A Level Biology (DM) — Year 13 LP 4

This half term: Skills, Knowledge and Understanding to be developed:

- **Skills (students WILL BE ABLE to by the end of the Learning Programme):** to illustrate genetic crosses.
- **Knowledge (students WILL KNOW by the end of the Learning Programme):** how to carry out genetic crosses.
- **Understanding (students WILL DEMONSTRATE THEIR UNDERSTANDING):** by interpreting the results of the monhybrid, dihybid, codominance, linkage and sex linked genetic crosses.

Key Terms / Words:
monhybrid, dihybid, codominance, linkage
sex linked
Chi^2

LP 4 – Week 1 and 2 Learning Outcomes:

Students will be able to:

- Use genetic diagrams to predict the outcome of di-hybrid crosses

Students will be able:

- to explain how gene linkage can alter genetic ratios and the importance of independent assortment for variation

Students will be able to:

- Decide when it appropriate to use a Chi^2 test
- carry out and interpret the results of the Chi^2 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.

Students will understand:

- sex-linkage in organisms with X and Y sex chromosomes, as the inheritance of a gene present on the X chromosome only
- the significance of the lack of a corresponding allele on the Y chromosome in terms of expression of recessive alleles.

Success Criteria:

Students will demonstrate their ability to undertake dihybrid crosses by answering WJEC examination questions.

Homework LP 4 2/5

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

LP 4 – Week 3 and 4 Learning Outcomes:

Students will apply and demonstrate new knowledge and skills in APP1 assessment

Students will understand:

- sex-linkage in organisms with X and Y sex chromosomes, as the inheritance of a gene present on the X chromosome only
- the significance of the lack of a corresponding allele on the Y chromosome in terms of expression of recessive alleles.

Students will be able to

- describe what gene and chromosome mutations are
- explain the effects of types of gene mutation
- recall examples of gene and chromosome mutations

Students will be able to

- explain how epigenetic factors can affect the expression of genes

Students will be able to undertake a practical investigation in which they:

- 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

Assessment

APP1

Mark

Success criteria:

Students will demonstrate their knowledge and understanding of linkage, Chi Sqaured and Sex lilnkage by answering WJEC examination questions.

Homework LP 4 3/5

Revise for APP1

Complete genetics exam questions

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

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LP 4 – Week 5 & 6 Learning Outcomes:		Success criteria:	Homework LP 4 2/5
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	Assessment SA Mark Grade	**SUMMATIVE ASSESSMENT** Students will demonstrate their skills knowledge and understanding in a summative assessment	**Prepare for each lesson by undertaking the essential pre-reading work assigned in the Google Classroom**