

### Introduction

**David Holmes** 

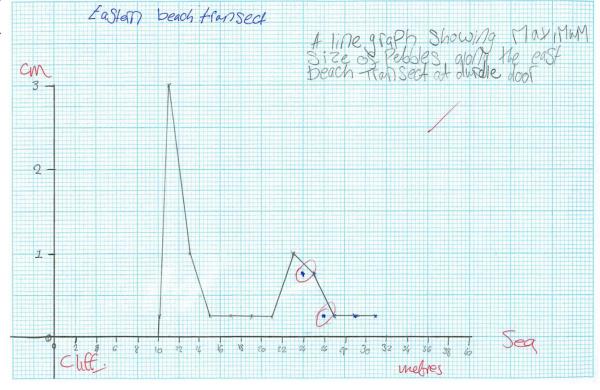
www.david-holmes-geography.co.uk



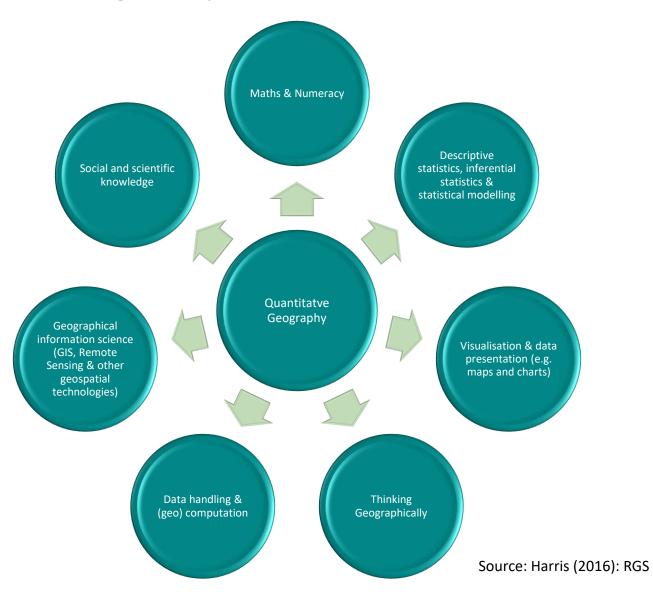
#### **Data Summary Table**

	Average Depth (m)	Width (m)	Average Velocity m/sec	Average Discharge m <sup>3</sup> /sec	Average Bed load Size (cm)
Site 1	0.1	1.63	0.176	0.02885	18.55
Site 2	0.056	2.90	0.34	0.035	13.65
Site 3	0.086	3.80	0.36	0.58	9.45
Site 4	0.3969	5.25	0.203	0.423	8.55
Site 5	0.286	5.60	0.483	0.774	6.99
Site 6	0.28	5.90	0.34		F08150

# Why are we here?



#### A range of quantitative skills



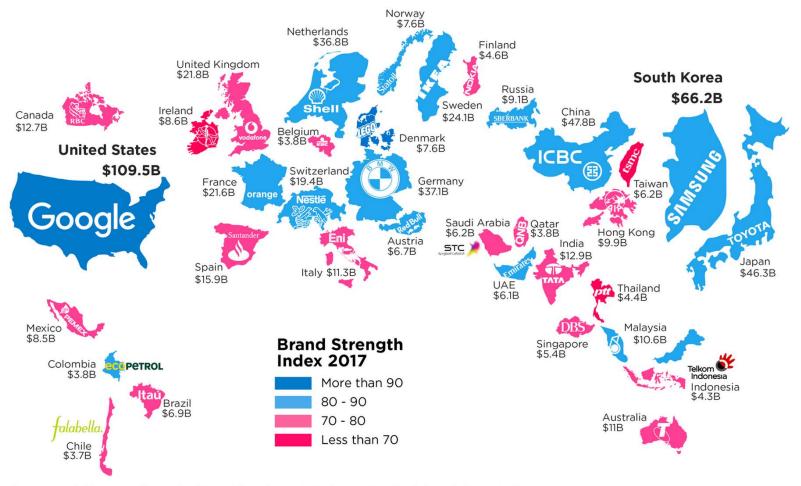
"Its more about the geography than the maths"

## This is maths, sort of....

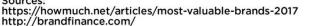


### And so is this.....

#### The World's Most Valuable Brands 2017 by Country



How to read: The map shows the biggest brand in selected countries. Each brand shown is the biggest company of its country. Each country is sized to reflect the global value of its major brand (bigger is more valuable, of course). The colors represent brand strength, out of a maximum of 100.





http://brandfinance.com/

### Population maths

Total fertility rates (with projections)							
	1917	1967	1992	2017	2040	2099	
Afghanistan	7	7.7	7.7	4.1	2.2	1.8	
Australia	3.1	2.8	1.9	1.9	1.9	1.9	
Bangladesh	6.7	6.9	4.2	2.1	1.7	1.8	
Brazil	5.9	5.5	2.6	1.8	1.7	1.8	
China	5.5	5.3	2.2	1.7	1.7	1.9	
Ethiopia	7.2	6.9	7.1	4.1	2.5	1.8	
France	1.3	2.7	1.7	2	2	2	
Germany	2.5	2.4	1.3	1.5	1.6	1.8	
Ghana	6.4	7	5.4	3.6	2.7	1.9	
India	5.7	5.7	3.7	2.4	2	1.8	
Japan	5	2	1.5	1.5	1.7	1.8	
South Africa	6.5	5.8	3.5	2.3	1.9	1.8	
Sweden	2.9	2.3	2.1	1.9	2	2	
Tanzania	6.7	6.8	6.1	4.9	3.6	2.2	
UK	2.1	2.6	1.8	1.9	1.9	1.9	
USA	3.3	2.6	2	2	2	2	
Vietnam	4.7	6.5	3.3	1.7	1.6	1.8	

#### Hans Rosling, population prophet: Five final thoughts

By Ruth Alexander and Ben Carter BBC News

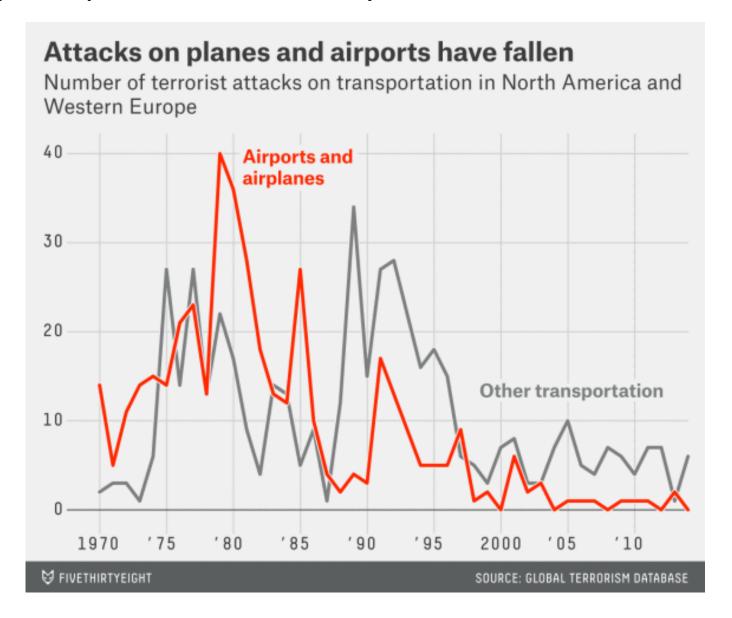
O 16 March 2017 World



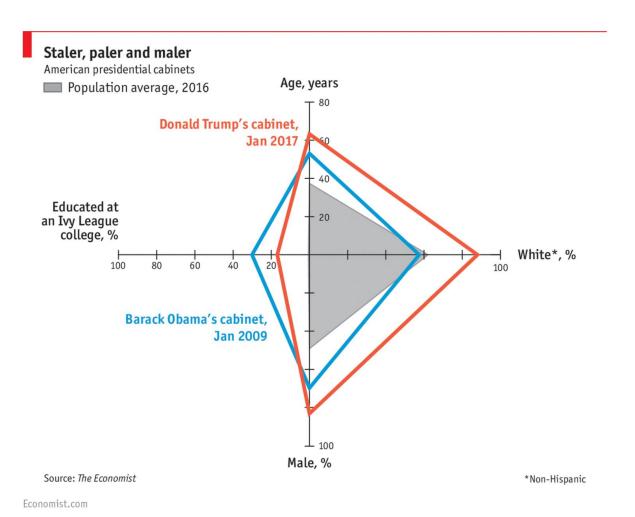


http://www.bbc. co.uk/news/worl d-39211144

#### A quick question. What do you make of this data?



### Not just describe...analyse and evaluate



### Money question

The cost of the nuclear plant is 18 times greater the Burj Khalifa, the world's tallest building in Dubai.

£20 billion cost (£1 billion per year for 40 years)



#### Freasury reclaimed interest payments it made to the Bank of England in 2012. The central bank has become the Treasury's biggest lender following the purchase of almost a third of UK debt via its quantitative easing (QE) policy. Excluding QE, the Office for Budget Responsibility forecasts the deficit will fall only marginally this year compared with 2012/13, but more quickly in relation to GDP - from 6.6% to 5.5% National insurance With a rise in employment beyond 30m, national insurance contributions receipts are expected to rise by a third over the next five years 110 **Business rates** Business rate rises were limited to 2% in 2013/14 and the small business rate relief scheme for one year beyond 2014. Rates had been due to go up We need to in line with September's retail price index of 3.2%, but a rise will be a third of that and cost businesses £300m. A revaluation planned for 2015 that could exclude 300,000 businesses make sense has been delayed to 2017 VAT of the Vying with national insurance 111 as the second biggest tax in terms of receipts after income tax, VAT is projected to lag GDP growth over the next few numbers years following cuts in government spending on VATable goods and services and a shift in consumer and add a spending from luxuries (vatable) to food (VAT In Corporation tax context Only worth about 9% of total tax receipts, Corporation tax corporation tax came down from 28% in 2010 to 21% from April 2014. Total receipts This year's cut will bring in £300m a year less in 2013/14 than the previous year 167 Income tax The biggest element of government tax receipts, income tax was expected to benefit from a rise in employment. But successive rises in the personal allowance threshold are expected to cost an extra £3.9bn by 2014/15 47 Excise duties A planned 3p rise in beer duty this year was scrapped in the last budget and replaced by a 1p cut in the price of a pint. The alcohol duty escalator - which adds inflation plus 2% to the price - was abolished for beer. The escalators for wines and spirits have also been abolished

oil prices could ease pressure for further freezes

According to the latest figures, the UK has slipped one The departmental expenditure limit will increase in 2015/16 place to be the fifth highest spender in cash terms on after a slight rise this year and and small dip in the next. A defence in the world behind the United States, China, capital budget of £7.2bn in 2010-11 that was due to bottom Annual borrowing has fallen steeply since the Russia and Saudi Arabia, But protection from cuts in the out at £3.3bn in 2013-14 was partially restored in last year's budget. But overall spending will fall behind inflation as last two budgets prevented the UK copying France's precipitous slide from third to sixth largest spende further education and other areas suffer steep cuts £84bn The Treasury will funnel a smidgen more cash into major transport projects, and it will also use a new, souped-up version 38 of the private finance initiative to try to attract private sector cash. But we can still expect drastic fare rises over the coming years, as the coalition shifts the burden for funding the 98 transport network from the taxpayer to the passenger Public order & safety The Home Office and Ministry of Justice are struggling to implement some of the steepest cuts in Whitehall. Redundancies in the police force combined with privatisations are key areas for savings. Both departments will need to make cuts for the next thee years. However, the police budget will be protected and the counter-**Public orde** terrorism budget frozen and safety Health A backstairs privatisation of the health service has eaten into hospital and GP budgets, which will make a small, 140 below-inflation rise in spending this year difficult to manage. Below-inflation rises are expected to continue as the NHS gets by on £104bn in 2012-13, rising to £114bn in 2014/15 Industry, agriculture O11tHousing and Total expenditure social services Social protection including tax credits The welfare bill is one of the chief targets for cuts to protect spending in other areas. Higher rate taxpayers have already lost their child benefit. A switch to up-rating benefits in line with the lower consumer prices measure of inflation will have a cumulative 118 savings effect and reap £5.8bn of the expected £11bn 53 of savings in 2014-15. In addition, a new welfare cap from April 2015 will be set each year at the budget for Council tax four years ahead, including housing benefit, tax credits, disability benefits and pensioner benefits but There is much talk of changing the only tax on property, possibly creating new not the state pension ton-tier hands to canture million-nound Other-including stamp duty, Other - including culture, sport, homes. A two-year freeze has limited vehicle excise duty international development receipts to £27bn An expected rise in stamp duty receipts from share Despite attacks from backbench Tory MPs, overseas aid trades and house buying will more than pay for spending is protected by the coalition government's another freeze in fuel duty in 2014. A recent fall in commitment to raise overall expenditure in this area to

Defence

Education

http://www.theguardian. com/news/datablog/201 4/mar/21/budget-2014-

tax-spending-visualised

TEXT. PHILLIP INMAN ECONOMICS CORRESPONDENT GRAPHIC: GUARDIAN GRAPHICS, SOURCE: THE TREASURY

the internationally agreed target of 0.7% of GDP

Industry, agriculture & employment

The Department for Business,

four years to 2015/16

Innovation and Skills is expected

to cut 15% from its spending over

Housing & environment

Private house building has nicked

housing remains in the doldrums.

Nevertheless, it is an area targeted

for cuts and environmental policy

ballooned to more than £1 trillion,

the UK is considered a safe haven by foreign lenders, which has kept

interest rates low. That said, the UK must raise billions of pounds of

Personal social services

A Cinderella area of spending, it covers home helps to social work and is a chief target for cuts. An ageing population is expected to put extra strain on budgets

new debt just to maintain

is likely to suffer most as green

subsidies are rolled back

Debt interest Although the national debt has

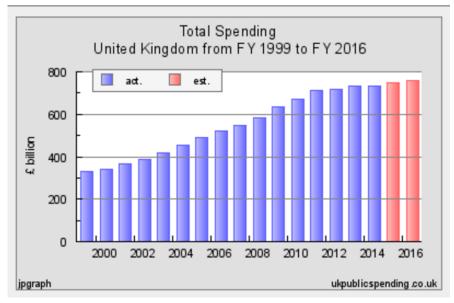
up from a record low. Public

### Adding context

```
Per Capita Total Public Spending
                   in the United Kingdom
          Central Government and Local Authority
            -5yr -1yr Fiscal Year 2014 +1yr +2yr
Public Pensions
                                           £2,237 / person 2
National Health Care
                                         + £2.022 / person
State Education
                                         + £1,396 / person
                                           + £693 / person 2
Defence
                                         + £1,754 / person
Social Security
State Protection
                                           + £462 / person 2
                                           + £299 / person 2
Transport
General Government
                                           + £211 / person 2
Other Public Services
                                         + £1,648 / person
Public Sector Interest
                                           + £771 / person 2
Total Spending
                                        = £11,495 / person 2
```

300/11500 = 2.5% approx

#### This data confirms our "maths"



http://www.ukpublicspending.co.uk/

### Making sense

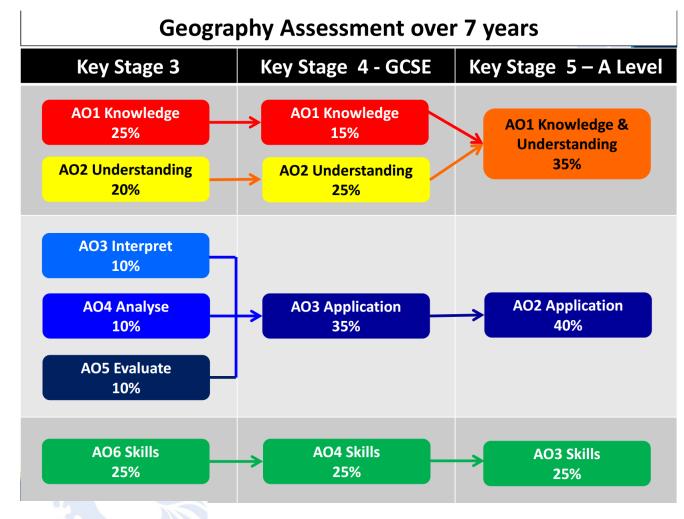
#### Percentages are easier

•	# English LAs	# greater share Leave	% of group
Urban, major conurbation	75	33	44.0
Urban, minor conurbation	9	7	77.8
Urban with city/town	97	78	80.4
Urban with significant rural	54	46	85.2
Mainly rural	41	36	87.8
Largely rural	50	47	94.0
	326	247	

### Statistical vs. non-statistical questions

- 1. How old are you?
- 2. How old are the people who live in Manchester?
- 3. Do dogs run faster than cats?
- 4. Does Cromer get less sunshine than Brighton?
- 5. How many "legs" are there in this room?
- 6. What was the difference in rainfall between Swanage and Crystal Palace in 2016?
- 7. Do you get paid more working as a teacher or as a fireman?

### AO's Reimagined



AO1: Demonstrate **knowledge** of locations, places, processes, environments and different scales.

AO2: Demonstrate geographical **understanding** of: concepts and how they are used in relation to places, environments and processes; the interrelationships between places, environments and processes.

AO3: To interpret geographical information and issues.

AO4: To analyse geographical information and issues.

AO5: To evaluate geographical information and issues to make judgements.

AO6: Select, adapt and use a variety of skills and enquiry techniques to investigate questions and issues and communicate findings. (Foundation Level).

# "Education is the movement from darkness to light" (Alan Bloom)

