






<p>This half term: Skills, Knowledge and Understanding to be developed:</p> <ul style="list-style-type: none"> Skills (students <u>WILL BE ABLE</u> to by the end of the Learning Programme): to illustrate genetic crosses. Knowledge (students <u>WILL KNOW</u> by the end of the Learning Programme): how to carry out genetic crosses. Epigenetics is the study of gene expression by factors other than changes in the DNA sequence; use of the Hardy-Weinberg principle and equation to estimate frequencies of dominant or recessive alleles; the differences between continuous and discontinuous variation; the conditions under which the Hardy-Weinberg principle applies. Understanding (students <u>WILL DEMONSTRATE THEIR UNDERSTANDING</u>): by interpreting the results of the monohybrid, dihybrid, codominance, linkage and sex-linked genetic crosses. Different types of mutations and that epigenetics can also cause differences in phenotypes; competition, environmental and human factors place selective pressures on the survival of different phenotypes and hence breeding success; the concept of gene pool and genetic drift 		<p>Key Terms / Words:</p> <p>monohybrid, dihybrid, codominance, linkage sex linked Chi²</p>	
<p>LP 4 – Week 1 and 2 Learning Outcomes:</p> <p>Students will be able to:</p> <ul style="list-style-type: none"> Decide when it appropriate to use a Chi² test carry out and interpret the results of the Chi² test formulate a null hypothesis calculate expected numbers from Mendelian ratios; calculate degrees of freedom; choose a suitable probability level; identify a Chi² value from a Chi² distribution table; accept or reject the null hypothesis. <p>Students will be able:</p> <ul style="list-style-type: none"> to explain how gene linkage can alter genetic ratios and the importance of independent assortment for variation <p>Students will be able to undertake a practical investigation in which they:</p> <ul style="list-style-type: none"> Identify the phenotypes shown by a corn cob and count how many kernels of each phenotype there are. Identify the Mendelian ratio that is closest to the counts that were made. Use the χ^2 test and probability table to test if the sample shows that ratio identified Deduce the genotype of the parent plants <p>Students will be able to</p> <ul style="list-style-type: none"> describe what gene and chromosome mutations are explain the effects of types of gene mutation recall examples of gene and chromosome mutations <p>Students will be able to</p> <ul style="list-style-type: none"> explain how epigenetic factors can affect the expression of genes 	<p>Success Criteria:</p> <p>Students will demonstrate their knowledge and understanding of linkage, Chi Squared and Sex llnkage by answering WJEC examination questions.</p>	<p>Homework LP 4 2/5</p> <p>Prepare for each lesson by undertaking the essential pre-reading work assigned in the Google Classroom</p> <p>Revise for APP1</p> <p>Complete genetics exam questions</p>	
<p>LP 4 – Week 3 and 4 Learning Outcomes:</p> <p>Students will apply and demonstrate new knowledge and skills in APP1 assessment</p> <p>Students will be able to explain the difference between continuous and discontinuous variation in terms of:</p> <ul style="list-style-type: none"> number of genes controlling a particular phenotype the effect of environmental factors <p>Students will understand that competition, environmental and human factors place selective pressures on the survival of different phenotypes and hence breeding success.</p> <p>Students will understand:</p> <ul style="list-style-type: none"> the concept of gene pool and genetic drift and that the gene pool is the total of all alleles for all of the genes in a population. that selection pressures can change the allele frequencies of the alleles present at a particular gene locus in a population 	<p></p> <p></p> <p></p>	<p>Success criteria:</p> <p>Students will demonstrate their knowledge and understanding of linkage, Chi Squared and Sex llnkage by answering WJEC examination questions.</p>	<p>Homework LP 4 3/5</p> <p>Prepare for each lesson by undertaking the essential pre-reading work assigned in the Google Classroom</p>



and that allele frequency can be expressed either as a proportion or a percentage of the total number of copies of all alleles for that gene.

Students will understand and be able to the use of the Hardy-Weinberg principle and equation to estimate frequencies of dominant or recessive alleles or of different genotypes of a characteristic in a population using

Students will know the conditions under which the Hardy-Weinberg principle applies. These include

- a large population (100+ individuals);
- no selection for or against any phenotype;
- random mating throughout the population;
- no mutations;
- the population is isolated, i.e. no immigration or emigration

Students will demonstrate their skills, knowledge and understanding of topic 4.4. Variation and Evolution to WJEC examination Question.

LP 4 – Week 5 & 6 Learning Outcomes:

Students will understand the concepts of isolation and speciation and that the separation of populations by geographical, behavioural, morphological, seasonal and other isolation mechanisms including hybrid sterility can lead to the formation of new species.

Students will understand Darwin's theory of evolution and that existing species have arisen through modification of ancestral species by natural selection.

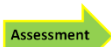
SUMMATIVE ASSESSMENT:

Students will demonstrate their skills knowledge and understanding in a summative assessment.

Students will apply and demonstrate new knowledge and skills in an end of unit exam. (SUMMATIVE based on 4, 5, 8 and 10 mark questions).

Students will be able to

- Describe and use the sampling techniques used to assess abundance and distribution of organisms in a habitat



SA

Mark

Grade

Success criteria:

SUMMATIVE ASSESSMENT

Students will demonstrate their skills knowledge and understanding in a summative assessment

**Homework LP 4
2/5**

Prepare for each lesson by undertaking the essential pre-reading work assigned in the Google Classroom