New Zealand Population Distribution

Requirements:

- Internet access
- Web browser (e.g. Internet Explorer, Mozilla Firefox, Google Chrome)**
- An Esri Global Account

**Please insure that pop ups are not blocked for the arcgis.com site.

Introduction:

This assessment activity requires you to comprehensively apply spatial analysis, with direction, to explore patterns and processes of New Zealand population.

You have been approached by a Geography Lecturer at the local University to help them conduct research into the patterns of New Zealand population. They are interested in why the population of New Zealand is concentrated in some areas and dispersed in other.

You will work individually to locate areas of settlement in New Zealand, analyse the data and produce a layout containing images/maps, and a written report.

You will be assessed on how well you are able to apply spatial analysis to solve this geographic problem.

You will share your map with your teacher and hand in your written report.

Your final work is due on:

What effects the distribution of population?

The distribution of population is generally uneven on a global, national and local scale.

Where the population is concentrated you are likely to see urban areas such as cities and towns

Population at a global scale is often affected by physical constraints and opportunities. Population at regional scales is more likely to be influenced by other factors.

Some of the factors that might influence population distribution are

- Anthropology / History
- Fertility
- Migration
- Health and Hygiene
- Culture
- Central and Local Government policies – Politics
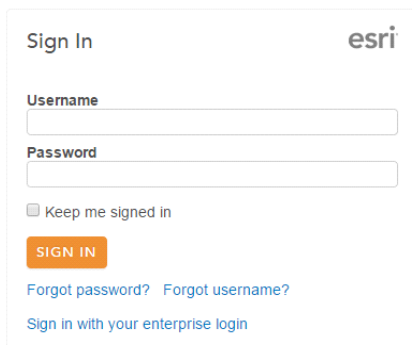- Environmental / Physical

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Instructions

The questions are to help you analyse your maps. For merit and excellence you should consider other questions and gain other information from your spatial analysis.

You may also consider other information you could add to your map and other spatial tools you could use to analyse the data in greater depth.
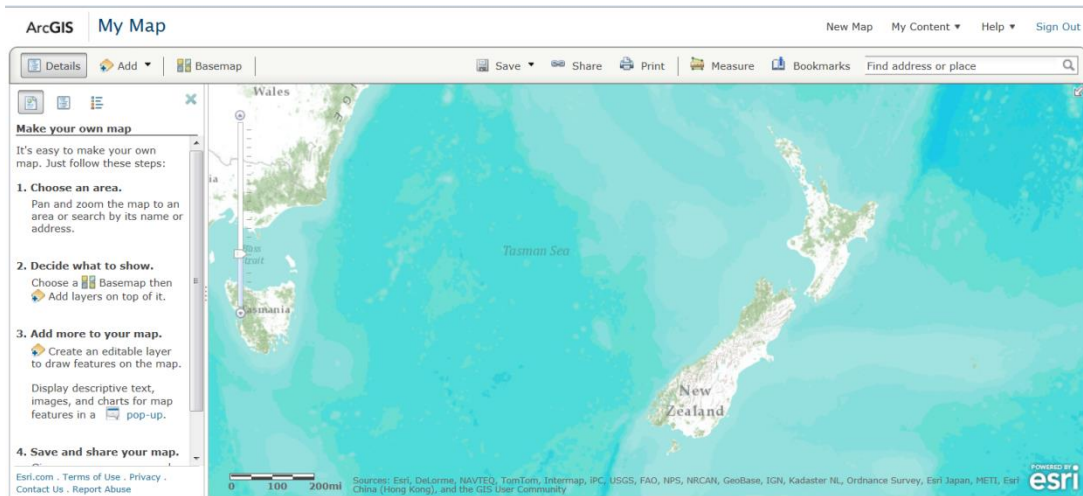
Setup ArcGIS Online

1. Open ArcGIS Online (http://www.arcgis.com/home/).
2. Click Sign In to ArcGIS Online.
    a. If necessary create an Esri Global Account, you will only need to do this once, don't forget your password.
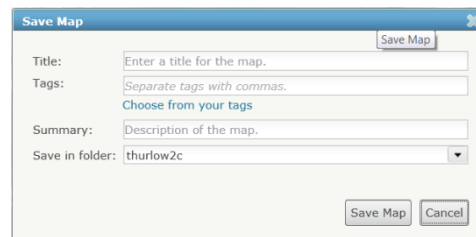

3. Click on map to open a new map.

4. Change the Basemap to *World Canvas Light*.

Saving your map.

5. Click the Save button.
6. Fill in the Save Map dialog that appears with the appropriate information. You should prefix your title with your name; tags are words that are used to search for a WebMap.

7. Click Save Map.

Click Save to save your map updates before you sign out of ArcGIS Online.

Collecting Information

Task A: Locate Settlement Information

You will be adding settlement information (cities and towns) on a map of New Zealand. Your teacher has already captured this information in a spatial format.

1. Ask you teacher where they have stored the settlement information in spatial format for this exercise.
    - Ask specifically for the network location and the zip file name
2. Locate the places zip file on your school network drive.
3. Copy and paste the places zip file to your student folder.

Q1   What spatial format has the places information be captured in? (you can chose more than one answer)
    a. Shapefile
    b. Zip file
    c. Point
    d. Line
    e. Polygon

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Manipulating the data

Hint: *You should take screen captures to include in your written report as you complete each task*

Task A: Create points in your map to represent New Zealand settlements

1. Reopen your map if you have closed ArcGIS Online
2. Add a layer from file to the map, this layer will be the zip file you transferred to your student folder in Task A of the collecting information section.

    a. Click add
    b. Click add layer from file
    c. Browse to your workspace where you saved the file you down transferred to your student folder
    d. Choose to keep the original features
    e. Click import layer

    If you zip file contains accurate information the location of your map should change to the area of New Zealand if this area is not already displayed.

3. Add a layer from file to the map, this layer will be one of the zip files you transferred to your student folder in Task A of the collecting information section.

    a. The layer will be added with a symbol per type of settlement
    b. If you so desire, you can change the symbols of each type of settlement under the *Types (unique symbols) > Options*
    c. Click Done

Q2   Can you describe any features about the pattern of settlement in New Zealand?

Q3   Would using a different type of symbol for places to the places layer clarify the pattern of settlement in New Zealand?

To learn how to create a heat map visit http://arcg.is/1AfLhkh

Take at least one screen capture that shows the pattern of settlement in New Zealand.

Task B: Explain the locations

Ask your teacher for the network data location for the railways and roads spatial information and copy and paste these items into your student folder. Add this information to your map and symbolise appropriately. Do these layers help you to explain the pattern you see?

Make notes about the features of these locations that help explain why settlements are located where they are.

Take at least one screen capture that show factors that help explain the pattern of settlement in New Zealand.

Q4   Where are settlements located?

Q5   How close is each settlement to a road or highway?

Q6   What other factors might explain the settlement pattern you are observing?

Task C: Create a pop-up for the New Zealand places. (A Pop-up is an information box that pops up when you click on a location)

1. In the contents pane click on the three dots *(…)* beneath the Places layer name.
2. In the menu that appears click Configure Pop-up
3. Type Place in the Pop-up Title
4. Configure Attributes remove the tick besides the items that you do not want to see in your pop up for example FID, AREA_CODE, LATITTUDE, LONGITUDE fields
5. Click OK
6. Save the Pop-up.
7. Click a place in the map and have a look at the pop up. If there is more than one place close to the point where you clicked have a look at all the information by using the arrow button(s) at the top of the pop-up

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8. If you decide you don't like the fact that the field names are in capitals or don't make sense you can continue configuring your pop-ups using field alias's.

(1 of 4) ▶ □ ✕	
Place	
NAME	Lower Hutt
Z001	95,022.00
Z996	95,379.00
Z991	94,383.00
REGION	Wellington
DISTRICT	Lower Hutt
TYPE	Main Urban Area
Zoom to	

(1 of 4) ▶ □ ✕	
Place	
Name	Lower Hutt
Population 2001	95,022.00
Population 1996	95,379.00
Population 1991	94,383.00
Region	Wellington
District	Lower Hutt
Type	Main Urban Area
Zoom to	

Don't forget to save your map regularly.

Thinking further: What do the types of place mean?

Consider visiting the following web site www.stats.govt.nz and searching for Geographic definitions

Q7   How are urban areas defined by Statistics New Zealand?

Q8   How has New Zealand been divided up into administration areas?

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Summarise the definitions for

- A regional council (region)

- A territorial authority (or district)

- A city

- A main urban area

Producing a Layout

Task A: Collate your screen shots into a layout and annotation where appropriate

Prepare an A3 document in a suitable computer application (for example, Microsoft Word, Pages, or InDesign) into which you will paste maps/images.

Remember to save this document in your workspace folder.

Add you screen captures to your layout that show the distribution of settlements in New Zealand and the factors that explain this distribution.

Add to your screen captures:

- annotations that clarification what the images / maps display
- the usual mapping conventions.

Organise your layout so it is effective and interesting to look at.

Fully explain a valid answer solution supported by detailed evidence.

Task A: Analyse your data to provide a solution to the geographic problem

This task requires you to provide a report to your local University Geography lecturer that analyses the patterns of New Zealand population.

Your written report needs to be valid, detailed, and based on information shown on your layout.

You need to:

- check that your descriptions of patterns in settlement are complete
- write paragraphs to explain why settlements are found where they are, and suggest reasons for any patterns shown.

Make sure that you:

- refer to the images/maps on your layout
- include specific details in your answer, such as geographic descriptions.

Submit your work by the due date.

Ensure that you:

1.   Share your map with your teacher.

- If you are ready to share your map for marking, click the share button and put a tick in the box beside the name of the group for this lesson.
- Click Close. Your map is now shared with your teacher for marking.
  Note: If you get stuck with sharing you map visit Sharing Items at http://help.arcgis.com/en/arcgisonline/help/index.html#/Sharing_items/010q00000010000000/ for help.

2.   Hand a written report to your teacher.

- Your written report must include a cover sheet with your name and assessment details on it

How will you know the level of your own work in relation to the requirements of the standard?

Achieved

You will *apply spatial analysis* which involves:

- Collecting spatial data relevant to the geographic question or problem
    - Places
- Completing simple manipulations of the spatial data
    - Adding points
    - Configuration of Pop ups
- Creating a layout based on the manipulations.
    - Contains one to three images/maps
    - At least one of the annotated image / map help to explain the locations of settlements
    - Images / maps are completed to a good standard
- Writing a report based on the manipulations and layout.
    - Patterns of settlements described
    - Valid explanations of patterns observed lacking detail

Merit

You will *effectively apply spatial analysis* which involves:

- Collecting sufficient spatial data to address the geographic question or problem
    - As above
- Completing simple manipulations of the spatial data
    - Pop up configuration is accurate and complete
- Creating a layout based on the manipulations.
    - Contains two or more images/maps
    - At least one of the annotated image / map helps to explain the pattern of settlement
    - Images / maps show information accurately and most conventions are appropriate
- Writing a report based on the manipulations and layout.
    - Pattern of settlements described
    - Images / maps in layout referred to
    - Valid explanations of patterns observed with some detail

Excellence

You will *comprehensively apply spatial analysis* which involves:

- Collecting sufficient spatial data to address the geographic question or problem
    - As above
- Completing simple manipulations of the spatial data
    - As above
- Creating a layout based on the manipulations.
    - As above
- Writing a report based on the manipulations and layout.
    - a detailed and comprehensive explanation of the pattern of Settlement in New Zealand is presented
    - Images / maps in layout referred to, to provide locational detail
    - Valid explanations of patterns observed with detail
    - Specific geographic definitions are referred to.

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