GCSE Biology Revision : Unit 3

□ = not revised ☑ = getting there ■ = nailed it.

Osmosis and exchange (p.73—78)

- □ What is the definition of "osmosis"?
- □ How does osmosis work?
- □ How does osmosis affect cells in water / strong solutions?
- □ How would does affect strips of plant material in water / strong solutions?
- □ How does active transport differ from diffusion?
- □ Give examples of diffusion, osmosis and active transport in plants and animals.
- □ How is a leaf adapted to let gases diffuse in and out of cells?
- □ Label a diagram of the lungs.
- □ Explain the main steps in breathing in / out.
- □ How does modern artificial ventilation of the lungs differ from the old "iron lung"??
- □ How are the air sacs of the lungs adapted to maximise diffusion?
- □ How are the small intestines adapted to maximise diffusion of glucose etc?
- □ How is active transport used by root hairs?
- □ When / why is active transport used in the intestines?
- □ What is the function of xylem / phloem in plants?
- □ What causes transpiration? How does it draw water up a plant?

The circulatory system (p. 79—82)

- □ Why do we have a *double* circulatory system?
- □ Label the heart.
- □ Describe how the heart works.
- □ What is the function of valves?
- □ Describe the differences in the structure of arteries, veins and capillaries.
- □ How are red blood cells adapted to their function?
- □ What is the function of white blood cells?
- □ What is the function of platelets?
- □ What is transported in plasma?
- □ What are the benefits of artificial blood?
- □ What sort of repairs can be carried out on the heart?

Homeostasis (p. 83-87)

- □ What is the definition of "homeostasis"?
- □ What are the six things which need to be controlled?
- □ What steps are involved in preserving / losing body heat?
- □ What is the role of the kidneys in regulating: urea, ions, water?
- □ What is found in sports drinks?
- □ Is there any evidence that they rehydrate the body better than water?
- □ Describe the structure of a kidney nephron.
- □ How do ultrafiltration and reabsorption contribute to the formation of urine?
- □ How do dialysis machines work?
- □ What are the dis/advantages of a kidney transplant compared to a dialysis machine?
- □ How do insulin / glucagon affect the glucose level of the blood?
- □ What type 1 diabetes and how can it be treated?

Human impact on the environment (p. 89—96)

- □ How is the increasing world population affecting the environment?
- □ What is believed to be causing "global warming"?
- □ What are the four problems caused by deforestation?
- □ Why is the loss of peat bogs of such concern?
- □ What are the consequences of climate change?
- □ How is evidence for climate change being gathered?
- □ How are ethanol and biogas made?
- □ What are the two types of biogas generator? How does each one work?
- □ What factors need to be considered when designing a biogas generator?
- □ What are the economic and environmental effects of using biofuels?
- □ How do each of these improve the efficiency of food production:
    - □ reducing the number of stages in the food chain,
    - □ restricting movement by farm animals,
    - □ developing new food sources (eg. mycoprotein)?
- □ Why are modern farming techniques disliked by some people?
- □ What are 'food miles' and why should they be kept to a minimum?
- □ What steps have been taken to reduce the effects of over-fishing?

Some "how science works" terms you should know:

Hypothesis, evidence, reliable, repeatable, reproducible, valid, bias, control, independent variable, dependent variable, control variables, range, interval, accurate, precise, anomaly, resolution, systematic error, zero error, categoric, continuous.