Genetic Variation and Change

Checklist

Use this alongside our Walkthrough Guides to tick off the concepts you're confident with to plan your study and find areas of improvement!

Evolution and the Gene Pool

- ◯ I can explain why an individual organism cannot evolve
- ◯ I can define **evolution**
- ◯ I can define a **population**
- ◯ I can define a **gene**
- ◯ I can define an **allele**
- ◯ I can define a **gene pool**

Variation

- ◯ I can explain what it means to have more or less variation in a population
- ◯ I can explain what the sources of genetic variation are
- ◯ I can explain the difference between sexual and asexual reproduction
- ◯ I can explain how sexual reproduction causes genetic variation
- ◯ I can explain what happens in the cell before meiosis
- ◯ I can explain the process of **crossing over**
- ◯ I can explain the process of **independent assortment**
- ◯ I can define **segregation**
- ◯ I can explain how meiosis affects genetic variation
- ◯ I can define **meiosis**
- ◯ I can define **homologous chromosomes**
- ◯ I can define **sister chromatids**

Mutations

- ◯ I can define a **mutation**
- ◯ I can explain the differences between a gametic and somatic cell
- ◯ I can explain mutation inheritance in terms of somatic and gametic cells

Monohybrid Inheritance

- ◯ I can explain the difference between **dominant** and **recessive alleles**
- ◯ I can assign letters for dominant and recessive alleles
- ◯ I can combine alleles to make genotypes
- ◯ I can identify the difference between **heterozygous**, **homozygous dominant** and **homozygous recessive**
- ◯ I can use my knowledge of dominance to say which phenotype a genotype will produce
- ◯ I can use Punnett squares to determine offspring genotype probabilities
- ◯ I can define **codominance**
- ◯ I can explain an example of codominance using a Punnett square
- ◯ I can define **incomplete** dominance
- ◯ I can explain an example of incomplete dominance using a Punnett square
- ◯ I can define a **lethal allele**
- ◯ I can explain an example of a lethal allele using a Punnett square

Dihybrid Inheritance

- ◯ I can define **dihybrid inheritance**
- ◯ I can complete a Punnett square of dihybrid inheritance
- ◯ I can determine the phenotypic ratio of a Punnett square
- ◯ I can explain **linked genes**
- ◯ I can explain the connection between linked genes and genetic variation
- ◯ I can explain a **test cross**
- ◯ I can explain the purpose of a test cross
- ◯ I can explain the lack of certainty in a test cross

Factor's Causing Change in the Gene Pool

- ◯ I can define **genetic diversity**
- ◯ I can explain why genetic diversity is important when environmental change occurs
- ◯ I can define **natural selection**
- ◯ I can explain what happens to advantageous and disadvantageous alleles during natural selection
- ◯ I can define **genetic drift** and explain its causes
- ◯ I can define **migration**
- ◯ I can explain the difference between **emigration** and **imigration**
- ◯ I can explain the effect of migration on the gene pool
- ◯ I can explain the **founder effect**
- ◯ I can explain why the founding population will have a more limited genetic diversity
- ◯ I can explain the **bottleneck effect**
- ◯ I can explain the potential causes of a bottleneck effect
- ◯ I can explain the impact of a bottleneck effect on the gene pool

