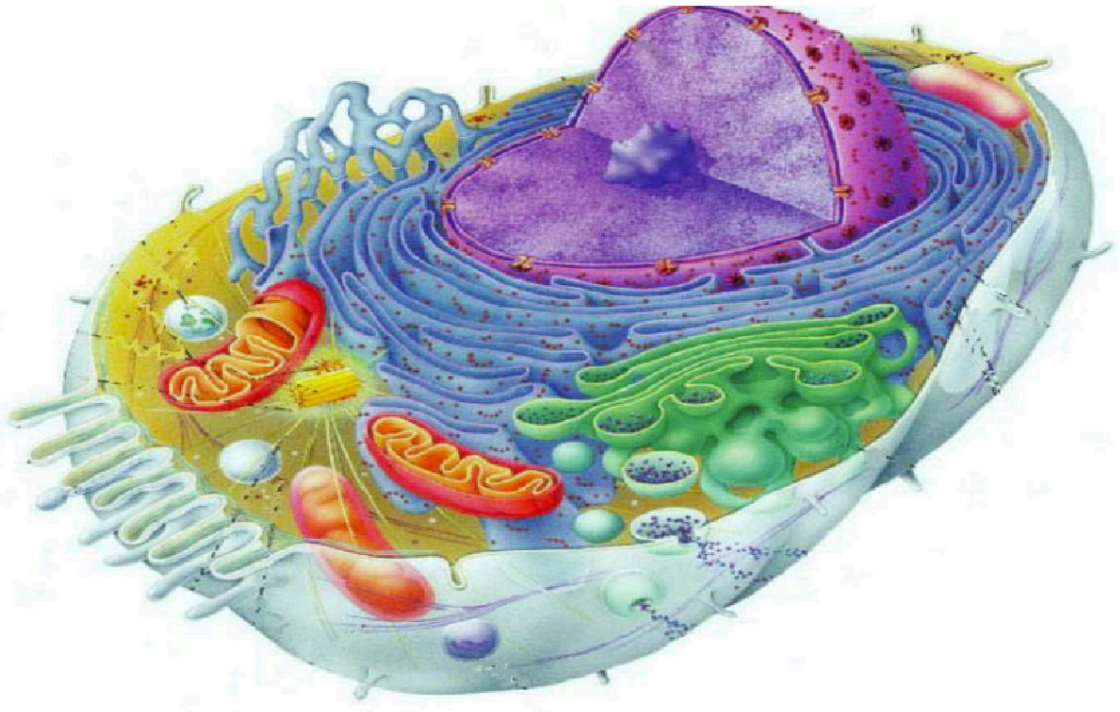
A Level Biology Preparation Work (Edexcel A 9BN0)

Many students find the jump from GCSE to AS level difficult. This pack is designed to aid that transition in biology. Read carefully through the pack and complete the questions set. Completing this pack will help your progress during the first term of studying biology at AS level. You can use the internet or any biology reference books you may have. Bring your completed packs with you to your first biology lesson.

Cells

1. At A level you will look in much closer detail at the inner workings of cells, and how they are seen using different types of microscope.
   Use one of your biology books (or the Web if you haven't bought a book yet) to label as many parts of this animal cell as you can. You should be able to add at least 10 labels.



2. Find out the maximum **magnification** and **resolution** of the following types of microscope:
a. Light microscope

b. Scanning electron microscope

c. Transmission electron microscope

3. Draw out a table for 10 cell organelles and summarise their main functions

4. Draw and fully label a diagram of a typical bacterial cell. (At least 5 labels)

5. Describe 3 specialised cells that you have studied (found in animals or plants). Describe how the cell structure is adapted to the function of these cells.

6. Read the Introduction to microscopy from the following website: http://micro.magnet.fsu.edu/primer/anatomy/introduction.html

7. Write down 5 things you have learnt from this website.

8. There are a number of ways that substances may move into and out of living cells. Some of these are passive (require no energy) and others are active (require energy). Describe each of these types of cell transport, and give an example of each one:
a. Diffusion

b. Facilitated diffusion

c. Osmosis

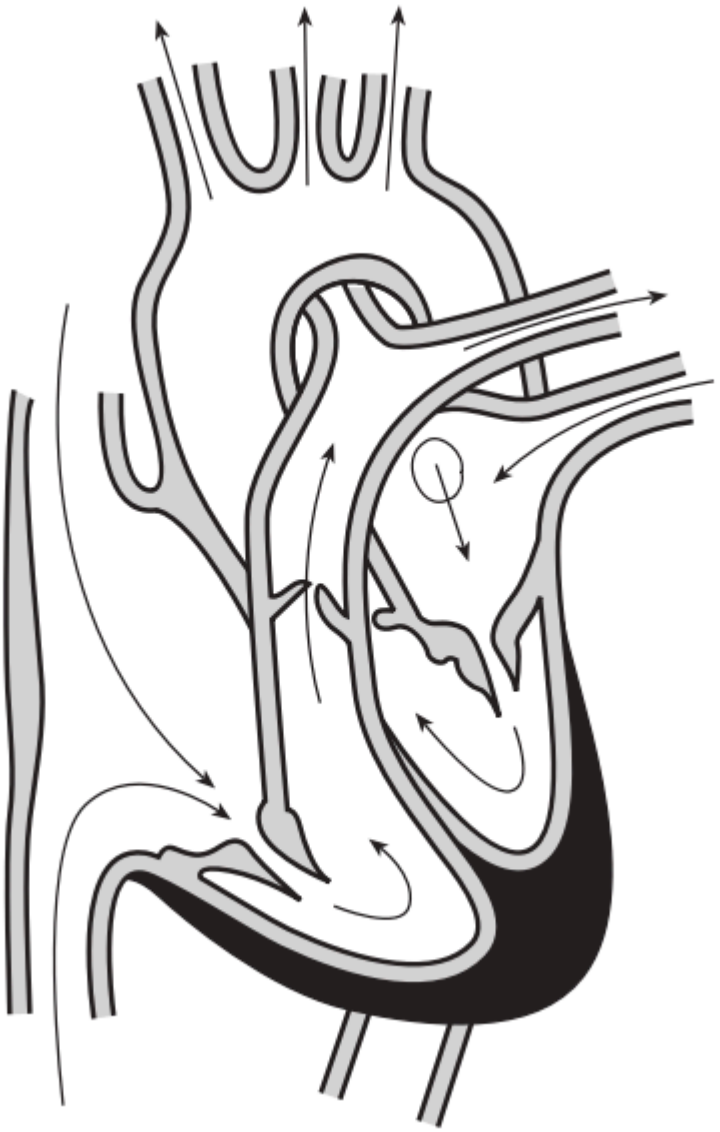
d. Active transport

Transport Systems.

1. Describe why multicellular organisms require specially adapted transport systems (e.g human circulatory system and respiratory system).

2. Explain the properties of the alveoli in the lungs, linking to Fick's law and maintaining a high rate of diffusion.

3. Label the diagram of the heart, including the chambers, blood vessels and the names of the valves.



4. Produce a comparison table to compare the structure and function of the blood vessels.

DNA.

1.Describe the basic structure of a mononucleotide.

2. Compare the structure of DNA and RNA.

3. Describe the stages in protein synthesis (transcription and translation).