



## Mastery:

## Y13 Biology Curriculum Sequence

Intent: To encourage students to question and develop themselves beyond simply being able to answer exam questions in the subject. The Biology course uses the principles in science to build student's wider subject knowledge and understanding thereby helping them create the appropriate links across the discipline to better articulate their understanding

## Term 1

- 3.6.4 Homeostasis is the maintenance of a stable internal environment. (recap + complete)
- 3.5 Energy transfers in and between organisms
- 3.7 Genetics, populations

## Term 2

- 3.7.3 Evolution may lead to speciation
- 3.7.4 Populations in ecosystems
- 3.6 Organisms respond to changes in their internal and external environments
- 3.8.1 Alteration of the sequence of bases in DNA can alter the structure of proteins

## Term 3

- 3.8 The control of gene expression

## Why start here?

Here we revisit Homeostasis as student find this difficult we have completed most in year 12 term 3. This allows us a recap and to complete the remainder.  
Energy transfers and nutrient cycles follows on naturally from the populations, section in year 12 term 3

## Spec links:

- 3.6.4 Homeostasis is the maintenance of a stable internal environment. (recap + complete)
- 3.5 Energy transfers in and between organisms
- 3.7 Genetics, populations

## Teaching these topics here supports:

- 3.7.3 Evolution may lead to speciation
- 3.7.4 Populations in ecosystems
- 3.8 The control of gene expression

These topics feed from:  
Homeostasis feeds from:

- 3.1 Biological molecules
- 3.3 Organisms exchange substances with their environment
- Energy transfers feeds from
- 3.1 Biological molecules
- 3.3 Organisms exchange substances with their environment
- 3.4 Genetic information, variation and relationships between organisms

## Why move onto these units?

Evolution and speciation link together the populations and genetics topics showing how diversity and environmental pressures can lead to speciation. Photosynthesis and respiration are key topics but require an understanding of substance exchange with the environment and the biological molecules topics from year 12. 3.8 control of gene expression is application of previous genetics topics so cannot be complete until this point.

## Spec links:

- 3.7.3 Evolution may lead to speciation
- 3.7.4 Populations in ecosystems
- 3.6 Organisms respond to changes in their internal and external environments
- 3.8.1 Alteration of the sequence of bases in DNA can alter the structure of proteins

## Teaching these topics here supports:

- 3.8.3 Using genome projects

## These topics feed from:

- 3.1 Biological molecules
- 3.3 Organisms exchange substances with their environment
- 3.5 Energy transfers in and between organisms
- 3.7 Genetics, populations

## Why move onto these units?

This is the final module which brings together all of the genetics and populations. The students have to apply their understanding of genetics to explain control of gene expression. The gene technology looks at how genetics is studied and used in wider contexts and can only be completed after the rest of genetics.

## Spec links:

- 3.8 The control of gene expression

## Teaching these topics here supports:

- Further or higher education

## These topics feed from:

- 3.1 Biological molecules
- 3.4 Genetic information, variation and relationships between organisms
- 3.6 Organisms respond to changes in their internal and external environments
- 3.7 Genetics, populations, evolution and ecosystems
- 3.8 The control of gene expression