Level 1 Science: practice paper 2026

AS 91922 Describe features of science that have contributed to the development of a science idea in a local context · Vertex Academy practice paper, not an NZQA paper

Attempt ALL the questions. Show ALL working. Write your answers on lined paper, or in the space under each question.

Resource: Kākāpō recovery and the rimu

Kākāpō are flightless, nocturnal parrots found only in Aotearoa New Zealand, and a taonga species to Ngāi Tahu. When the Kākāpō Recovery Programme began in 1995 there were just 51 birds, only 20 of them female. The Department of Conservation (DOC) and Ngāi Tahu have worked together on the programme ever since, with rangers, scientists, volunteers and, since 2016, Meridian Energy.

Kākāpō breed only when rimu trees mast (produce a huge crop of fruit), about once every two to four years, because mothers feed their chicks rimu fruit. Before each season rangers collect sample rimu branches on each breeding island and count the tips carrying fruit. Over many seasons the team found that some kākāpō breed when more than 10% of rimu tips carry fruit, and more kākāpō breed as that percentage rises. Summer temperature patterns now let them predict a mast up to two years ahead. For 2026 the counts predicted record fruiting, around 50 to 60% of tips on all three islands.

The breeding birds live on three predator-free islands: Whenua Hou (Codfish Island), Pukenui (Anchor Island) and Te Kāhaku (Chalky Island). Every kākāpō wears a small backpack radio transmitter, and remote monitoring records mating and nesting, so rangers can follow each bird.

In 2019 a record 73 chicks fledged, but a fungal disease, aspergillosis, killed nine kākāpō. Scientists later showed that a single strain of the fungus caused the outbreak.

Low genetic diversity means many eggs are infertile or fail to hatch, so for years rangers checked nests often, raised many eggs in incubators and gave mothers extra food. In 2026, the biggest season so far, the team trialled a more hands-off approach: fewer nest checks guided by remote nest data, more eggs left to hatch in the nest, and less extra food. Ngāi Tahu's aim is to restore the mauri (life force) of kākāpō so they can one day thrive without intensive help, and some 2026 chicks will stay unnamed as a first step back to their natural ways.

On 1 September 2026, 90 chicks from the season joined the official count, taking the population to 325, the highest since the programme began. DOC's modelling suggests the next breeding season could come in 2028, only two years later.

QUESTION ONE

(a) The science idea: kākāpō breed when the rimu masts, so their recovery can be planned around the rimu.
For this question, focus on two features of science:
• replicable, verifiable data collection
• interpreting patterns and interactions.
Describe how each of these two features has contributed to the development of the science idea. Use examples from the resource.

(b) Explain why each of these two features of science has been important to the development of the science idea. Give an example from the resource for each feature.

(c) Discuss how these two features of science have worked together to develop the science idea.

QUESTION TWO

(a) Use the same resource. For this question, focus on two different features of science:
• the development of science ideas in response to new evidence or varied perspectives, such as Māori knowledge systems
• science being tentative by nature.
Describe how each of these two features has contributed to the development of the science idea of how best to help kākāpō recover.

(b) Explain why each of these two features of science has been important to the development of the science idea. Give an example from the resource for each feature.

(c) Discuss how these two features of science have worked together to develop the science idea.

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