Year 9 Triple Biology 2018-2019

Time	Content	Homework
HT1	**THE EYE (4.5.2.3)** *Structure of the eye* *Focusing (including ray diagrams)* *Rods and Cones* *Seeing in colour and in dim light* *Long sighted and short sighted* *Eye diseases - cataracts/macular degeneration* *Eye dissection*	**Literacy/Research:** *Cells in the eye compared to basic animal cells* **Exam Questions:** *Structure and function of the eye*
HT2	**Biological maths:** *Magnification* % change Area, volume, SA: V Standard form Pie chart calculations PPQ maths Rates	**Maths question practice:** *Mini tests from educake Biological Maths* **Exam questions:** *Maths focus exam questions*
HT3	**THE BRAIN: (4.5.2.2)** • Structure and function - cerebral cortex, cerebellum, medulla • Range of methods to study the brain Studying patients with brain damage areas of the brain Electircal stimulation of the brain to observe working areas of the brain related to function MRI scanning - benefits and drawbacks • Consequences **ADVANTAGES AND DISADVANTAGES OF SEXUAL AND ASEXUAL REPRODUCTION (4.6.1.3)** • Advantages of SEXUAL reproduction • Advantages of ASEXUAL reproduction • Malaria, fungi and plants as examples that do both	**Literacy/Research:** *Methods of studying the brain* **Exam questions:** *Sexual and asexual reproduction*
HT4	**CLONING (4.6.2.5)** *Types of cloning* *Tissue Cultures* *Cuttings* *Embryo Transplants* *Adult cell cloning* *The Island DVD - Ethics behind cloning*	**Cloning comparison:(Lit)** *Comparison of adult cell cloning and embryo transplants* **Exam questions:** Cloning techniques

HT5	**THEORY OF EVOLUTION (4.6.3.1)** • Darwin's idea • Natural selection • *'Origin of species'* controversy • Lamarck **SPECIATION (4.6.3.2)** • Alfred Russel Wallace Stages of speciation (IGNS)	**Literacy extended writing:** *Compare and contrast Darwin and Lamarck* ***Exam practice:*** *Questions on natural selection and speciation*
HT6	**TROPHIC LEVELS IN AN ECOSYSTEM (4.7.4.1 - 4.7.4.3)** • Basic Trophic levels and key terms • Decomposers • Pyramids of biomass • Transfer of Biomass • Losses of Biomass • Biomass Calculations	**Mathematical skills:** *Drawing pyramids of biomass to scale and biomass calculations.* **Exam practice***:* *Pyramids of biomass exam questions*
HT7	**FOOD PRODUCTION (4.7.5, 4.7.5.1 - 4.7.5.4)** • Food security definition • Factors affecting food security • Farming techniques (battery farming) • Sustainable fisheries • Biotechnology - Fusarium (fungus) • **GM crops** **GM insulin production (Brief mention cover in detail after DNA)**	**Literacy:** 100 word paragraph on sustainable fisheries. **Exam practice:** *Food production questions excluding GM*
HT8	**DNA STRUCTURE (4.6.1.5)** • Nucleotide polymer • ACGT Bases • Sequences - 3 bases for one amino acid • Protein Synthesis • Genes and phenotype • Importance of structure in proteins • Mutations • Non-functional enzymes • Non-coding DNA **FOOD PRODUCTION** • **GM crops** • **GM insulin production**	**Oracy and Ipad:** *Create a stop motion video to explain protein synthesis.* **Exam practice:** *Questions on DNA, protein synthesis and GM insulin*
HT9	**HOMEOSTASIS (4.5.2.4) & (4.5.3.3)** • *Thermoregulatory center of the brain* • *Vasodilation* • *Vasoconstriction* • *Sweating* • *Water loss* • *Kidney, transplants and dialysis* • *ADH*	**100 word paragraph: (Lit)** *How does your body control your internal temperature?* **Exam Questions:** *Homeostasis*

HT10	**PLANT DISEASE (4.3.3, 4.3.3.1, 4.3.3.2)** • Symptoms of plant disease • Methods of identification • RECAP TMV and black spot • Ion deficiency • Physical defence responses • Chemical defence responses	**Literacy:** *Plant disease comparison* **Exam practice:** *Plant diseases*
HT11	**PLANT HORMONES (4.5.4.1, 4.5.4.2)** • Phototropism • Geotropism • Gibberellins & ethene • Uses of plant hormones • **RP8**	**Application:** *Practical write up and questions from CPG workbook on RP8*
HT12	**CULTURING MICROORGANISMS (4.1.1.6)** • Bacterial growth (binary fission) • Preparing plates - Aseptic technique • Calculating bacterial populations • **RP2** **MONOCLONAL ANTIBODIES (4.3.2 , 4.3.2.1,4.3.2.2)** • Production of monoclonal antibodies • Uses of monoclonal antibodies	**Application:** *Practical write up and questions from CPG workbook on RP2*
HT13	**DECOMPOSITION (4.7.2.3 , 4.7.2.4)** • Effect of water, temp and oxygen availability • Impact of environmental change • Optimum conditions • Rate calculations • Biogas generators • **RP10**	**Application:** *Practical write up and questions from CPG workbook on RP10*
HT14	**Recap topics that groups have struggled with.**	
HT15	**Active learning revision lessons**	
HT16	**Exam questions and topic tests**	