



National Certificate of Educational Achievement
TAUMATA MĀTAURANGA Ā-MOTU KUA TAEA

Exemplar for Internal Achievement Standard Geography Level 2

This exemplar supports assessment against:

Achievement Standard 91247

Apply spatial analysis, with guidance, to solve a geographic problem

An annotated exemplar is an extract of student evidence, with a commentary, to explain key aspects of the standard. It assists teachers to make assessment judgements at the grade boundaries.

New Zealand Qualifications Authority

To support internal assessment

	Grade Boundary: Low Excellence
1.	<p>For Excellence, the student needs to comprehensively apply spatial analysis, with guidance, to solve a geographic problem.</p> <p>This involves fully explaining a valid solution, based on the manipulations, that is supported by detailed evidence.</p> <p>This student has investigated the geographic problem of finding the best possible site for a new cell phone tower to service the Queenstown area.</p> <p>The student has fully explained a valid solution through a focus on specific requirements, e.g. the elevation and accessibility of the six possible sites. The evidence for each site is integrated into the response to clearly explain reasons for the decision to recommend Site 1 (3) (4).</p> <p>The overall structure of the response shows a comprehensive application of spatial analysis to solve the problem.</p> <p>The final report includes a summary of the findings (1), showing accurate interpretation of the presented evidence. The introduction shows the relevance and implications of the spatial data to the problem (2). The concluding statement reiterates the recommendation for Site 1 (5).</p> <p>Suggestion of an alternative solution demonstrates depth of understanding of the spatial data and context (6), and the final recommendation shows insight (7).</p> <p>For a more secure Excellence, the student could make more explicit reference to the evidence presented on the layout. This would more clearly demonstrate that the recommendation/solution is based on these manipulations. The detailed evidence currently presented is mostly based on the data from the summary table.</p>

	Grade Boundary: High Merit
2.	<p>For Merit, the student needs to effectively apply spatial analysis, with guidance, to solve a geographic problem.</p> <p>This involves:</p> <ul style="list-style-type: none"> • collecting sufficient spatial data to address the geographic problem • completing manipulations of the spatial data to produce an accurate layout related to the problem • explaining, in detail, an appropriate solution, based on manipulations, that is supported by evidence. <p>This student has investigated the geographic problem of finding the best possible site for a new cell phone tower to service the Queenstown area.</p> <p>The student has created an accurate layout (1) made up of a screen shot from Google Earth. This provides a clear indication of the terrain and location of possible sites. The map shows selected buffers for distances from Queenstown and nearby roads, and the graph shows the elevations of each site.</p> <p>The layout (1) overall shows that sufficient relevant spatial data has been collected, appropriate manipulations made, and correct geographic conventions applied.</p> <p>The student has explained in detail an appropriate solution (3), with some reference to the manipulations made. The solution is included, with an overview of the advantages and disadvantages of each of the possible sites (4). Detailed summaries are provided for each site (4) with some direct reference to the spatial data presented on the layout.</p> <p>To reach Excellence, the student could make more effective use of the spatial data to fully explain the solution. The student could further explain the advantages such as elevation providing line of sight, or explain the implications of weaknesses of the proposed site.</p>

	Grade Boundary: Low Merit
3.	<p>For Merit, the student needs to effectively apply spatial analysis, with guidance, to solve a geographic problem.</p> <p>This involves:</p> <ul style="list-style-type: none"> • collecting sufficient spatial data to address the geographic problem • completing manipulations of the spatial data to produce an accurate layout related to the problem • explaining, in detail, an appropriate solution, based on manipulations, that is supported by evidence. <p>This student has investigated the geographic problem of finding the best possible site for a new cell phone tower to service the Queenstown area.</p> <p>The student has collected data for six possible sites and completed manipulations to produce an accurate layout, one part of which is exemplified (1).</p> <p>An appropriate solution to the problem has clearly been based on the manipulations (2). Parts of the explanation are in detail when distance and elevations (3) are given.</p> <p>For a more secure Merit, the student could include more specific detailed evidence to support their solution. Detail could also be provided of the weaknesses of the alternative sites, which would emphasise the strengths of the recommended option.</p>

	Grade Boundary: High Achieved
4.	<p>For Achieved, the student needs to apply spatial analysis, with guidance, to solve a geographic problem.</p> <p>This involves:</p> <ul style="list-style-type: none"> • collecting spatial data relevant to the geographic problem • completing manipulations of the spatial data to produce a layout related to the problem • explaining an appropriate solution, based on the manipulations, that is supported by evidence. <p>This student has investigated the geographic problem of finding the best possible site for a new cell phone tower to service the Queenstown area.</p> <p>The student has collected spatial data relevant to the problem, such as site elevations, and distances from Queenstown. This data has been manipulated through the use of buffers and additional shading to produce a layout related to the problem (1).</p> <p>An appropriate solution has been explained through the comparison of the recommended site with three alternatives (3). Some reference to the layout (2) (4) has been made to show that the manipulations influenced the site selection.</p> <p>To reach Merit, the student could improve the accuracy of the layout (1) by applying geographic conventions to all images, e.g. scale and orientation. Both buffers need to be keyed and more clearly labelled to indicate what they are showing. The Google screen shot should be annotated, conventions applied and irrelevant information deleted.</p> <p>The slope for each site could also be determined and more closely examined, as this is a significant factor when selecting a site for the construction of a cell-phone tower. More effective use of the spatial data could add depth to the explanation. For example actual distances from Queenstown and accessibility of each site.</p>

	Grade Boundary: Low Achieved
5.	<p>For Achieved, the student needs to apply spatial analysis, with guidance, to solve a geographic problem.</p> <p>This involves:</p> <ul style="list-style-type: none"> • collecting spatial data relevant to the geographic problem • completing manipulations of the spatial data to produce a layout related to the problem • explaining an appropriate solution, based on the manipulations, that is supported by evidence. <p>This student has investigated the geographic problem of finding the best possible site for a new cell phone tower to service the Queenstown area.</p> <p>The student has collected relevant spatial data to solve the problem and created buffers to show distances to Queenstown (1). Each site has been commented on as to its suitability for solving the problem. The map has been used to support the explanation.</p> <p>Site 2 is identified as the best location and solution to the problem of cell phone reception. Some of the reasons given are based on the manipulations (2).</p> <p>For a more secure Achieved, the student could show application of basic geographic conventions to the presented data, such as scale and orientation. This spatial data should be presented as a layout.</p> <p>More spatial data, such as a 3D Google image could be included. This would provide the student with the opportunity to show relationships between the data. For example, elevations shaded on the map could be shown beside the 3D Google image to more clearly indicate the implications of terrain for cell phone reception.</p> <p>A more complete layout would enable the student to show clear links to the manipulations when explaining their solution. This would show more effective use of the spatial data.</p>

	Grade Boundary: High Not Achieved
6.	<p>For Achieved, the student needs to apply spatial analysis, with guidance, to solve a geographic problem.</p> <p>This involves:</p> <ul style="list-style-type: none"> • collecting spatial data relevant to the geographic problem • completing manipulations of the spatial data to produce a layout related to the problem • explaining an appropriate solution, based on the manipulations, that is supported by evidence. <p>This student has investigated the geographic problem of finding the best possible site for a new cell phone tower to service the Queenstown area.</p> <p>This student has collected some spatial data, and completed manipulations (1) such as creating buffers and adding shading to show general site elevations. An appropriate solution is explained with a valid reason (2).</p> <p>To reach Achieved, the student could improve the accuracy of the layout by applying basic geographic conventions such as title, scale etc. The naming conventions used on the layout need to be consistent with those used in the explanation of the solution. For example, Bowen Peak is identified by name in the recommendation, but shown on the map with a site number.</p> <p>The evidence provided is largely descriptive (3). This needs to be further developed to provide explanations supporting the recommendation.</p> <p>Overall, the evidence needs to more clearly reflect the quality expected of Level 7 of the New Zealand Curriculum.</p>