

# Changing Places: Lessons using data skills

## Lesson 2 Different places: Is there evidence of inequality between neighbours in Greenwich?

### Lesson objective

To use ESRI's ArcGIS platform to explore the range of deprivation in Royal Greenwich and explore Greenwich on a virtual tour to find out whether there is evidence of deprivation in an environmental quality survey.

### Setting the scene

Kate Pickett and Richard Wilkinson published their 2010 book *The Spirit Level: Why Equality is Better for Everyone* to highlight how outcomes for eleven different health and social problems (including crime, educational mobility and child well-being) are significantly worse in more unequal rich countries than more equal ones. To find out more about their argument that more equal societies are better for everyone go to the [Equality Trust website](#) and to explore different ways of examining inequality see the following [Data Skills in Geography overview paper by Dr Rich Harris](#).

The Department for Communities and Local Government (DCLG) publishes Indices of Deprivation every three years to show comparative levels of deprivation across England. The English Index of Multiple Deprivation (IMD) 2015 ranks 32,844 small areas or neighbourhoods (called Lower-layer Super Output Areas) according to the following seven domains of deprivation:

- Income Deprivation
- Employment Deprivation
- Education, Skills and Training
- Health Deprivation and Disability
- Crime
- Barriers to Housing & Services
- Living Environment Deprivation

Environmental Systems Research Institute (ESRI) is a company which supplies the geographic information system (GIS) software called ArcGIS. Their GIS software is very intuitive to use and can be used to explore data about a place virtually. Many of the base maps and data layers can be explored even if your school does not have a subscription for the software. The IMD data for 2015 has been created as a layer that can be added to ESRI's ArcGIS map and explored.

### The data

Greenwich is one of the London's Boroughs that has become less deprived, with a 16-point percentage decrease between 2010 and 2015 (see ONS report [here](#)). Greenwich was the 29<sup>th</sup> most deprived local authority districts according to the Index of Multiple Deprivation in 2010 and became less deprived in 2015.

This lesson enables students to explore inequality data across Greenwich to become familiar with ArcGIS, then carry out an Environmental Quality Survey and import this new data into ArcGIS.

## Tasks

### 1. Exploring ArcGIS: Is there evidence of inequality in Royal Greenwich?

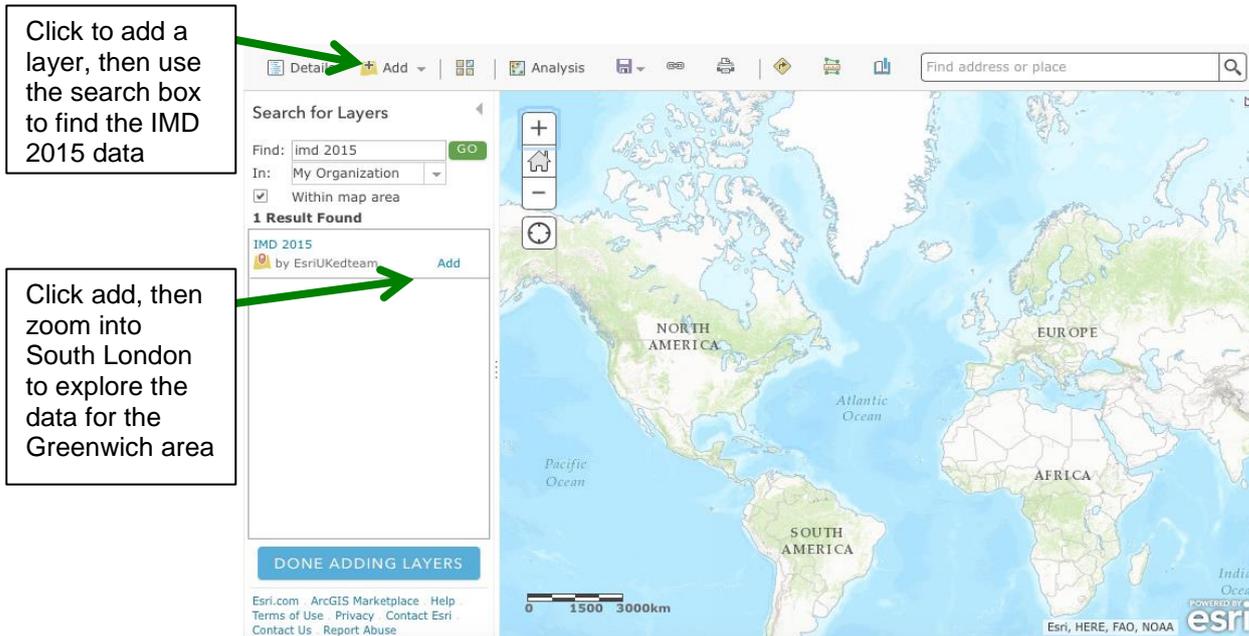


Figure 1 One of the base maps used by ESRI's ArcGIS platform

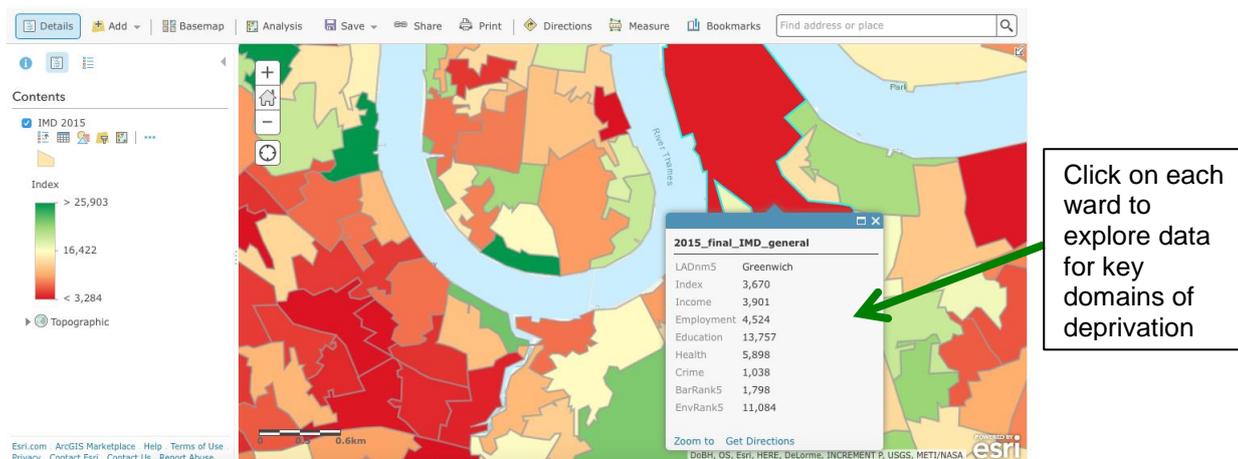
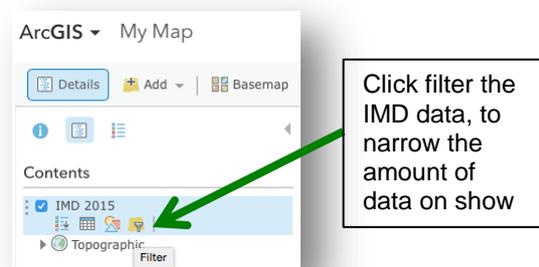


Figure 2 The 2015 English Index for Multiple Deprivation (IMD) data for Greenwich

- Visit ArcGIS at <http://www.arcgis.com>
- Click on Map
- Click to add a layer, then use the search box to find the IMD 2015 data
- Click add, then zoom into South London to explore the data for the Greenwich area
- Click on the filter tool
- You can then select to view only the most deprived areas according to deprivation ranks
- A rank of 1 = most deprived, 32844 = least deprived. An indication of an unequal society is where deprived areas can be seen to border less deprived neighbours.



Do some areas show deprivation in some domains, but not others? Compare ranks for income deprivation with employment, education, health and crime data. Where are the most and least deprived areas in Greenwich? Use **Google Street view** to explore Greenwich start at SE10 8NN.

**2. Can we observe evidence of IMD or Living Environment Deprivation (LED) in London with the use of an Environmental Quality Survey (EQS)?**

a. Explore the nine neighbourhoods in Greenwich West (see below) using the ArcGIS map with the IMD 2015 layer added and a separate tab with Google Maps Street View open. Compare and contrast each site, jot down a description of each place.

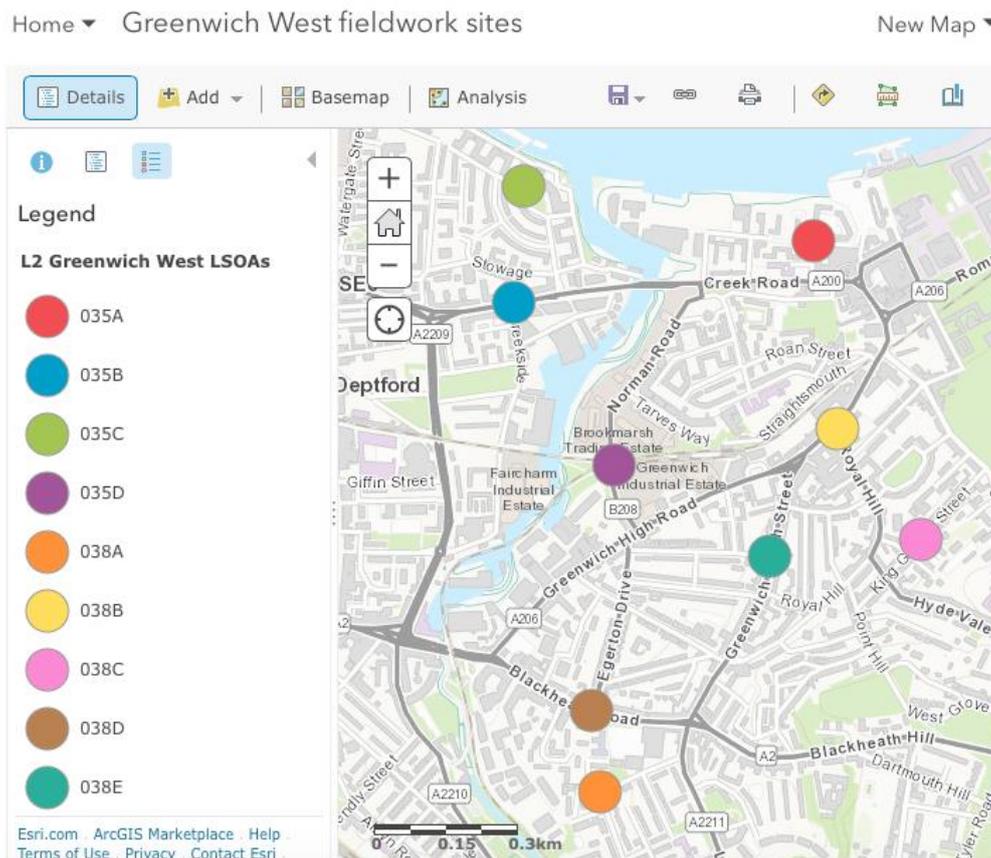
b. Carry out an EQS (see next page). Add the total scores to the L2 EQS.csv spreadsheet. Save the file, then drag and drop it onto the ArcGIS map to present the data.

c. Describe any pattern shown by the data. Does this fit with your descriptions made earlier?

d. Look at the IMD ranks and LED ranks for the nine neighbourhoods below. Is there a relationship between the datasets? You could plot LED against EQS data on a scattergraph to find out. Describe and give reasons for your findings. Apart from an EQS, what other fieldwork techniques would provide you with useful information?

Greenwich West LSOA	Street	IMD rank (32844 least deprived)	Living Environment Deprivation	EQS (34 best)	Latitude	Longitude
035A	Welland Street, SE10 9DT	7159	7136		51.482205	-0.011474
035B	Creek Road, SE8 3AX	11440	10748		51.481015	-0.020573
035C	Glaisher Street, SE8 3JW	22634	5496		51.483227	-0.020272
035D	Norman Road, SE10 9FX	10858	2920		51.477929	-0.017529
038A	John Penn Street, SE13 7QT	8030	11862		51.47169	-0.017933
038B	Royal Hill, SE10 8RD	16176	1835		51.47862	-0.010713
038C	King George St. SE10 8QB	22287	5543		51.476488	-0.008213
038D	Blackheath Road, SE10 8PE	16321	2611		51.473241	-0.018191
038E	Greenwich South St., SE10 8TY	12540	1556		51.476181	-0.012783

This map shows the location of the nine fieldwork sites within Greenwich West Ward, they are named by the neighbourhood or LSOA code and can be viewed online at <http://arcg.is/2e385PY>



**An Environmental Quality Survey (Royal Geographical Society with IBG)**

Qualities being assessed		High + 2	Generally fine +1	Av. 0	Generally poor -1	Very poor -2	
Buildings	1. Well designed / pleasing to the eye						Poorly designed / ugly
	2. In good condition						In poor condition
	3. Evidence of maintenance / improvement						Poorly maintained / no improvement
	4. Outside – land, gardens or open space in good condition						Outside – no gardens, or land / open space in poor condition
	5. No vandalism evident						Extensive vandalism
Traffic	6. Roads have no traffic congestion						Streets badly congested
	7. Parking is easy; garages or spaces provided						Parking is very difficult; no parking provision
	8. No traffic noise						High noise volume from traffic
	9. Safe for people						Dangerous for people
	10. No smell from traffic or other pollution						Obvious smell from traffic or other pollution
Open space / gardens	11. Large gardens or open space outside house						No garden / open space – door opens to street
	12. Trees and shrubs visible from close by						No greenery visible from house
	13. Public parks within easy distance						No public parks easily accessible
General quality	14. No litter						Much litter
	15. Roads well maintained with paving etc. well kept						Roads poorly maintained with paving etc. broken
	16. Close to public transport						Long way from public transport
	17. Close to shops, amenities or services						Remote from shops, amenities / services

**Overall score (max. 34):**

**Plenary**

Form an opinion line across the classroom. Ask students whether there is evidence of inequality between neighbours in Greenwich using data collected during the enquiry. Ask individuals to justify their place on the line.

**Take it further**

Conduct an Environmental Quality Survey for your local area to compare with Greenwich. Record the data by creating a Microsoft Excel spreadsheet in a similar format to the one shown above and save as a .csv document. If you are wondering how to find latitude and longitude ArcGIS map has a location tool for this, click on Measure on the toolbar.