Subject	Year	Term
Biology	12	1/2

Topic

Nucleic Acids, DNA & Protein Synthesis

Content (Intent)

Prior Learning (Topic) B6 – Inheritance, variation & evolution

- DNA and RNA are important information-carrying molecules.
- Ribosome structure and function.
- The structure of DNA and RNA (including mRNA and tRNA), including nucleotide structure and the formation of a polynucleotide.
- The semi-conservation replication of DNA ensures genetic continuity between generations of cells.
- The process of semi-conservative replication of DNA.
- Prokaryotic and eukaryotic DNA.
- The function of a gene
- The genetic code – features and importance
- Protein synthesis to include transcription & translation, including the roles of mRNA, tRNA and ribosomes.
- Differences between protein synthesis in eukaryotes and prokaryotes.

Future Learning (Topic) Year 13 topics: Inheritance; Mutations & Gene Expression; Gene Technologies

How will knowledge and skills be taught? (Implementation)	How will your understanding be assessed & recorded (Impact)
Demos Models of DNA structure, models of DNA replication, models of protein synthesis. *Practical work* Optional extraction of DNA from cells. *Written* Class notes Past paper questions in class Past paper questions in homeworks	- 4 x standard homeworks (Grade given. Written & verbal feedback. Response expected.) -1 x end of topic test (Grade given. Verbal feedback to class and individuals.)

How can parents help at home?

Look at the topic specific resources on the VLE
Use appropriate youtube channels: cognito, freesciencelessons, Crash Course Biology.
Encourage students to use the textbook issued.

Take an interest! Ask your children what they have learnt and be curious about their learning.

Helpful further reading/discussion

Reading	**Vocabulary Lists**	**Careers Links**
New Scientist Biological Science Review Magazine The Biologist Magazine – Royal Society of Biology Royal Society of Biology blog The Double Helix – James Watson A Life Decoded – James Venter Genome – Matt Ridley The Selfish Gene – Richard Dawkins	*Nucleotide, deoxyribose, ribose, phosphate, organic base, semi-conservative replication, complementary, helicase, DNA polymerase, RNA polymerase, degenerate, amino acid, peptide bond, polypeptide, introns, exons, splicing, transcription, translation.*	Biochemistry Biomedical science Biological sciences Medicine Veterinary medicine Bioveterinary science Geneticist Genetics counsellor