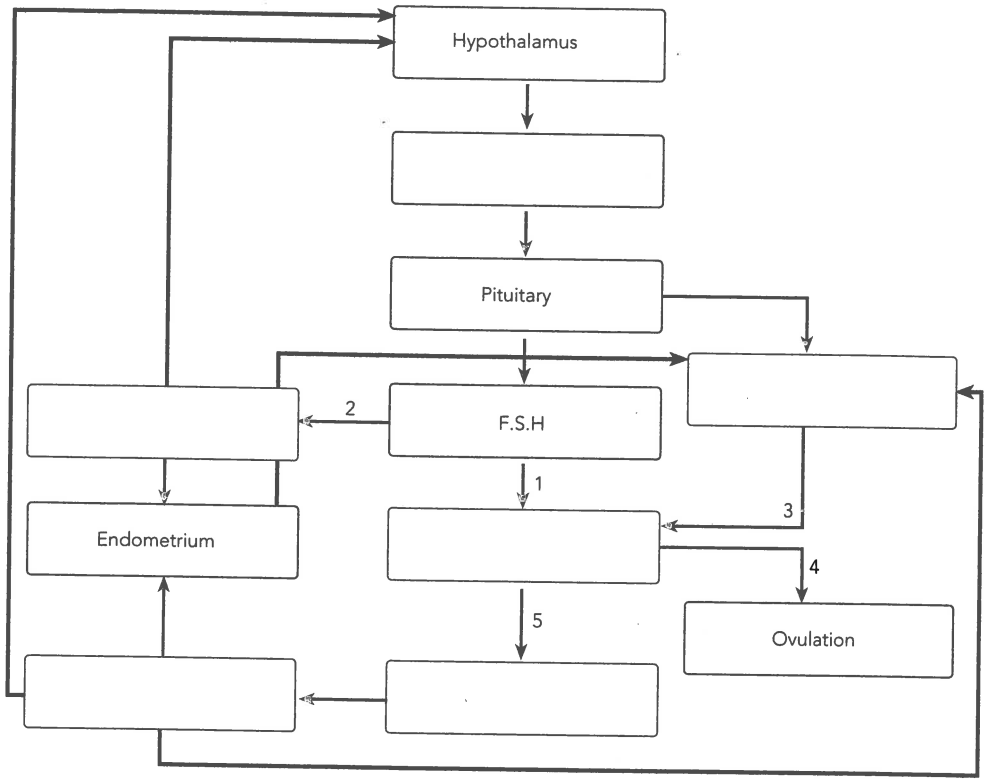
9. List some water-soluble hormones.

10. (a) What is a feedback system?

(b) Distinguish between positive and negative feedback. Give an example of each.

11. Use a flow diagram to show how negative feedback is used to control the level of metabolism in the body.

12. Fill in the spaces on the flow diagram below which summarises the hormonal control of the menstrual and ovarian cycles.



Numbers 1 to 5 above represent steps that occur in these cycles. Describe what happens in each of these steps.

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2. _____

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3. _____

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4. _____

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5. _____

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