

Internal Assessment Resource

Geography

Achievement Standard 91011

Conduct geographic research, with direction

Credits: 4

Version 2

WEATHER WITH YOU



The following guidelines are designed to ensure that teachers can carry out valid and consistent assessment using this internal assessment resource 'Weather with You'.

Teachers need to be familiar with the outcome being assessed by Achievement Standard Geography 91011. The achievement criteria and the explanatory notes contain information, definitions, and requirements that are crucial when interpreting the standard and assessing students against it.

Context/setting

This assessment activity provides a clearly structured process for assessing student's skills and understanding to meet the specified standard. The local study of weather is to engage your students and promote effective research skills.

This assessment activity focuses on observing the weather conditions and patterns in your local area. Students are required to collect data by carrying out research with teacher direction by observing weather conditions in your local area, drawing a conclusion about how accurate your local weather forecast is compared to met service data or newspaper weather reports or other internet records.

In Task 1, students will conduct geographic research. Direct the students to collect relevant data and to follow geographic conventions when presenting their data.

Evaluation is ongoing throughout this task. Discuss ways to evaluate and reflect on the research processes. Allow students time each day to complete their entries.

In Task 2, students will draw conclusions and relate their findings to a geographic idea or ideas.

Before you begin this assessment activity, ensure that students know what data to collect, how to collect it, and how to process and present it. The pre-teaching of climate graphs, wind roses and mapping skills is essential for students to present weather data. Emphasise that conclusions must relate to the aim of the research.

Conditions

This assessment activity requires students to be familiar with research methodology and with applying geographic concepts to research. It is suggested that you spend approximately 2 weeks on formative teaching and learning before beginning the assessment activity, using the activities supplied with the assessment 'Weather with You'.

Students will collect data individually or in small groups.

This assessment activity requires up to 2 weeks of gathering data. Processing and presenting data, drawing conclusions, and relating research to geographic concepts could take approximately one week of class time.

Resource requirements

- Formative teaching resources relating to the understanding, interpreting and presenting weather conditions
- Data collection sheets
- MetService data **or** local newspaper weather reports **or** TVNZ ondemand weather forecasts
- A useful website link <http://www.metservice.com/national/index>

Additional information

This assessment activity 'Weather with You' places emphasis on presenting quality data that supports the aim of the research. Presenting data will help the students to draw in-depth conclusions and to relate their findings to different geographic concepts.

The evaluation process will help students reflect on and improve their data collection.

Student Instruction Sheet

NCEA Level 1 Geography
Achievement Standard 91011 Version 2

WEATHER WITH YOU

Conduct Geographic research, with direction
Credits: 4

Introduction:

This assessment activity requires you to find out how accurate your local weather forecast is compared to the met service data or newspaper weather report. You will conduct directed geographic research and relate your research findings to a geographic concept(s).

Geographers collect and record data to allow them to make decisions based on sound evidence. You **will use the data you collect to draw a conclusion about how accurate your local weather forecast is** compared to met service data or newspaper weather reports or other internet records.

You will have approximately 2 weeks to collect the relevant data; and 1 week to complete the rest of this activity 'Weather with You'.



Task 1: Conduct Geographic Research

A. Aim of Research

Individually or in small groups, identify the aim of your research.

B. Collect and record data

Collect and record your data individually or in small groups at your weather station.

In order to collect your data, you will be required to either use a digital weather station, make your own with guidance from your teacher or use measuring instruments supplied by your teacher.

If you intend to make your own, the following links will help you create your very own weather station 😊

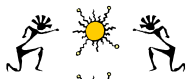
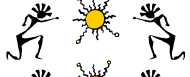
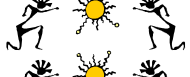
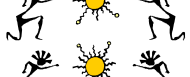
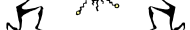
http://www.metoffice.gov.uk/education/kids/weather_station.html

<http://www.fi.edu/weather/todo/todo.html>



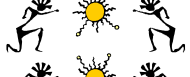

<http://school.discoveryeducation.com/lessonplans/activities/weatherstation/>

http://oceanservice.noaa.gov/education/for_fun/BuildyourownWeatherStation.pdf

Use the data collection sheet on the next page to record the following data:

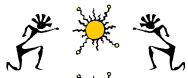
-  Rainfall (mm)
-  Temperature (°C)
-  Cloud cover observations
-  Wind direction
-  Wind velocity using the Beaufort scale

At your research station, record the following:

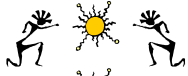
-  latitude and longitude (could use a GPS)
-  a sketch map that identifies the location with the surroundings
-  Photographs of your weather station
-  Met service data or newspaper weather report or internet reports

C. Present data

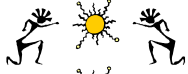
Use the results from your data collection to complete the following tasks:



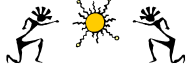
Climate graph



Wind rose



Photographs



Map/Sketch map to show the location where your data was collected

Remember to use a variety of visual representations to show patterns, change, and variations. Use appropriate geographic conventions when you present your data.

Weather Observation Sheet (Sheet 1)

Group Members: _____

Collect and record your data for each day of your observations on the following sheets.

DAY 1	Time	Rainfall (mm)	Temperature (°C)	Wind direction	Wind velocity	Cloud cover	Cloud type
Our group's data							
Met Service data (or other)							

DAY 2	Time	Rainfall (mm)	Temperature (°C)	Wind direction	Wind velocity	Cloud cover	Cloud type
Our group's data							
Met Service data (or other)							

DAY 3	Time	Rainfall (mm)	Temperature (°C)	Wind direction	Wind velocity	Cloud cover	Cloud type
Our group's data							
Met Service data (or other)							

Weather Observation Sheet (Sheet 2)

Group Members: _____

DAY 4	Time	Rainfall (mm)	Temperature (°C)	Wind direction	Wind velocity	Cloud cover	Cloud type
Our group's data							
Met Service data (or other)							

DAY 5	Time	Rainfall (mm)	Temperature (°C)	Wind direction	Wind velocity	Cloud cover	Cloud type
Our group's data							
Met Service data (or other)							

DAY 6	Time	Rainfall (mm)	Temperature (°C)	Wind direction	Wind velocity	Cloud cover	Cloud type
Our group's data							
Met Service data (or other)							

Weather Observation Sheet (Sheet 3)

Group Members: _____

DAY 7	Time	Rainfall (mm)	Temperature (°C)	Wind direction	Wind velocity	Cloud cover	Cloud type
Our group's data							
Met Service data (or other)							

DAY 8	Time	Rainfall (mm)	Temperature (°C)	Wind direction	Wind velocity	Cloud cover	Cloud type
Our group's data							
Met Service data (or other)							

DAY 9	Time	Rainfall (mm)	Temperature (°C)	Wind direction	Wind velocity	Cloud cover	Cloud type
Our group's data							
Met Service data (or other)							

Weather Observation Sheet (Sheet 4)

Group Members: _____

DAY 10	Time	Rainfall (mm)	Temperature (°C)	Wind direction	Wind velocity	Cloud cover	Cloud type
Our group's data							
Met Service data (or other)							

DAY 11	Time	Rainfall (mm)	Temperature (°C)	Wind direction	Wind velocity	Cloud cover	Cloud type
Our group's data							
Met Service data (or other)							

DAY 12	Time	Rainfall (mm)	Temperature (°C)	Wind direction	Wind velocity	Cloud cover	Cloud type
Our group's data							
Met Service data (or other)							

Weather Observation Sheet (Sheet 5)

Group Members: _____

DAY 13	Time	Rainfall (mm)	Temperature (°C)	Wind direction	Wind velocity	Cloud cover	Cloud type
Our group's data							
Met Service data (or other)							

DAY 14	Time	Rainfall (mm)	Temperature (°C)	Wind direction	Wind velocity	Cloud cover	Cloud type
Our group's data							
Met Service data (or other)							



D. Evaluate the research process

Keep a reflective record as you do your research. Complete an entry for each day. You can use the template attached, or create your own journal, diary, blog or notebook...

In each entry, reflect on:



- The things that are working well (strengths). This relates to the collecting, recording and presenting of data



- The things that are not working well (weaknesses). This relates to the collecting, recording and presenting of data



- The factors that have affected your data collection (for example, time of day, weather conditions, measurement technique, collection site/location)



- How you have presented your data



- What you can do to improve your research

In your final entry and using the attached template, reflect on the **validity of your research findings** and how you might improve your research process in the future. Use specific evidence from the data you have collected and presented.

Your teacher will give you time to complete these entries. You will also need to work on your reflective record at home, or in your own time.



Weather Observation Reflective Record Sheet (Sheet 1)

DAY 1

What went well

What did not go well

What factors might have affected data today

DAY 2

What went well

What did not go well

What factors might have affected data today

DAY 3

What went well

What did not go well

What factors might have affected data today

Weather Observation Reflective Record Sheet (Sheet 2)

DAY 4

What went well

What did not go well

What factors might have affected data today

DAY 5

What went well

What did not go well

What factors might have affected data today

DAY 6

What went well

What did not go well

What factors might have affected data today

Weather Observation Reflective Record Sheet (Sheet 3)

DAY 7

What went well

What did not go well

What factors might have affected data today

DAY 8

What went well

What did not go well

What factors might have affected data today

DAY 9

What went well

What did not go well

What factors might have affected data today

Weather Observation Reflective Record Sheet (Sheet 4)

DAY 10

What went well

What did not go well

What factors might have affected data today

DAY 11

What went well

What did not go well

What factors might have affected data today

DAY 12

What went well

What did not go well

What factors might have affected data today

Weather Observation Reflective Record Sheet (Sheet 5)

DAY 13

What went well

What did not go well

What factors might have affected data today

DAY 14

What went well

What did not go well

What factors might have affected data today



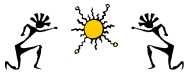
Evaluation of the Weather Research Process and the Validity of the Results

Final reflected summary of what went well (strengths):

Final reflective summary of what did not go well (weaknesses):

Summary of some factors which affected data collection:

Task 2: Relate your findings to a geographic concept and draw conclusions



Using the data you have collected and presented, **fully describe** the findings from your research. Incorporate the relevance of **one geographic concept** such as location, change, patterns or regions (there may be others). Consider all your results and use specific evidence to support your answer.

Location: A place or position where something is located or could be located. Features are arranged on the Earth's surface.

Environments: May be natural and/or cultural. They have particular characteristics and features which can be the result of natural and/or cultural processes. The particular characteristics of an environment may be similar to and/or different from another.

Change: Involves any alteration to the natural or cultural environment. Change is a normal process in both natural and cultural environments. It occurs at varying rates, at different times and in different places. Some changes are predictable, recurrent or cyclic, while others are unpredictable or erratic. Change can bring about further change.

Patterns: These may be spatial. They can be the arrangement of features on the earth's surface; or temporal. Patterns may differ over time in recognisable ways.



Using your data that you have collected and presented, **describe in detail** a conclusion based on the aim of your research. Include specific evidence from your research data to support your answer.



Name: _____

Weather with You

AS91011 (Version 2)
Conduct geographic research, with direction

Task	Comment	Not Achieved	Achievement	Merit	Excellence
1					
2					

	Not Achieved	Achievement	Merit	Excellence
Final result				

Overall Judgement Summary Statement:

Final grades will be decided using professional judgement based on a holistic examination of the evidence provided against the criteria in the Achievement Standard.

Assessment Schedule: 'Weather with You'
AS91011 Version 2: Conduct geographic research, with direction

Evidence	Judgement Statements		
	Achievement	Merit	Excellence
<p>Task One:</p> <p>Directed geographic research has been conducted by:</p> <ul style="list-style-type: none"> • Identifying the aim of the research • collecting and recording data • Presenting data using appropriate conventions • Identifying the strength(s) and/or weakness(es) • Evaluating the research <p>Specific evidence from the research is required.</p>	<p>Directed geographic research has been conducted. This includes:</p> <ul style="list-style-type: none"> • Identify aim of the research • Acquired relevant data • Collected and recorded data appropriately using a combination of mapping, photographs, rainfall, temperature, wind direction, wind velocity, and observations. • Presented relevant data appropriately using some geographic conventions. A combination is used of a climate graph, wind rose, photographs and mapping. • Identified a strength and/or weakness during the research process and commented on the validity of the conclusions. 	<p>Directed geographic research has been conducted accurately. This includes:</p> <ul style="list-style-type: none"> • Identify aim of the research • Acquired relevant data • Collected and recorded data appropriately using a combination of mapping, photographs, rainfall, temperature, wind direction, wind velocity, and observations. • Presented relevant data appropriately using most geographic conventions. A combination is used of a climate graph, wind rose, photographs and mapping. • Identified strengths and/or weaknesses during the research process and discussed the validity of the conclusions • Provide a detailed evaluation using a reflective record. 	<p>Directed geographic research has been conducted comprehensively. This includes:</p> <ul style="list-style-type: none"> • Identify aim of the research • Acquired relevant data • Collected and recorded data appropriately using a combination of mapping, photographs, rainfall, temperature, wind direction, wind velocity, and observations. • Presented relevant high-quality data appropriately using geographic conventions. A combination is used of a climate graph, wind rose, photographs and mapping. • Identified strengths and/or weaknesses during the research process and discussed the validity of the conclusions • Provide a comprehensive evaluation using a reflective record. Shows insight into the research methodology.

Evidence	Judgement Statements		
	Achievement	Merit	Excellence
	<p>Example of reflective record:</p> <p>I used a school digital weather station that made my results more accurate. However, I didn't take the measurements at the same time each day so my measurements were quite different some days when compared to the met service data.</p>	<p>Example of reflective record:</p> <p>I used a school digital weather station that made my results more accurate. Collecting the data every day for 10 school days meant that I got consistent data. However, I didn't take the measurements at the same time each day so my measurements were quite different some days when compared to the met service data. It would have been better to collect the data at 3pm each day as this is what the met service does.</p>	<p>Example of reflective record:</p> <p>I used a school digital weather station that made my results more accurate. Collecting the data every day for 10 school days meant that I got consistent data and was able to note any variations in weather observations. However, I didn't take the measurements at the same time each day such as on Mondays it was collected at 9am and Wednesday at 2.30pm. This made my measurements quite different some days when compared to the met service data – sometimes this was a 2°C difference. It would have been better to collect the data at 3pm each day as this is the time the met service data is collected so closer comparisons could have been made.</p>

Evidence	Judgement Statements		
	Achievement	Merit	Excellence
<p>Task Two:</p> <p>The research findings have been described and a geographic concept has been incorporated.</p> <p>A conclusion is reached and related to the aim of the research.</p>	<p>Describes the research findings and incorporates one geographic concept.</p> <p>Relevant connections have been identified with one geographic concept.</p> <p>AND</p> <p>A valid conclusion is reached and relates to the aim of the research.</p> <p>Example:</p> <p>When comparing the met service data with my own data, the temperatures over 10 days were different on most days. On the Monday 9 May I had recorded a temperature of 14°C and the met service recorded the temperature as 12°C. This may have been because I recorded the temperature at a different time of the day compared to the met service. This relates to the geographic concept of change because the data shows change over time – recording the data at different times of the day.</p>	<p>Describes, in detail, the research findings and incorporates the relevance of one geographic concept.</p> <p>Relevant connections have been identified with one geographic concept, in detail.</p> <p>AND</p> <p>A valid conclusion is reached and relates to the aim of the research, in detail.</p> <p>Example:</p> <p>When comparing the met service data with my own data, the temperatures over 10 days were different on 8/10 days. On the Monday 9 May I had recorded a temperature of 14°C and the met service recorded the temperature as 12°C. This may have been because I recorded the temperature at a different time of the day compared to the met service. The variation in temperatures was between 2 and 4°C. The location of where I had my measuring instruments was sometimes in the shade, sometimes in the sun so there was variation. This relates to the geographic concept of change because the data shows change over time – recording the data at different times of the day and sometimes in the shade, sometimes in</p>	<p>Fully describes the research findings and incorporates the relevance of one geographic concept.</p> <p>Relevant connections have been identified with one geographic concept and used geographic terms, showing insight about the research.</p> <p>Example:</p> <p>When comparing the met service data with my own data, the temperatures over 10 days were different on 8/10 days. On the Monday 9 May I had recorded a temperature of 14°C and the met service recorded the temperature as 12°C. This may have been because I recorded the temperature at a different time of the day compared to the met service. Over the 10 days I had 7 different times of recorded data. The variation in temperatures was between 2 and 4°C. The location of where I had my measuring instruments was sometimes in the shade, and sometimes in the sun so there was variation. A contribution to the variation of temperatures could have been the wind velocity. On Thurs 12 May I recorded the</p>

Evidence	Judgement Statements		
	Achievement	Merit	Excellence
		<p>the sun. This all depended on what time of the day I recorded the data. So temperatures can change depending on where I had the measuring instruments located and the time of day I collected the data.</p>	<p>temperature as 13°C. The met service had recorded it as 14°C. My wind velocity was 7 (Beaufort scale) which may have been different to where the met service data was collected. This relates to the geographic concept of change over time – recording the data at different times of the day and sometimes in the shade, sometimes in the sun. This all depended on what time of the day I recorded the data. It also could have depended on the strength of the wind velocity at my location compared to the met service location. So temperatures can change depending on where I had the measuring instruments located, the time of day I collected the data, and the wind velocity difference between my location and the met service location.</p>

Overall Judgement Summary Statement:

Final grades will be decided using professional judgement based on a holistic examination of the evidence provided against the criteria in the Achievement Standard 91011.