**Mārauwai College**



**Year 12**

**Agricultural Science**

Achievement Standard Agricultural and Horticultural Science 91289: Carry out an extended practical agricultural or horticultural investigation

What makes chickens grow?

Credits: 4

Version 2

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| Achievement | Achievement with Merit | Achievement with Excellence |
| Carry out an extended practical agricultural or horticultural investigation. | Carry out an in-depth extended practical agricultural or horticultural investigation. | Carry out a comprehensive extended practical agricultural or horticultural investigation. |

Student instructions

Introduction

This assessment activity requires you to carry out an extended practical agricultural investigation **to determine the effect of the different chicken feeds on the growth of young chickens** and produce a report on the findings of your investigation.

You will be expected to carry out preliminary investigations and research before starting this investigation.

You should check your method with your teacher before starting and regularly at each stage of the process.

You may work in groups to collect your data, but your investigation will be assessed individually.

The assessment task will take place over 8 weeks of in- and out-of-class-time.

You will be assessed on how comprehensively you plan and carry out your investigation, process data, and report on your findings.

The report should include a discussion of the biological ideas, linking to growth patterns of chickens, relating to your findings and discussing them with information gained from other sources i.e. other investigations, external resources and your workbook. Care must be taken to list these references at the end of the assessment.

You will be required to justify the choices made during the investigation which could include previous investigations into young chicken’s growth patterns, trials, changes made to the plan or information gained from external resources which have all impacted on your final procedure.

Task

Carry out an extended practical agricultural investigation **to determine the effect of the different chicken feeds on the growth of young chickens.**

***Preliminary investigations and research.***

You will be expected to conduct a series of preliminary investigations into young chicken’s growth and development which will give you skills and information which you can use and refer to in this assessment.

You will also be given a series of references which you should read and highlight before starting this investigation, to give you essential background and some pointers as to how to plan and design your investigation

Develop your plan

State the **purpose** of your investigation. This may be an aim, testable question, prediction or hypothesis based on a scientific idea.

Part 1: Develop your method

Design a workable method that is a **fair test** and will give **valid results** to test the aim, selecting and using a method of measurement which will give **valid** data.

You will need to conduct a trial and/or consider results gained in previous preliminary investigation(s) and information gathered from references that you have read on the topic.

Write the **steps** you will take to carry out your investigation. For each step **explain** why the procedure will contribute to **valid** results.

Your method should be sufficiently detailed so that someone else could repeat your investigation and gain **valid** results.

In these steps you should:

* State what factor you will **change** **(*independent variable*)**
* Explain **what** you will measure and **how** you will measure it and what **units** you will use **(*dependent variable*)**
* Describe the **range** of factors you will keep the **same (*controlled variable)***
* Describe how and why you will **repeat** the experiment to ensure the results are **valid**
* **Explain** how you will **collect** and **process** your information. i.e. what factors you are measuring and units used for these measurements.
* **Remember! Check** your method **with your teacher** before proceeding.

Part 2: Collect, record and process information/results

Conduct the investigation and monitor the chicks weekly, weighing them and recording their weights, and growth.

Record and process the data to show any trend or pattern.

To do this you will need to:

* **follow** the method you have designed, or adapt it if necessary
* **record** any changes you needed to make, with **reasons** for the changes
* record your **results** in a **table** as you collect them
* **process** your results to help you reach **conclusions** which can be linked to your aim. This may be using calculations (e.g. averages) and then using a method (e.g. graphs) to make your results show a **trend** or **pattern**.

Part 3: Interpret the information and present your report

* Make **conclusions** based on your collected data, **linking** them to the purpose of the investigation.
* **Identify** and include relevant findings from another source(s).
* **Discuss** the biological and agricultural ideas relating to the investigation that is based on your findings and those from other source(s).
* **Evaluate** the method of the investigation, discussing how successfully it produced **valid data** to support a conclusion.
	+ To do this you will need to:
		- describe the **trend** or **pattern** (or absence) shown in the processed **data**
		- explain how the trend or pattern of your data links to the **purpose** ofyour investigation
		- evaluate how successfully your method provided valid data that enabled you to reliably relate the data to the aim. When you evaluate your method, consider:
* the method you used and **how** and **why** it could be improved *or* **how** and **why** it produced valid data
* whether the data you gained was useful in answering the purpose of the investigation, what other data would have helped you reach a conclusion and how this data could have been gathered.

**Suggested Readings:**

Stafford, K. (2017). *Livestock Production in New Zealand.* Massey University Press.

(Chapter 7: Poultry Production)

<https://www.backyardchickencoops.com.au/all-the-different-types-of-chicken-feed-explained>

<https://www.tractorsupply.com/know-how_pets-livestock_chicken_how-to-feed-chickens>

<https://www.thespruce.com/types-commercial-chicken-or-poultry-feed-3016568>

**Student Checklist.**

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| **Part of the Assessment** | **Completed** |
| **Introduction*** outlines the digestive anatomy of chickens, and feed requirements of young chicks
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| **Method*** step by step which could be followed by another person
* mentions independent and dependent variables
* explains how variables were controlled
* Includes any adjustments made during investigation
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| **Data collected and recorded*** Raw data submitted
* Data processed into a graph or table and results explained
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| **Conclusion*** Using data that relates to the aim of your investigation.
* Link these to findings from another source
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| **Discussion*** Links findings to key agricultural ideas
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| **Evaluation*** Strengths and weaknesses of your investigation
* Validity of data you have collected
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