

SPECIATION

BIOLOGY

LEVEL 3

Strategy Guide

As with lots of biology, Speciation is a pretty jargon-intensive topic, with a whole bunch of definitions. The key is to push through that phase of “OMG, are they even speaking English” and try and break down each word one-by-one. Also get familiar with the overarching concepts which we outline below and dive into in our Walkthrough guides. Once you do this you should get comfortable with using the terminology in the context of an exam question which may be about NZ’s flora and fauna; this means writing, marking and reflecting on essay answers. As always, follow the bullet points in the question, these will be your shining light at the end of the tunnel - so maybe it is a good idea to follow the light. Or at least, to follow our advice.

OVERVIEW OF THE STANDARD/STRUCTURE OF THE EXAM

This standard is broken into three key parts:

1. Genetic variation, evolution and selection
2. Speciation and polyploidy
3. Patterns of evolution

The exam is likely to integrate aspects of each of these sections into different questions. Most questions in the Speciation paper will give you a large amount of written context - and will supply you with bullet points to respond using the ‘describe’, ‘explain’ and ‘discuss’ structure.

CONCEPTS AND SKILLS TO FOCUS ON

Although every aspect of the exam is equally important, here are some key concepts to focus your study on:

Discussing the different patterns of evolution and types of speciation:

This standard builds on a lot of knowledge from level one and level two genetic variation. Although it is important to revise the key terms from those years, make sure you are able to confidently integrate the new terminology and ways of describing evolution and speciation into your answers.

Understanding the different types of reproductive isolating mechanisms:

Reproductive isolating mechanisms occur on a number of different levels - so it is easy to get them confused, or forget that some of them exist. Make sure you know the differences between pre-zygotic and post-zygotic isolating mechanisms - both in terms of how they work, and what they result in. It is also important to understand and be able to discuss how isolating mechanisms lead to speciation.





Polyploidy:

Polyploidy is one of the trickiest topics in the standard to get your head around - so is one that students often neglect whilst studying. However, it is frequently assessed - and there can sometimes be an entire question about it. The good news is, there's a section in our walkthrough guide on polyploidy if you need some extra help!

COMMON MISTAKES:

From the NCEA gods themselves:

Not answering all of the bullet points::

This standard gives you a helping hand by laying out exactly what you need to talk about - in bullet point form! Even though NCEA provides this information, a lot of students forget to answer some of the points, or answer some of them incompletely. Make sure you spend the time to nail each of the bullet points - as you will require a complete answer to gain those higher marks. ,

Not using biological terms correctly:

There are a lot of terms to know for this standard - and it is easy to get them confused! You may get marked down for using terms incorrectly, or for getting them mixed up. For example, it is important to know the difference between changes to alleles and changes to phenotypes - as these are very different things!

Not interpreting or using the given information correctly:

The questions in the Speciation external give you a lot of written content and context to work with. It is important that you read all of this information carefully, and link your answer back to the context you are given. Be wary of repeating too much information that is given to you - the examiner wants to hear your thoughts on the topic, not the facts you are given!

Not being specific enough:

When talking about ideas such as reproductive isolating mechanisms or speciation, make sure you can name the specific type of mechanism (i.e post-zygotic) or speciation (i.e directional) that is occurring!

OVERALL STUDY AND EXAM STRATEGY:

This standard covers a lot of content from level one and level two - so it is wise to spend some time revising the genetics topics from these years. It is also helpful to consider all of the topics as relating to each other. Speciation, evolution and genetic variation are all interconnected topics, and thinking about them together will not only boost your discussion points, but will help you remember everything more clearly!

