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| **The Curriculum** | **AS91433 (3.8) Apply spatial analysis, with consultation, to solve a geographic problem (Version 1) 3 credits** (as at Nov 2016) | **Conditions of Assessment** |
| **Level Eight Achievement Objectives**   * Understand how interacting processes shape natural and cultural   environments, occur at different rates and on different scales, and create  spatial variations.   * Understand how people’s diverse values and perceptions influence the environmental, social, and economic decisions and responses that they make.   **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Clarifications**  Updated September 2015. This document has been updated in its entirety to address new issues that have arisen from moderation. Consultation Consultation is needed to help students choose appropriate geospatial techniques that fit the nature and context of the problem. The teacher should provide guidance in the selection of a topic or theme. Collecting spatial data and producing a layout relevant to the problem Sufficient, quality spatial data is needed to enable effective, comprehensive analysis.  Manipulations should result in the student creating new data through the use of a range of data transformation techniques. It is expected that the spatial data is presented as a layout and not as separate graphics integrated in the report.  Geographic conventions and a range of geographic skills must be evident in the completed layout. A Merit level layout will be distinguished from an Achieved one through:   * technical accuracy of the images (application of geographic conventions) * range and selection of images displayed, and * logical display that demonstrates a sound understanding of the components of the geographic problem and its spatial dimension.  Explanation and evaluation of the manipulations Students need to demonstrate understanding of the spatial data in relation to the geographic problem. They will show understanding through explaining why selected manipulation techniques were used with specific spatial data, and how the manipulation will support problem solving.  The explanation should make clear links to the evidence of the manipulation on the layout. A comprehensive response needs to evaluate the manipulations made. Solution to the geographic problem Explanatory Note 2 states that the justification should demonstrate “why the chosen course of action is better than the alternatives.” However, whether the depth of the justification focuses on the solution proposed and its implications, or the alternative solutions, will be determined by the nature of the problem.  In all cases, students must demonstrate that their proposed solution to the geographic problem is based on the spatial analysis and manipulations undertaken.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **From Moderator Newsletters:** Similar contexts for more than one Geography standard Use of similar contexts can reinforce learning and result in greater depth of student understanding.  Opportunities for using similar contexts in more than one Geography internally assessed standard could occur with:  geographic issue and spatial analysis standards | | **Achievement** | **Achievement with Merit** | **Achievement with Excellence** | | --- | --- | --- | | * Apply spatial analysis, with consultation, to solve a geographic problem. | * Effectively apply spatial analysis, with consultation, to solve a geographic problem. | * Comprehensively apply spatial analysis, with consultation, to solve a geographic problem. |  Explanatory Notes  1. This achievement standard is derived from the second Level 8 Geography Achievement Objective, and the values and key competencies of *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, and is related to the material in the *Teaching and Learning Guide for Geography*, Ministry of Education, 2010 at <http://seniorsecondary.tki.org.nz>. 2. *Apply spatial analysis* involves:    * collecting and presenting spatial data relevant to the geographic problem    * completing manipulations of the spatial data to produce a layout related to the problem    * explaining the manipulations    * proposing a solution to the geographic problem.   *Effectively apply spatial analysis* involves:   * + 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 the manipulations in detail   + justifying the solution to the geographic problem. The justificationdemonstrates why the chosen course of action is better than the alternatives.   *Comprehensively apply spatial analysis* involves:   * + evaluating the manipulations   + fully justifying the solution to the geographic problem. The full justification is an in-depth response that uses clarity of argument and holistic understanding to demonstrate why one course of action is better than the alternatives.  1. *With consultation* means students will initiate discussion with their teacher relating to which geospatial technique to use. 2. *Geographic problem* refers to a problem relating to aspects of the natural and/or cultural environment(s), and which includes a spatial dimension. The problem may be hypothetical, but real spatial data is used. 3. Collecting spatial data refers to either collecting data with a spatial component in the field or accessing spatial data from other sources. 4. Layout refers to a map and may also include other visuals such as tables, graphs, and images. 5. Manipulations refer to data transformations such as:    * measuring    * layering    * changing the symbols used    * sorting and editing a table    * querying the map    * using coordinate systems    * displaying a graph based on the map. 6. Appropriate geospatial technology is used for the manipulation and presentation of data. | The teacher should provide guidance in the selection of the topic.  Students should demonstrate understanding and application of spatial analysis, with consultation, to solve a problem using real spatial data. Geospatial technologies are required to manipulate and present the spatial data in ways that support problem solving.  Some assessment resources may be provided by the teacher, with students providing additional resource material.  **Approaches to Assessment**  Suggested approaches to presenting assessment evidence include a layout with written, visual and/or oral evidence.  Where a group approach is used the teacher needs to ensure that there is evidence that each student has met all aspects of the standard.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **From Moderator Newsletters:** Resource material and higher level thinking With standards that require in-depth geographic understanding and/or analysis, students need the opportunity to develop a relatively complex understanding of the context. The Conditions of Assessment indicate when assessment resources may be provided by the teacher. It also states that students should be encouraged to provide additional resource material. The provision of resources could be guidance about where to access information and suggested web sites.  Students who rely solely on a provided resource booklet frequently struggle to develop in-depth or comprehensive responses. Further issues arise when the resource material only focuses on selected aspects of the standard or is out of date. The spatial dimension requirement of the Geography standards The Geography achievement standards all refer to the requirement of a ‘spatial dimension’. This is often further defined as local, national or global, depending on the focus of the standard. Understanding of the spatial dimension needs to be evident throughout the description, explanation or analysis of the issue, topic or problem. Students could be encouraged to use maps to help them demonstrate this understanding. |