**A level Year 1 Core Concepts** Eduqas

Nucleic Acids and their functions

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|  |  | R | A | G |
| 1 | the structure of nucleotides (pentose sugar, phosphate, organic base) |  |  |  |
| 2 | the structure of ATP |  |  |  |
| 3 | the importance of chemical energy in biological processes |  |  |  |
| 4 | the central role of ATP as an energy carrier and its use in the liberation of energy for cellular activity |  |  |  |
| 5 | the structure of nucleic acids; DNA bases: purines and pyrimidines; complementary base pair rule; hydrogen bonding and the double helix; antiparallel strands |  |  |  |
| 6 | the similarities and differences in the structure of RNA and DNA |  |  |  |
| 7 | the two major functions of DNA; replication and protein synthesis |  |  |  |
| 8 | the semi-conservative replication of DNA including the roles of DNA polymerase and helicase and be able to use evidence from the Meselson and Stahl experiments |  |  |  |
| 9 | the term genetic code |  |  |  |
| 10 | the triplet code for amino acids |  |  |  |
| 11 | exons as regions of DNA that contain the code for proteins and that between the exons are regions of non-coding DNA called introns |  |  |  |
| 12 | the transcription of DNA to produce messenger RNA |  |  |  |
| 13 | the translation of mRNA using ribosomes and the structure and function of transfer RNA, to synthesise proteins |  |  |  |
| 14 | the 'one gene - one polypeptide' hypothesis |  |  |  |
| 15 | the further modification and combination of some polypeptides |  |  |  |

**SPECIFIED PRACTICAL WORK**

• Simple extraction of DNA from living material