Hi 4th year Biologists,

Once you revise well, the exam will be quite manageable. By the way along with reviewing your theory, be sure to practise 'NUFF' questions, check this revision site: http://www.s-cool.co.uk/gcse (choose Biology) and view videos pertaining to the topics on YouTube.

To aid your revision here is a checklist of what you should know.

- Photosynthesis
  - Define
  - Description of process,
    - raw materials (water, carbon dioxide),
    - products (glucose, oxygen)
    - conditions (sunlight, chlorophyll, enzymes)
  - Give word equation
  - Describe what happens in the two stages of photosynthesis
    - light dependent/ light
    - light independent/dark stage
  - State where it occurs (chloroplast of leaves)
  - Suggest what happens to the products
  - Recall that glucose is stored as starch
  - Know what 'variegated' means
  - Recall the starch test
  - Label a cross section through a leaf include the parts – cuticle, epidermis, palisade cell, spongy mesophyll cell, air space, chloroplasts, guard cell, xylem, phloem.
  - Be able to explain how the above structures help with photosynthesis
  - Be able to tell me how energy from the sun may be able to enable me to dance.

  Know that plants use carbon dioxide which animals produce for photosynthesis and that animals use the oxygen produced by plants for the process of respiration.

  - Plants respire as well. ALL living things respire.
  - Know when during the day plants will photosynthesise more than respire and vice versa
- Nutrition and Enzymes
  - Functions, food sources, deficiency diseases of Carbohydrates, Proteins, Fats, vitamins A,B, C, D, minerals – Calcium and iron
  - State the cause, symptoms and treatment of night blindness, anaemia and rickets
  - Review food test
  - State the functions of water in the body
  - State the role of fibre and know which part of the alimentary canal 'depends' on fibre
  - What is meant by a balanced diet
  - Types of teeth and their functions

All the best to you but remember you will only get out what you have put in.

- Can you describe the mechanism of an enzyme reaction?
  - Identify the substrate, products
  - Know why the active site is important
  - Explain how temperature affects an enzyme reaction (denaturation etc)
- Role of enzymes in digestion <u>especially</u> but there are others:
  - Amylase (starch → maltose)
  - Pepsin (proteins → polypeptides, peptides)
  - Lipase (lipids → fatty acids and glycerol)
- Know where in the alimentary canal each enzyme is found
- Label the alimentary canal – oesphagus, stomach, duodenum, liver, pancreas, ileum, large intestine, rectum, anus
- Describe what happens in the major areas of the alimentary canal
  - Where are carbohydrates digested?
  - Where are proteins digested?
  - What about the fats?
- Explain how the structures of the alimentary canal function to digest and where applicable absorb food (mechanical and chemical digestion)
- Describe what happens to food after digestion
- The villus
  - Identify
  - Know where in the alimentary canal it is found
  - State why it is important
  - Describe how the products of fat digestion get into the blood stream
- Why is a mother's breast milk good for a baby?
- Distinguish between egestion and excretion.

- The Respiratory System
  - Why is breathing important
  - Compare exhaled air with inhaled air
  - Label a diagram of the respiratory system
  - Relate the structures of the respiratory system to their functions
  - Describe the breathing mechanism –
    - movements intercostal muscle, ribcage, diaphragm during inhaling
    - movements intercostal muscle, ribcage, diaphragm during exhaling
  - Distinguish between gaseous exchange and breathing
  - Characteristics of Gas exchange surfaces
  - Differences between aerobic and anaerobic respiration
  - ATP
  - Give effects of cigarette smoking
    - Nicotine
    - Tar
    - Carcinogens

        - Carbon monoxide

- The Circulatory System
    - Identify materials which need to be transported around the human body
    - Relate the structures of the heart to their functions – chambers, valves, blood vessels, why is the left ventricles thicker than the right
    - Describe the structure and function of the heart (as a double pump)
    - Give the functions of the components of blood
        - plasma,
        - red blood cells,
        - white blood cells
        - platelets
    - Give diagrams of RBC, lymphocytes and phagocytes
    - How do the structures of arteries, veins and capillaries relate to their functions – be able to label or draw diagrams of these