**Topic 17. Inheritance**

**17.1 Inheritance**

**Define *inheritance*** - the transmission of genetic information from generation to generation

**17.2 Chromosomes, genes & proteins**

**Define *chromosome*** - a thread-like structure of DNA, carrying genetic information in the form of genes

**Define *gene*** - a length of DNA that codes for a protein

**Define *allele*** - a version of a gene



**Describe the inheritance of sex in humans with reference to XX and XY chromosomes**

* Of the 23 pairs of chromosomes present in each human cell, one pair is the sex chromosome;
* These determine the sex of the individual;
* Males have XY, and females have XX.

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**Explain that the sequence of bases in a gene is the genetic code for putting together amino acids in the correct order to make a specific protein (**knowledge of the details of nucleotide structure is not required**)**

**Explain that DNA controls cell function by controlling the production of proteins (some of which are enzymes), antibodies and receptors for neurotransmitters**

**Explain how a protein is made, limited to:**

* + **the gene coding for the protein remains in the nucleus**
	+ **mRNA molecules carry a copy of the gene to the cytoplasm**
	+ **the mRNA passes through ribosomes**
		- **the ribosome assembles amino acids into proteins**
	+ **– the specific order of amino acids is determined by the sequence of bases in the mRNA**

**(**knowledge of the details of transcription or translation is not required**)**

**Explain that all body cells in an organism contain the same genes, but many genes in a particular cell are not expressed because the cell only makes the specific proteins it needs**

**Define a *haploid nucleus*** - a nucleus containing a single set of unpaired chromosomes, e.g. in gametes

**Define a *diploid nucleus*** - a nucleus containing two sets of chromosomes, e.g. in body cells

**State that in a diploid cell, there is a pair of each type of chromosome and in a human diploid cell there are 23 pairs**