Ingenious Genes Curriculum Links for Pearson Edexcel Level 3 Advanced GCE in Biology A (Salters-Nuffield) (9BN0)

Topic 2: Genes and Health

Topic 3: Voice of the Genome

Topic 2: Genes and Health
2.5 i) Know the basic structure of mononucleotides (deoxyribose or ribose linked to a phosphate and a base, including thymine, uracil, cytosine, adenine or guanine) and the structures of DNA and RNA (polynucleotides composed of mononucleotides linked through condensation reactions). ii) Know how complementary base pairing and the hydrogen bonding between two complementary strands are involved in the formation of the DNA double helix.
2.6 i) Understand the process of protein synthesis (transcription) including the role of RNA polymerase, translation, messenger RNA, transfer RNA, ribosomes and the role of start and stop codons. ii) Understand the roles of the DNA template (antisense) strand in transcription, codons on messenger RNA and anticodons on transfer RNA.
2.9 ii) Understand the formation of polypeptides and proteins (amino acid monomers linked by peptide bonds in condensation reactions).
2.12 i) Understand how errors in DNA replication can give rise to mutations. ii) Understand how cystic fibrosis results from one of a number of possible gene mutations.
2.13 i) Know the meaning of the terms: gene, allele, genotype, phenotype, recessive, dominant, incomplete dominance, homozygote and heterozygote. ii) Understand patterns of inheritance, including the interpretation of genetic pedigree diagrams, in the context of monohybrid inheritance.

Topic 3: Voice of the Genome
3.8 i) Know that a locus (plural = loci) is the location of genes on a chromosome. ii) Understand the linkage of genes on a chromosome and sex linkage
3.9 Understand the role of meiosis in ensuring genetic variation through the production of non-identical gametes as a consequence of independent assortment of chromosomes and crossing over of alleles between chromatids.
3.14 i) Understand how phenotype is the result of an interaction between genotype and the environment.