

Differences between Edexcel 'A' and 'B'

The list shows LOs which are **not** on Spec A (at AS)

Understand how the structure of lipids relates to their role in energy storage, waterproofing and insulation
Understand how the structure of collagen and haemoglobin are related to their function. (will include some of the previous spec point as they rather overlap)
Understand the effect of point mutations on amino acid sequences, as illustrated by sickle cell anaemia in humans.
Understand how enzymes can be affected by competitive, non-competitive and end-product inhibition.

Be able to distinguish between Gram positive and Gram negative bacterial cell walls and understand why each type reacts differently to some antibiotics.
Know how magnification and resolution can be achieved using light and electron microscopy
Understand the importance of staining specimens in microscopy
CORE PRACTICAL 2: Use of the light microscope, including simple stage and eyepiece micrometers and drawing small numbers of cells from a specialised tissue.
Understand that the classification of viruses is based on structure and nucleic acid types as illustrated by λ (lambda) phage (DNA), tobacco mosaic virus and Ebola (RNA) and human immunodeficiency virus (RNA retrovirus).
Know the lytic cycle of a virus and latency.
Know that viruses are not living cells and so antivirals must work by inhibiting virus replication.
Know that as viruses can be difficult to treat once infection has occurred, the focus of disease control should be on preventing the spread, as exemplified by the 2014 Ebola outbreak in West Africa.
Be able to evaluate the ethical implications of using untested drugs during epidemics.
Understand how non-disjunction can lead to polysomy, including Down's syndrome, and monosomy, including Turner's syndrome.
Understand the processes of oogenesis and spermatogenesis.
Understand the early development of the embryo to blastocyst stage.
Understand how a pollen grain forms in the anther and the embryo sac forms in the ovule.
Understand how the male nuclei formed by division of the generative nucleus in the pollen grain reach the embryo sac, including the roles of the tube nucleus, pollen tube and enzymes.
Understand the process of double fertilisation inside the embryo sac to form a triploid endosperm and a zygote.
CORE PRACTICAL 4: Investigate the effect of sucrose concentrations on pollen tube growth or germination.

Understand the ethical and economic reasons (ecosystem services) for the maintenance of biodiversity.
CORE PRACTICAL 6: Determine the water potential of a plant tissue. Water potential = turgor pressure + osmotic potential $\psi = P + \pi$
CORE PRACTICAL 7: Dissect an insect to show the structure of the gas exchange system, taking into account the safe and ethical use of organisms.
Understand gas exchange in flowering plants, including the role of stomata, gas exchange surfaces in the leaf and lenticels.
Understand the advantages of a double circulatory system in mammals over the single circulatory systems in bony fish, including the facility for blood to be pumped to the body at higher pressure and the splitting of oxygenated and deoxygenated blood.
Know the structure of blood as plasma and blood cells, to include erythrocytes and leucocytes (neutrophils, eosinophils, monocytes and lymphocytes).
Understand the structure of haemoglobin in relation to its role in the transport of respiratory gases, including the Bohr effect.
Understand the oxygen dissociation curve of haemoglobin.
Understand the similarities and differences between the structures and functions of haemoglobin and myoglobin.
Understand the significance of the oxygen affinity of fetal haemoglobin as compared to adult haemoglobin.
Understand how the interchange of substances occurs through the formation and reabsorption of tissue fluid, including the effects of hydrostatic pressure and oncotic pressure.
Know that tissue fluid that is not reabsorbed is returned to the blood via the lymph system.
Understand how water can be moved through plant cells by the apoplastic and symplastic pathways.
Understand how the cohesion-tension model explains the transport of water from plant roots to shoots.
Understand how temperature, light, humidity and movement of air affect the rate of transpiration.
Understand the strengths and weaknesses of the mass-flow hypothesis in explaining the movement of sugars through phloem tissue.
CORE PRACTICAL 8: Investigate factors affecting water uptake by plant shoots using a potometer.