

Mapping the 2011 UK Census

An educational resource by:

Royal Geographical Society
with IBG

Using this worksheet, you will learn how to create an interactive map using census data and freely available online tools. You will need:

- A computer with Internet access
- A Google account
- The provided spreadsheet saved to your computer
- Ideally, the Google Chrome Internet browser

A. Uploading data

1. Visit 'Google Fusion Tables' online at: <http://tables.googlelabs.com>
2. Look at the '*Fusion Tables (experimental)*' section. Click '*Create a new table*'. This will take you to the online application that allows you create interactive maps using spreadsheets of data.
3. If you are not already signed in, you will be redirected to a Google log-in page. Enter your Google *email address* and *password*.
4. Now that you have logged into the online application, you will need to find a dataset or 'table' to work with. Click '*Choose File*' to select a spreadsheet from your computer.
5. *Select and open the Excel file* that you downloaded and saved to your computer. It should be called '*2011 UK Census Population Density.xls*'.
6. If you have successfully chosen your file, its filename will appear next to the 'Choose File' button. Click the '*Next*' button to upload it.
7. Once your spreadsheet has uploaded, you need to tell the online application which row your column names are in. It automatically assumes that the column names are in row 1, however this row contains our spreadsheet title. Select column names are in *row '2' from the dropdown menu*. Then click '*Next*'.
8. Because other people, might use this data it is important to give your table a meaningful '*name*' and '*description*', as well as being sure to '*attribute data to*' its original source (Office for National Statistics). '*Allow export*' lets people download the spreadsheet for their own use. Click '*Next*'.

Fusion Tables (experimental)
Bust your data out of its silo! Combine it with web. Collaborate, visualize and share. All your organization is automatically saved and stored.

[Create a new table](#)
Get the Chrome Web App

Sign in Google
Email:
Password:
[Sign in](#) ☒ Stay signed in
[Can't access your account?](#)

Choose File 2011 UK Cen...ensity.xls
You can upload spreadsheets, delimited text files (.csv, .tsv, or .txt), and Keyhole Markup Language files (.kml) [Learn more](#)

Or search public data tables
 [Search](#)

New to Fusion Tables? [Cancel](#) [Back](#) [Next](#)

HELP
If your spreadsheet is failing to upload, give it a couple of minutes. If it fails to upload given reasonable time, this may be due to difficulties using your Internet browser. By using Google Chrome you can solve this issue.

Column names are in row: **2**
None
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58	59	60	61	62
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61	62	63	64	65
62	63	64	65	66
63	64	65	66	67
64	65	66	67	68
65	66	67	68	69
66	67	68	69	70
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81	82	83	84	85
82	83	84	85	86
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86	87	88	89	90
87	88	89	90	91
88	89	90	91	92
89	90	91	92	93
90	91	92	93	94
91	92	93	94	95
92	93	94	95	96
93	94	95	96	97
94	95	96	97	98
95	96	97	98	99
96	97	98	99	100

Rows before the header row will be ignored.

Table name:
 Allow export: ☒
 Attribute data to:
 Attribution page link:
 Description:
 For example, what would you like to remember about this table in a year?

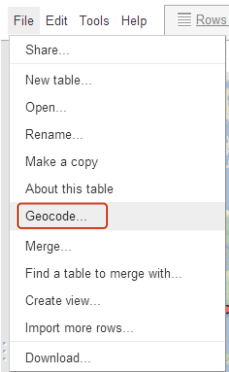
B. Mapping data

9. Now that you have successfully uploaded and formatted the spreadsheet, it is time to plot the data onto a map. You should notice that the local authority names have automatically been highlighted in yellow. This indicates that the online application recognises them as places. Click on the *'Map of Local...'* tab to see these places plotted on to a map.

10. The application will automatically begin to 'Geocode' place names and corresponding data (in this case, population density) onto a map. This may take some time, so be patient.

HELP

If the map doesn't automatically 'Geocode', or if you stop the process and close the dialogue box before Geocoding is complete, you can start the process again by going to *'File'* and selecting *'Geocode...'* from the dropdown menu. When the 'Geocode' dialogue box appears, press *'Start'*.



UK Population Density 2011

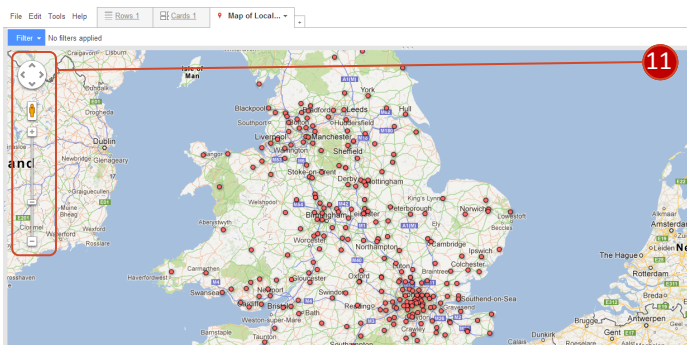
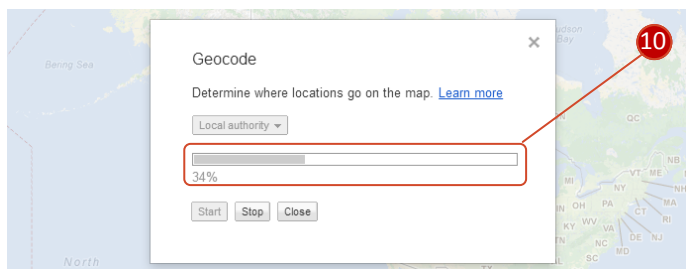
Population density by UK Local Authority according to the 2011 UK Census
Office for National Statistics - Edited at 12:34 PM

File Edit Tools Help Rows 1 Cards 1 Map of Local... 9

Filter No filters applied

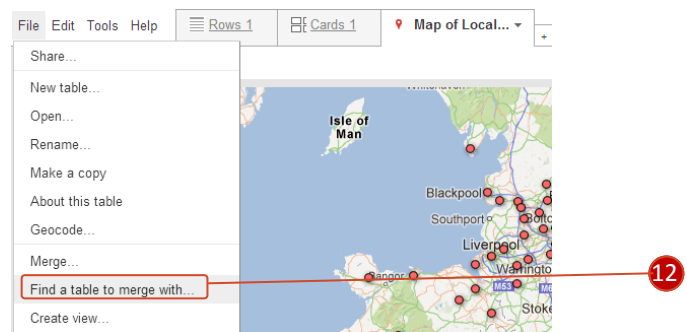
1-100 of 348

Local authority	Pop...	Old ONS co...	New...
Eden	25	E06000005	00EH
Powys	26	E06000047	00EJ
Ryedale	34	E06000001	00EB
Richmondshire	39	E06000002	00EC



11. You will be presented with a world map covered in red dots. Each of these dots is located at the centre of its corresponding local authority. You will notice that there are points located outside of the UK. These are places in English-speaking countries with similar names to those in the UK. This is a result of the automated geocoding process and will be rectified later on. Now *zoom in on England and Wales*.

12. The map currently shows each local authority as a single point, not as the area it covers. Therefore we must merge our existing data with a file containing the outlines of each local authority. Click *'File'* and select *'Find a table to merge with...'* from the dropdown menu.



13. Now we need an online table containing the boundary shapes for local authorities in England and Wales. Type *'UK mainland counties'* and click the search icon. Now select the file names *'UK mainland counties_3151384.csv'*. This contains the data we need. Click *'Next'*.

Suggest tables matching on

Local authority

UK mainland counties



☒ UK mainland counties_3151284.csv [view table](#)

80% of rows have a match.

☐ Public Sector Employment [view table](#)

96% of rows have a match.

☐ Social Housing Stock [view table](#)

92% of rows have a match.

14. In merging two pieces of data, we have to check that the rows in the different tables match up. *Check the information* in the left hand column (This table) is the same sort of data as that in the right hand column (UK mainland counties_3151...). The values shown are not identical, but they do all show the same type of data: local authority names. They match and the values in their rows will automatically be paired up. Click *'Next'*.

This table	UK mainland counties_3151...
Local authority ▼	district ▼
Eden	City of London
Powys	Barking and Dagenham
Ryedale	Barnet
Richmondshire	Bexley
Ceredigion	Brent
West Devon	Bromley
Craven	Camden
West Somerset	Croydon
Gwynedd	Ealing
Northumberland	Enfield

Matching values in these two columns will create the merged table. [Learn more](#)

15. We must now decide which data from each of the two datasets to keep or exclude. Because we are using the new area codes to identify each local authority, we will discard the columns containing the old area codes. *Deselect* these and click *'Merge'*. This will merge the two pieces of data into a single table. Click *'View table'*.

Cancel Previous **Next** 14

Select [all](#) [none](#)

- ☒ Local authority
- ☒ Population density, per square km
- ☐ Old ONS code
- ☒ New ONS code
- ☐ oldcode
- ☒ newcode
- ☒ county
- ☒ country
- ☒ geometry

16. You will be returned to spreadsheet view. Here, you can see that the a 'geometry' column has been added. Each row in this column contains a 'shape file' that will form the outline of each county when it is mapped. Click on *'Map of geometry'* to be returned to map view.

File Edit Tools Help Rows 1 Cards 1 Map of geometry 16

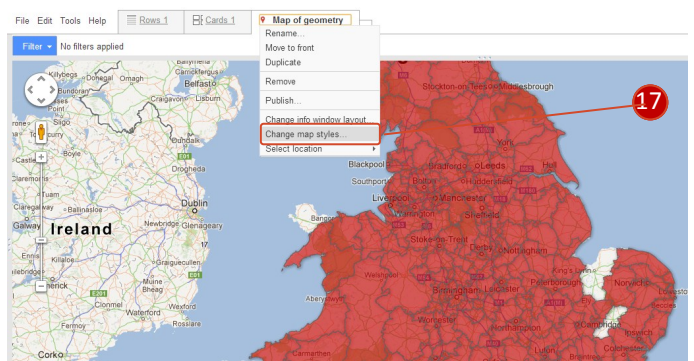
Filter ▼ No filters applied

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Local authority	Popula...	Ne...	newcode	county	country	geometry
Adur	1,464	11UC	E07000223	West Sussex	England	KML...
Allerdale	78	16UB	E07000026	Cumbria	England	KML...
Amber Valley	461	00KG	E07000032	Derbyshire	England	KML...
Anglesey	98	00BQ				KML...
Arun	677	42UC	E07000224	West Sussex	England	KML...
Ashfield	1,091	00BD	E07000170	Nottinghamsh	England	KML...
Ashford	203	31UJ	E07000105	Kent	England	KML...

C. Meaningful data

17. We now have a map showing the outlines of almost every local authority, which have been shaded in red – those not shaded in are missing data due to technical issues with the mapping application. However, this map doesn't clearly show differing population densities. Click *'Map of geometry'* and select *'Change map styles...'* from the drop down menu.



18. The map has automatically been set up to use a single, fixed colour: red. Select *'Fill colour'* from the left hand column of the dialogue box. Then select *'Gradient'* from the tab menu. Now select, *'show a gradient'* to use this setting. Next, select *'use this range'*, which is automatically generated according to the minimum and maximum population densities in England and Wales. Click *'Save'*.

Points

Marker icon

Polygons

Fill color

Border color

Border width

Lines

Line color

Line width

Polygon background colors

Fixed Column Buckets Gradient 18

Show a gradient

Column Population density, per square km

25 - 13873 use this range

From 0

+

-

+

-

Extra

Using the options in the 'Gradient' dialogue box, adjust the colour scheme and number of categories to most clearly represent differences in population density. Because population density is continuous data, it is better to use 'gradient' rather than 'buckets', which is more commonly used for a discontinuous scale.

19. You will be returned to map view, which has been rendered green with the darkness of shading depending of the population density of each local authority.

D. Completing the map

20. Zoom in on your local area and *click on your local authority*. An 'info window' will appear, giving exact information about your local area. However, this contains some irrelevant information for the reader of the map, e.g. ONS codes. To edit, these windows, click '*Map of Geometry*' and select '*Change info window layout...*' from the drop down list.

21. Using the automatic editor that appears, *deselect 'New ONS code', 'newcode', 'county' and 'country'*. This information is not needed by readers of the map and we can exclude it from our info windows. Click '*Save*'.

22. Having returned to map view, *click on your local authority again*. You will see that the info window now shows only the vital information that we interested in.

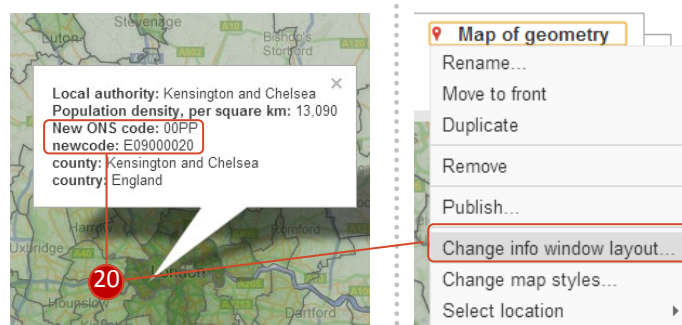
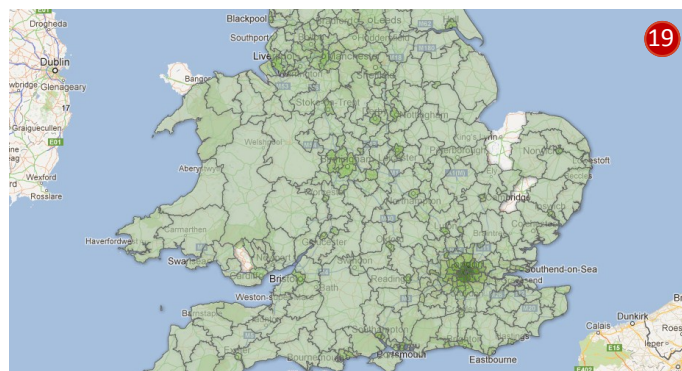
Extra

For an advanced edit of the info windows, click on the '*Map of geometry*' tab, select '*Change info window layout...*' from the drop down list. Then, selected the '*Custom*' tab. Edit the HTML code (a computer programming language used for the Internet), so that the only text in the box is:

{Local authority} has {Population density, per square km} people living per square kilometre

The correct brackets should be used and the text inside them must be exact. This codes for the information in their respective columns. Text outside of brackets can be changed.

Congratulations, you have completed the worksheet.



Change info window layout

