SUPERVISOR'S USE ONLY

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Draw a cross through the box (☒) if you have NOT written in this booklet

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NZQA

Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Level 1 Science 2024

91922 Describe features of science that have contributed to the development of a science idea in a local context

Credits: Five

Achievement	Achievement with Merit	Achievement with Excellence
Describe features of science that have contributed to the development of a science idea in a local context.	Explain features of science that have contributed to the development of a science idea in a local context.	Examine features of science that have contributed to the development of a science idea in a local context.

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

Pull out Resource Booklet 91922R from the centre of this booklet.

Choose ONE science idea from the Resource Booklet to answer ALL parts of the task in this booklet.

If you need more room for any answer, use the extra space provided at the back of this booklet.

Check that this booklet has pages 2–7 in the correct order and that none of these pages is blank.

Do not write in the margins (⁄⁄⁄⁄⁄). This area will be cut off when the booklet is marked.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

Merit

TOTAL 05

Page 1

Make sure you have the paper Resource Booklet 91922R.

INSTRUCTIONS

This task is made up of three parts. You must answer ALL three parts.

Choose ONE science idea from the resource booklet to complete this assessment.

How are the oceans affected by increasing carbon dioxide in the atmosphere?

Use information in the resource booklet for your chosen science idea to answer ALL parts of the task.

PART ONE

For part one, focus on **these two** features of science:

- the development of science ideas in response to new evidence or varied perspectives, such as Māori and Pacific knowledge systems
- linking new evidence to existing models, theories, and ideas.

Using the information from your chosen science idea, discuss the following:

(a) How does EACH feature of science mentioned above contribute to the development of the science idea?

(i)

The development of science ideas in response to new evidence or varied perspectives allows other scientist to improve or build on an idea to improve what we know about science. Varied perspectives are important when making a scientific claim so you can get more information from different places around the world or you might discover a better way to find the scientific information you are looking for. This is shown in the science idea by Dr Currie discovering that the affect of more CO2 in being absorbed the lower the pH of the ocean is, she got to that conclusion by looking at varies perspectives like other scientist doing the same experiment.

(ii)

Linking new evidence to existing models, theories, and ideas are also very important when making or adding to a scientific claim. Existing models can give you ideas on what to do better if they have flaws or what add to. This Could lead to a better model, theory and ideas in science. Dr Currie linked to David Keelings results showing the concentration on CO2 increased over time with her results showing the pH of the oceans increased over time.

(b) Why are these features of science important to the development of the science idea?

These two features of science are important to the development of a science idea because it allows other scientists to add to your work or have different perspectives on your work, this will allow a better understanding of the world around us and give you additional information or better techniques to use in your scientific information.

(c) How do the two features of science work **together** to support the development of the science idea?

Kim Currie was inspired by David Keeling and wanted to build on his findings. So Kim Currie wanted to add onto David Keelings idea and while changing the perspective on it, this shows the use "the development of science ideas in response to new evidence or varied perspectives" feature of science not only did Dr Currie investigate the CO2 in the ocean she measured other variables like ocean salinity and the pH of the ocean adding and improving on David Keelings investigation which shows "linking new evidence to existing models, theories, and ideas" feature of science. This works together because if it wasn't for the 1st feature of science Dr Currie would never have began working on another perspective and therefor never been able to improve on the his scientific idea.

PART TWO

For part two, focus on **these two** features of science:

- interpreting patterns and interactions
- the influence of the development and use of technology on science.

Using the information from your chosen science idea, discuss the following:

(a) How does the interpretation of patterns and interactions add to the science idea?

Dr Currie collected data about the Co2, ocean salinity and pH concentration of the ocean. In her graph she noticed a pattern that over time the ocean became more acidic. This is liked to David Keelings graph since over time the concentration of carbon in the air increased over time, this can be linked to the amount of carbon in the ocean. This interpretation of patterns allowed Dr Currie to explore her idea with confidence since she know the concentration of pH is being affected by the amount of Co2 in the ocean. This shows interpretation of patterns and interactions because Dr Currie interpreted the patterns of her results and came to a conclution.

(b) How does the development and use of technology add to the science idea?

The development an the use of technology added to the science idea because the machines Dr Currie where using became more accurate and easy to use. This added to the science idea because her results became accurate.

(c) Why are these two features of science important to the development of the science idea?

(d) How does one feature of science **support** the other in the development of the science idea?

PART THREE

For part three, focus on **these two** features of science:

- the influence of the development and use of technology on science
- using specific language, symbols, and conventions.

Using the information from your chosen science idea, discuss the following:

(a) How do the use of technology and specific language, symbols, and conventions contribute to the science idea?

The use of technology allowed Dr Currie to measure and collect data for so she could analysed her findings, without the use of technology it would have taking much more time, effort, money and wouldn't of had as accurate results. Specific language, symbols, and conventions where used to display her finding to other scientist and the scientific community. Some examples of this include the chemical symbol of carbon and accurate labels on the graphs she displayed. With out proper language, symbols, and conventions her findings woulnt have been displayed properly and would have been almost impossible to interpret by other scientists.

(b) Why was each feature of science significant to the development of the science idea?

(c) How do these two features of science work **together** to develop the science idea?

Merit

Subject: Science

Standard: 91922

Total score: 05

Grade score	Marker commentary
M5	This response explained the significance of varied perspectives, making links to examples from the resource. It explained how identifying a pattern gave Dr Currie a focus for her research and used an example. The descriptions of the contribution of both relevant science ideas were less robust.