

GENETIC VARIATION

BIOLOGY

LEVEL 2

Study Checklist

If you've picked up this checklist, congrats! You've begun the first step in a system of resources designed to help you through the Genetic Variation external. To make the most of this, we suggest you sit down, grab a pen, and mark any points that you're feeling a little unsure of. Then, create a subject audit using our template, or refer to the page numbers to find the section in our walkthrough guide to help you out!

EVOLUTION AND GENE POOLS

- | | | | |
|---|-----|---|-----|
| <input type="checkbox"/> I can explain why an individual organism cannot evolve | [4] | <input type="checkbox"/> I can define a gene | [6] |
| <input type="checkbox"/> I can define what evolution is | [5] | <input type="checkbox"/> I can define an allele | [6] |
| <input type="checkbox"/> I can define a population | [5] | <input type="checkbox"/> I can define a gene pool | [6] |

VARIATION

- | | | | |
|---|------|--|------|
| <input type="checkbox"/> I can explain what it means to have more or less variation in a population | [7] | <input type="checkbox"/> I can explain the process of independent assortment | [11] |
| <input type="checkbox"/> I can explain what the sources of genetic variation are | [7] | <input type="checkbox"/> I can explain how meiosis affects genetic variation | [12] |
| <input type="checkbox"/> I can explain the difference between sexual and asexual reproduction | [7] | <input type="checkbox"/> I can define meiosis | [13] |
| <input type="checkbox"/> I can explain how sexual reproduction causes genetic variation | [8] | <input type="checkbox"/> I can define homologous chromosomes | [13] |
| <input type="checkbox"/> I can explain what happens in the cell before meiosis | [9] | <input type="checkbox"/> I can define sister chromatids | [13] |
| <input type="checkbox"/> I can explain the process of crossing over | [10] | <input type="checkbox"/> I can define crossing over | [13] |
| | | <input type="checkbox"/> I can define independent assortment | [13] |
| | | <input type="checkbox"/> I can define segregation | [13] |

MUTATION

- | | | | |
|---|------|---|------|
| <input type="checkbox"/> I can define mutation | [13] | <input type="checkbox"/> I can explain mutation inheritance with respect to gametic and somatic cells | [14] |
| <input type="checkbox"/> I can explain the difference between gametic and somatic cells | [14] | | |

MONOHYBRID INHERITANCE

- I can explain the difference between dominant and recessive alleles [16]
- I can assign letters for dominant and recessive alleles [16]
- I can combine alleles to make genotypes [16]
- I can identify the difference between heterozygous, homozygous dominant and homozygous recessive genotypes [16]
- I can use my knowledge of dominance to say which phenotype a genotype will produce [16]
- I can use punnet squares to determine offspring genotype probabilities [17]
- I can define what co-dominance is [18]
- I can explain an example of co-dominance using a punnet square [18]
- I can define what incomplete dominance is [19]
- I can explain an example of incomplete dominance using a punnet square [19]
- I can define what a lethal allele is [20]
- I can explain an example of a lethal allele using a punnet square [20]

DIHYBRID INHERITANCE

- I can define what dihybrid inheritance is [23]
- I can do an example of dihybrid inheritance using a punnet square [24]
- I can determine the phenotypic ratio for the punnet square [25]
- I can explain what linked genes are [26]
- I can explain the connection between linked genes and genetic variation [27]
- I can explain what a test cross is [27]
- I can explain how a test cross is carried out [27-28]
- I can explain the lack of certainty in a test cross [28]

FACTORS CAUSING CHANGE IN A GENE POOL

- I can describe what genetic diversity is [29-30]
- I can explain why genetic diversity is important when environmental change occurs [30]
- I can define natural selection [30]
- I can explain what happens to advantageous and disadvantageous alleles during natural selection [31]
- I can describe genetic drift and what can cause it [33]
- I can define migration [34]
- I can explain the difference between immigration and emigration [34]
- I can explain the effect migration has on a gene pool [34]
- I can describe and explain what the founder effect is [35]
- I can explain why the gene pool of the founding population is less diverse than the larger population [35-36]
- I can describe what a bottle neck effect is [36]
- I can describe what could cause the bottle neck [36]
- I can explain how the bottle neck effect changes the gene pool [36]

