

GENE EXPRESSION

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 Gene Expression 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!

DNA

- I can define what DNA is [4]
- I can define what a chromosome is [5]
- I can define what a gene is [5]
- I can define what an allele is [5]
- I can explain the difference between a genotype and a phenotype [5]
- I can explain the connection between DNA and proteins [6]
- I can describe and draw the structure of DNA and why it's described as a double helix [7]
- I can explain what a DNA triplet is [8]

RNA

- I can define what a ribosome is [9]
- I can define what messenger RNA is [9]
- I can explain the differences between DNA and RNA [10]
- I can define what transcription is [9]
- I can define what translation is [10]

TRANSCRIPTION

- I can explain why DNA is 'unzipped' [11]
- I can explain what the complementary base pairing rules are [12]
- I can explain what a template strand is [12]
- I can explain how the coding strand is formed [12]
- I can explain what a codon is [12]
- I can explain how mRNA leaves the nucleus of the cell [12]

TRANSLATION AND PROTEIN SYNTHESIS

- I can explain what proteins are made of [13]
- I can explain the connection between codons and amino acids [13]
- I can use the table to say which amino acid a codon codes for [13-14]
- I can explain why not all codons code for an amino acid [14]
- I can explain where translation occurs [15]
- I can explain the purpose of tRNA [15]
- I can explain how translation begins [15-16]
- I can explain how translation causes the formation of an amino acid chain [16]
- I can explain how translation ends [16]
- I can explain how folding effects protein structure [16]

MUTATION

- | | | | |
|---|------|--|------|
| <input type="checkbox"/> I can define a mutation | [18] | <input type="checkbox"/> I can explain an insertion mutation | [20] |
| <input type="checkbox"/> I can explain how a mutation could be beneficial | [19] | <input type="checkbox"/> I can explain a frame shift mutation | [20] |
| <input type="checkbox"/> I can explain a substitution mutation | [20] | <input type="checkbox"/> I can explain how some mutations have no effect | [21] |

ENZYMES AND METABOLIC PATHWAYS

- | | | | |
|---|------|--|------|
| <input type="checkbox"/> I can define what an enzyme is | [22] | <input type="checkbox"/> I can explain what happens when a metabolic pathway doesn't function properly | [25] |
| <input type="checkbox"/> I can define what a substrate is | [22] | | |
| <input type="checkbox"/> I can define and explain what a metabolic pathway is | [23] | <input type="checkbox"/> I can explain why both DNA and environment have an effect on phenotype | [26] |
| <input type="checkbox"/> I can explain the effects of enzyme change on varying parts of a metabolic pathway | [24] | | |

