D3.2 Inheritance

Checklist

What you should know

After studying this subtopic you should be able to:

- Outline that haploid cells (with a single copy of a gene) produced by each parent can fuse to form a diploid zygote with two copies of a gene.
- Explain methods for how flowering plants are genetically crossed.
- Distinguish between genotype (combination of inherited alleles) and phenotype (observable traits resulting from genotype plus environmental factors).
- Explain the ways that members of the same species can have variety in the gene pool.
- Describe the inheritance of different blood types.
- Compare and contrast the differences between incomplete dominance and codominance.
- Describe that the sperm determines sex in humans.
- Describe haemophilia as an example of a sex-linked genetic disorder.
- Illustrate how pedigree charts are used to determine inheritance in family members.
- Distinguish between continuous variation such as skin colour and discrete variation such as ABO blood group.
- Illustrate continuous variables using box-and-whisker plots.

Higher level (HL)

- Explain how unlinked genes segregate and assort independently in meiosis.
- Predict the inheritance of pairs of unlinked genes in dihybrid crosses.
- Predict genotypic and phenotypic ratios in dihybrid crosses of unlinked autosomal genes using Punnett grids.
- Explain why linked genes fail to assort independently.
- Deduce genotypic and phenotypic possibilities of crosses of individuals heterozygous for two traits with those homozygous recessive for both traits in both linked and unlinked genes.

- Calculate statistical significance of observed vs calculated data using chi-squared tests.