



# 7.1 INHERITANCE

**Allele = different form of a gene**

Only one allele needed to express the phenotype

Only expresses the phenotype if there are two recessive alleles

Homozygous recessive

Both alleles are expressed and contribute to phenotype

Inheritance of a single gene

Example - crossing one gene with dominant and recessive alleles

Inheritance of two genes

Independent assortment - each allele from a pair can combine randomly with another allele from another pair

A and B are co-dominant, whereas O is recessive to both

**AQA**

**Alleles**

**Dominant**

**Recessive**

**Co-dominant**

**Monohybrid crosses**

Need large samples to see ratios

**Genetic crosses**

**Dihybrid crosses**

**Multiple alleles**

**Sex-linkage**

**Autosomal linkage**

**Epistasis**

**Chi-squared test**

**Genotype and phenotype**

Genotype = the genetic constitution of an organism

Phenotype is the result of the interaction between the genotype and the environment

Phenotype = the observable characteristics of an organism

Two or more genes present on the same chromosome (but not on sex chromosomes)

XY = male  
XX = female

A gene carried on the X or Y chromosome

One allele masks the expression of another allele of another gene in the phenotype

Example - coat colour in mice - white, black, agouti

Only one allele is found at the locus for a particular gene

There can be many alleles of one gene e.g. ABO blood groups

Two loci, as there are two homologous chromosomes in diploid cells

The two alleles can be homozygous or heterozygous