

Activity Title:

3g - GIS data

Learning outcome(s):

- Solve a geographical problem using GIS.

Key words:

GIS; mapping; spatial analysis

Materials:

- GIS software
- Computers
- GIS data files

Approximate time required:

Various

Suggested prior learning:

- 1a Western Bay of Plenty sub-region – population change over time
2f Urban change and design – accommodating growing housing demand

Possible learning activities:

NOTE: A range of data files for the western Bay of Plenty sub-region are saved in a folder called GIS files for teachers. These files include data related to population, density, topographic and land data. Several ideas for exercises using this data to solve geographic problems relevant to the sub-region are listed below.

1. A tsunami is predicted to arrive in 10 hours time. The size of the tsunami is predicted to be 5m high. Work out which areas are at risk and require evacuation. Calculate how many people will be affected by the tsunami and require evacuation. Is your house above or under water?
2. A development company is keen to develop a new retail development centre, larger than Bayfair. Taking demographic and land information into consideration, where would you recommend this retail development centre be situated?
3. It's the year 2100. Greenhouse gas emissions have continued at the same rate they were in 2008. Sea level has risen by 1m. Locate Marine Parade and review the potential impact of this sea level rise. Change the scale to 1:2,000. Sea level has continued to rise and is now 3m higher than the current high tide line. Is your house above or below the waterline?

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GIS data.

Curriculum Level:

Level 6 / 7 / 8

Curriculum Links:

Social Science

Achievement objective

7.1 Understand how the processes that shape natural and cultural environments change over time, vary in scale and from place to place, and create spatial patterns.

Curriculum:

Key competencies:

Participating and contributing

Principles:

Learning to learn

Values:

Community and participation

Geographic Key

Concepts:

Patterns

Geographic skills:

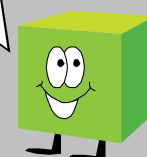
Visuals

Assessment opportunities:

Geography Achievement Standards: 2.2, 2.3, 3.3, 1.8, 2.8, 3.8

Sustainability tip!

Explore the potential of GIS to contribute to our ability to manage our environment sustainably.



4. A new hospital is required on the Mount / Pāpāmoa side of the harbour bridge. Taking into consideration demographic and land information – where would you recommend this hospital be situated?
5. The existing airport site is found to be unstable and unsuitable for further development and larger planes. A new airport site is sought. Taking into consideration demographic and land information – where would you recommend the new airport be located?

Additional resources / activities:

- For GIS software and an online ArcGIS Explorer at <http://www.esri.com/software/arcgis/explorer/index.html>
- For GIS teacher training see <http://www.waikato.ac.nz/wfass/subjects/geography/profdevelopment/map-gis.shtml>
- For co-ordinates and some additional Tauranga City map layers see <http://koordinates.com/layers/global/oceania/new-zealand/bay-of-plenty/tauranga-city/>
- Statistics New Zealand: Quick Stats About a Place www.stats.govt.nz/Census/2006CensusHomePage/QuickStats/AboutAPlace
- See also the Department of Statistics Table Builder Tool at http://www.stats.govt.nz/tools_and_services/tools/TableBuilder.aspx
- Quick and helpful Table Builder tutorials are available at http://www.stats.govt.nz/tools_and_services/tools/tablebuilder/help.aspx

Follow-on activities (found elsewhere in this resource):

- 6b Survey and compare transportation to two local retail development areas
- 6e The SmartGrowth bus trip
- 4h Zoning
- 2d How retail development areas reflect surrounding places
- 2e Urban pattern – factors affecting where the new people live
- 2i Managing urban sprawl - ‘intensification’ of urban settlements.