THE UNIVERSITY of EDINBURGH

Q-Step

A step-change in quantitative social science skills

Funded by the Nuffield Foundation, ESRC and HEFCE

ESRC FESTIVAL OF SOCIAL SCIENCE

Inequalities in Life Expectancy

Task 1: read

Welcome to the 'Inequalities in Life Expectancy' workshop. An electronic version of this worksheet is available at http://www.q-step.ed.ac.uk/information_for_schools/festival_of_social_science_2018_new! The following exercises are designed so that you can work through them independently, or in pairs, although there may also be some whole group discussion throughout the workshop. If you get stuck, have questions or need clarifications, please don't hesitate to approach one of the tutors. Similarly, if you do not finish these exercises today, we encourage you to continue with them in your own time.

Following the workshop, you might wish to return a report to the Q-Step team QStep@exseed.ed.ac.uk. We will give feedback on reports and the best will be awarded a prize! Additional information about this opportunity is given at the end of the worksheet.

By the end of this session you should:

- Understand what life expectancy is and its strengths and weaknesses;
- Be able to use an Excel 'lifetable' to calculate and display statistics on life expectancy;
- Be able to navigate 'DataShine Scotland' to produce summary statistical descriptions of the characteristics of populations in small areas;
- Understand what factors drive inequalities in life expectancy and that factors may depend on geographical scales;
- Know that interpretations of social statistics are often intertwined with the motives of the analyst.

Task 2: what is life expectancy? (about 10 minutes)

a) Log in to your computer and open the BBC's life expectancy calculator at https://www.bbc.co.uk/news/health-44107940 (you might need to use the password and a user name. This should have been given to you by the tutor).

b) Use this 'calculator' to find out what is your current life expectancy (you will need to enter your age, gender and country). Enter this in the top row of table 1 below.

c) Now explore how life expectancy changes according to whether someone is male or female, their age and the country they live in (select whichever countries you want!). Enter your results in the table below.

Table 1: Comparing your life expectancy with the life expectancy of others			
Age	**Sex**	**Country**	**Life expectancy**

d) Discuss your findings with the person next to you! What do you think is meant by life expectancy? What things appear to influence life expectancy and why? Jot down your thoughts below.

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Task 3: calculating life expectancy (about 20 minutes)

a) In this exercise you will examine 'life tables' (Males) for the United Kingdom and Afghanistan to compare life expectancy and other mortality statistics in these countries.

b) Go to http://www.goo.gl/qFFSAr (if this doesn't work, call the tutor or try: http://www.q-step.ed.ac.uk/information_for_schools/festival_of_social_science_2018_new! . Now, download the Excel spreadsheet 'Life_Tables_FoSS.xls'.

c) Go to the sheet 'UK and Afghanistan' (click the tab at the bottom of the Excel file). Here you will find 'life tables' for each country for 2009 as calculated by the World Health Organisation (WHO).

d) Take a minute to look at each column of the 'life table' and what it represents. Don't worry if it looks confusing, we will explain it later!

e) Using the 'life tables' and the graphs of 'life expectancy' and 'persons alive at age x', fill in table 2 below.

Table 2: Comparing life expectancy in the UK and Afghanistan		
Life table statistic	**United Kingdom**	**Afghanistan**
Life expectancy at age 0		
Life expectancy at age 1		
How many of the original 100,000 people have died in the first year of life? Hint; use column F		
By which age have half the original cohort of 100,000 people died? Hint; use the 'Probability of dying' graph		
What is the probability of a baby boy dying in the first year of life? Hint; use column D.		
What is the probability of a man dying at age 15? Hint; use column D.		

f) At which ages are the probabilities of death most similar in the UK and Afghanistan? And, at which ages do probabilities of death look most different? Why do you think this is?

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g) Why do you think life expectancy in Afghanistan at age 1-4 is greater than at birth?

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h) Optional question: The 2016 data has male life expectancy at birth in the UK at 79.7 and in Afghanistan at 61. Does this mean babies born in 2016 will (on average) live to these ages?

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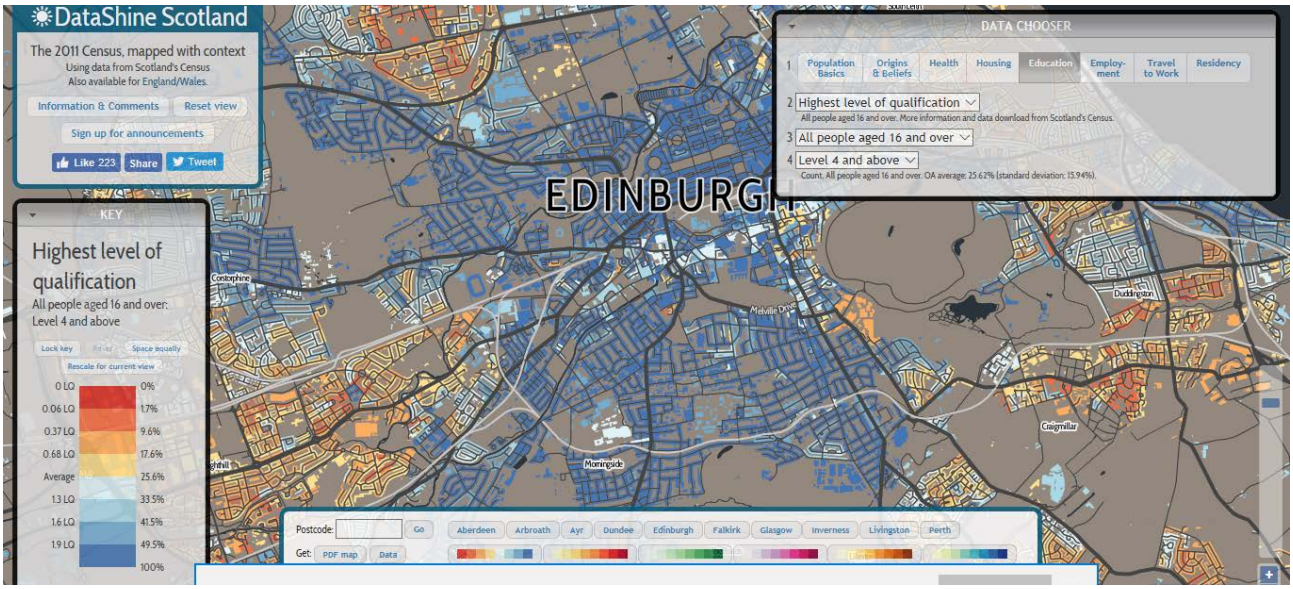
Task 4: developing an area profile (about 20 minutes)

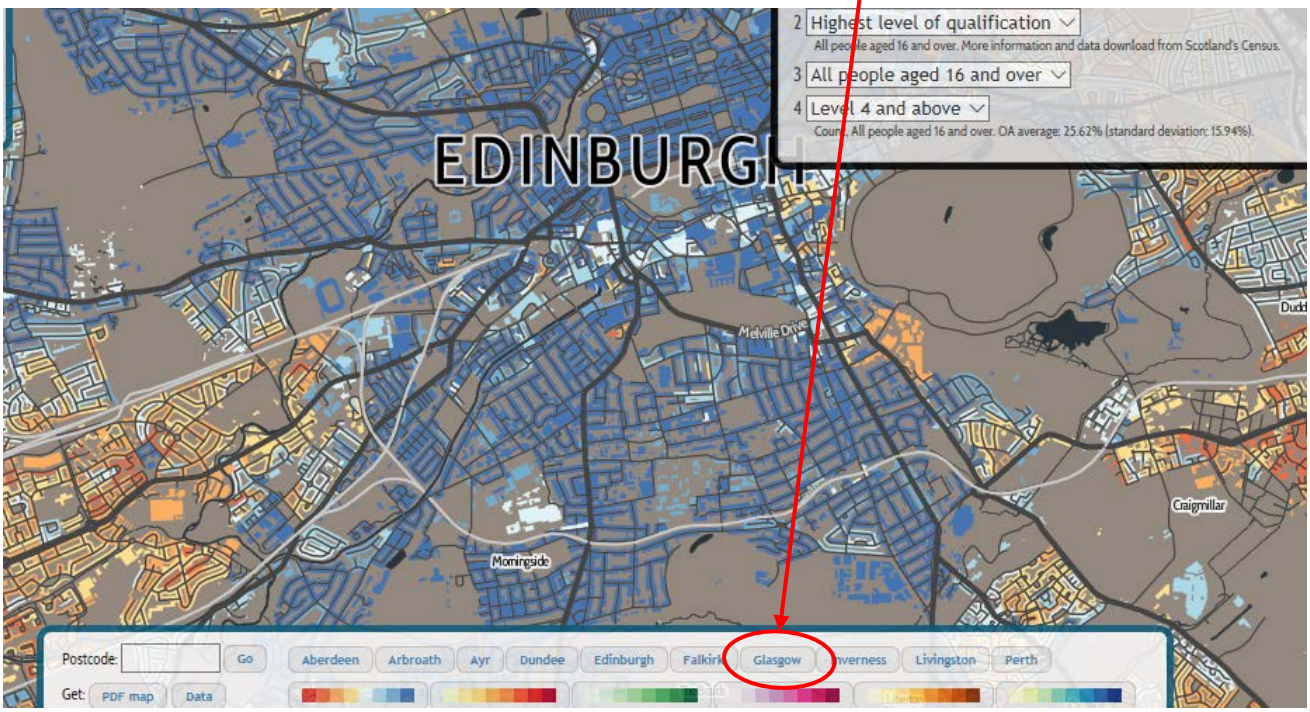
i) In this exercise, you will use the 'DataShine Scotland' app to explore social inequalities. This app visualises census data[1] and the Scottish Index of Multiple Deprivation (various data on deprivation). You will use 'DataShine Scotland' to explore the characteristics of two Glasgow areas (Calton and Lenzie and Kirkintilloch) which are relatively close geographically but have very different life expectancies.

[1] https://www.scotlandscensus.gov.uk/

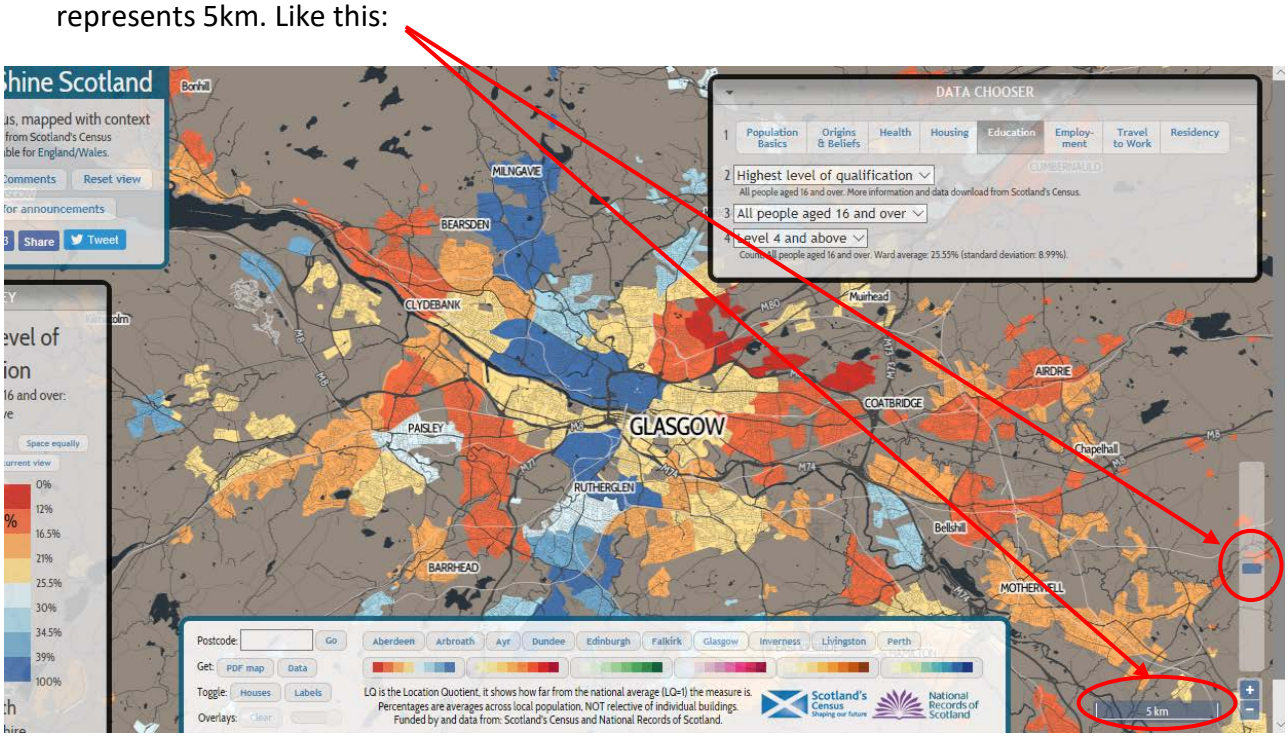
j) Go to Datashine Scotland at www.scotland.datashine.org.uk . The webpage should look like this:



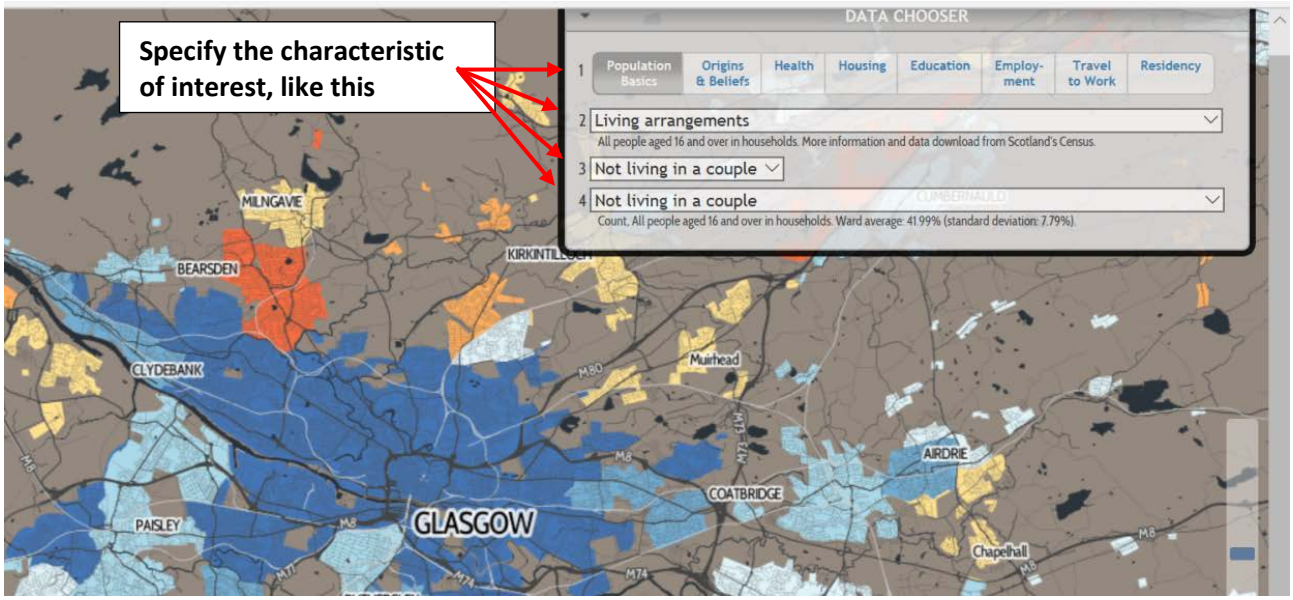
k) Now, jump to Glasgow (toggle at bottom of map). Like this:



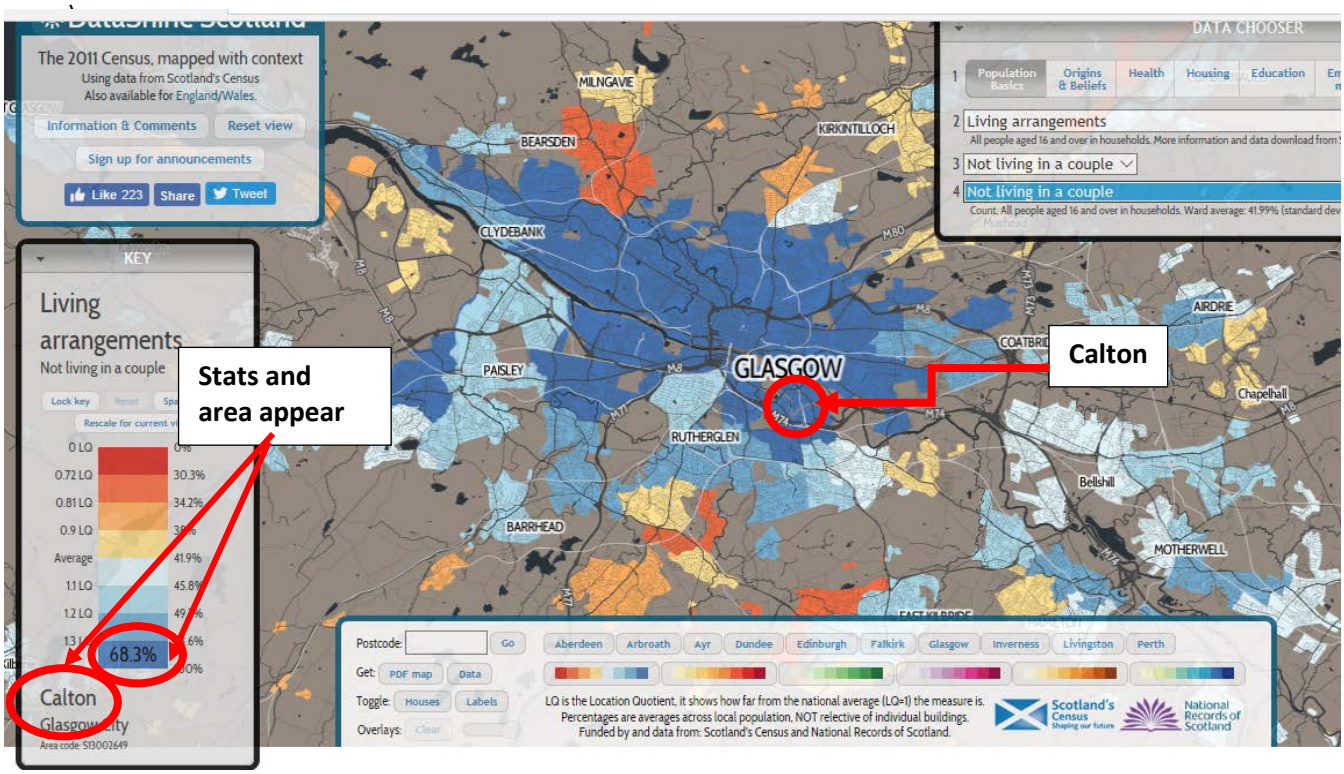
l) For ease of interpretation, zoom to ward level where the scale bar at the bottom right represents 5km. Like this:



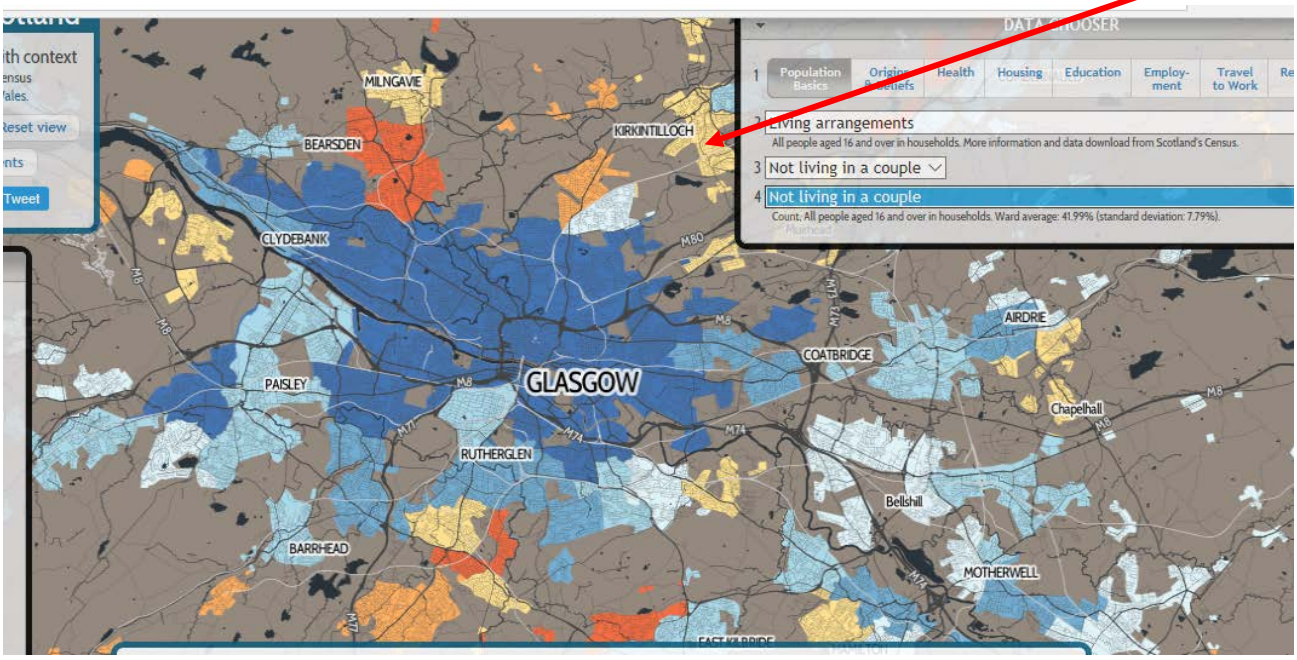
m) Let's start with identifying some statistical information related to those living in Calton (an area in Glasgow). First, set up the statistical information you need. In this case, we'll ask 'DataShine Scotland' to provide us with information about the '% not living in a couple' in Calton.



n) Now, hover your mouse to spot Calton. Then, look at the statistics (to the left of the screen). You will notice that the % of people 'Not living in a Couple' in Calton is 68.3%



o) Find out What is the '% Not living in a couple' in 'Lenzia and Kirkintilloch', which is here



p) Now, use DataShine Scotland to identify statistical information for both Calton and Lenzie and Kirkintilloch. Fill in at least 3 of the rows in Table 3 below. You can choose the characteristics that you are most interested in!

Table 3: Descriptive statistics of the population of selected wards of Scotland (Source: UK Census, 2011 accessed via DataShine)		
Characteristic	Lenzie & Kirkintilloch	Calton
Population basics, Living arrangements, Not living as a couple		
Population basics, Age structure, Mean age(average age)		
Employment, Economic Activity, Economically active, Unemployed		
Employment, National Statistics Socio-economic classification, Routine Occupations (this is unskilled work)		
Employment, National Statistics Socio-economic classification, Higher Managerial and Professional Occupations		
Housing, Tenure – households, Social Rented		
Housing, Person per room – Households, Over 1.5 persons per room		
Housing, Central heating, No central heating		
Health, Long term health problem or disability, Day to day activities limited a lot		

q) What comments can you make about the social and economic profiles of these two areas? How might any differences relate to the stark inequalities in life expectancy in these two area?

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End of workshop tasks. Well done!

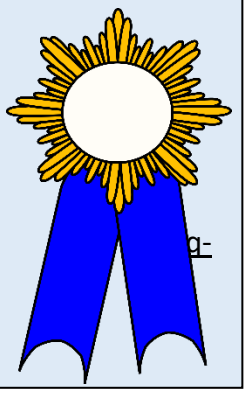
Further resources and ideas

- Here we have focussed on case studies of two countries and areas. Perhaps we have some unusual cases that fit a particular set of arguments around health inequality. You might want to extend to other areas or look for more recent data. Some useful additional links:
- The latest global life table data is available from the World Health Organisation here
- National Records of Scotland provide data on mortality here
- In addition to Datashine Scotland you can access Excel files of Scottish Census data here
- The Scottish Indices of Multiple Deprivation are a valuable resource capturing area deprivation – see here
- Finally, all the above data is about *areas.* If you want to look at data on the health of individuals a good place to start is the Health Survey for England Teaching datasets. You will need to create a UK Data Service account to access this data, although you can also explore online using Nesstar.

Submit a report!

We invite you to submit a short report on inequalities in life expectancies (no more than 2 A4 pages) to showcase what you have learned in this workshop.

You might want to use the life tables provided in the Excel file to compare life expectancies across two or more countries. Or, you might want to use 'DataShine Scotland' to explore social inequalities in two or more geographical areas in Scotland. It's really up to you! You might also want to use information about the countries or areas you have chosen to give us some background and context (for example, news coverage or other relevant sources you learn about in you Modern Studies classes).



We will give feedback on reports and the best one will win a prize and be featured on our website!

Please submit your report by 28-February-2019 to step@exseed.ed.ac.uk or alan.marshall@ed.ac.uk

Good luck

This workshop was developed by Dr Alan Marshall, Dr Gitit Kadar-Satat, Andrew Guthrie and Kjell Hatteland of Edinburgh Q-Step at the University of Edinburgh

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