OCR / RGS-IBG DATA SKILLS IN GEOGRAPHY

Royal Geographical Society
with IBG

Advancing geography
and geographical learning

TOPIC 2: Exploring Places

Investigating urban place-profiles using quantitative and

qualitative data and research information

•••

Links to OCR GCE Specification for Activity

1. What's in a place?	
Key Ideas	**Content**
1.a. Places are multi-faceted, shaped by shifting flows and connections which change over time.	• **Case studies** of **two** contrasting place profiles at a local scale, including: o their demographic, socio-economic, cultural, political, built and natural characteristics that shape their place identity o their past and present connections that shape the place identity and embed them in regional, national, international and global scales o how shifting flows of people (such as commuter, migration), resources (such as natural, technology), money and investment (such as EU funding, TNCs) and ideas (such as knowledge economy) have helped shape the demographic, socio-economic and cultural profile of these places over time.

3. How does economic change influence patterns of social inequality in places?	
Key Ideas	**Content**
3.a. The distribution of resources, wealth and opportunities are not evenly spread within and between places.	• The concept of social inequality and how this can be measured through indices such as housing, healthcare, education, employment and access to services. • How and why spatial patterns of social inequalities vary both within and between places.

The focus of this investigation will be to see how both inequality and place profiles can be revealed and understood at a local level. This is an area of interest for KS3. GCSE as well as AS and A Level students.

Nuffield Foundation

OCR
Oxford Cambridge and RSA

(1) Data discussion

The aim of this task is to start understanding and classifying data and information (primary, secondary, hybrid), evaluating and format (file types)

	Source	Classifying	Evaluation	Format
Images from Twitter	Personal twitter stream			
ONS "raw" data based on	Neighbourhood statistics			
Facebook images of places	Facebook			
Local crime statistics	data.police.uk			
Footfall data	Can be obtained for some area, e.g. Leeds			
Catchment size	Questionnaire data			
Shopping quality	Personal street-level evaluation			
Index of multiple deprivation (IMD)	Various online sources*			
Traffic data	Online (DfT)*, or as a personal study			

DCLG http://imd-by-postcode.opendatacommunities.org/ and see https://data.gov.uk/dataset/english-indices-of-deprivation-2015-lsoa-level or http://dclgapps.communities.gov.uk/imd/idmap.html
DfT link https://www.dft.gov.uk/traffic-counts/area.php

These examples of data streams can the investigator find out about places, especially differences in places at a local scale.
The Activity today is a focus on investigating geo-spatial differences in Lowestoft, in East Anglia

(2) Understanding local area difference – IMD data and information

What does IMD mean and how is it measured? Take these two online maps. In order to get to grips and have a real contextual understating of what the information shows then the user needs to understand both the spatial organisation of IMD (which is linked to the census) as well as the weighting mechanism.

Source: http://dclgapps.communities.gov.uk/imd/idmap.html

Source: https://maps.cdrc.ac.uk/
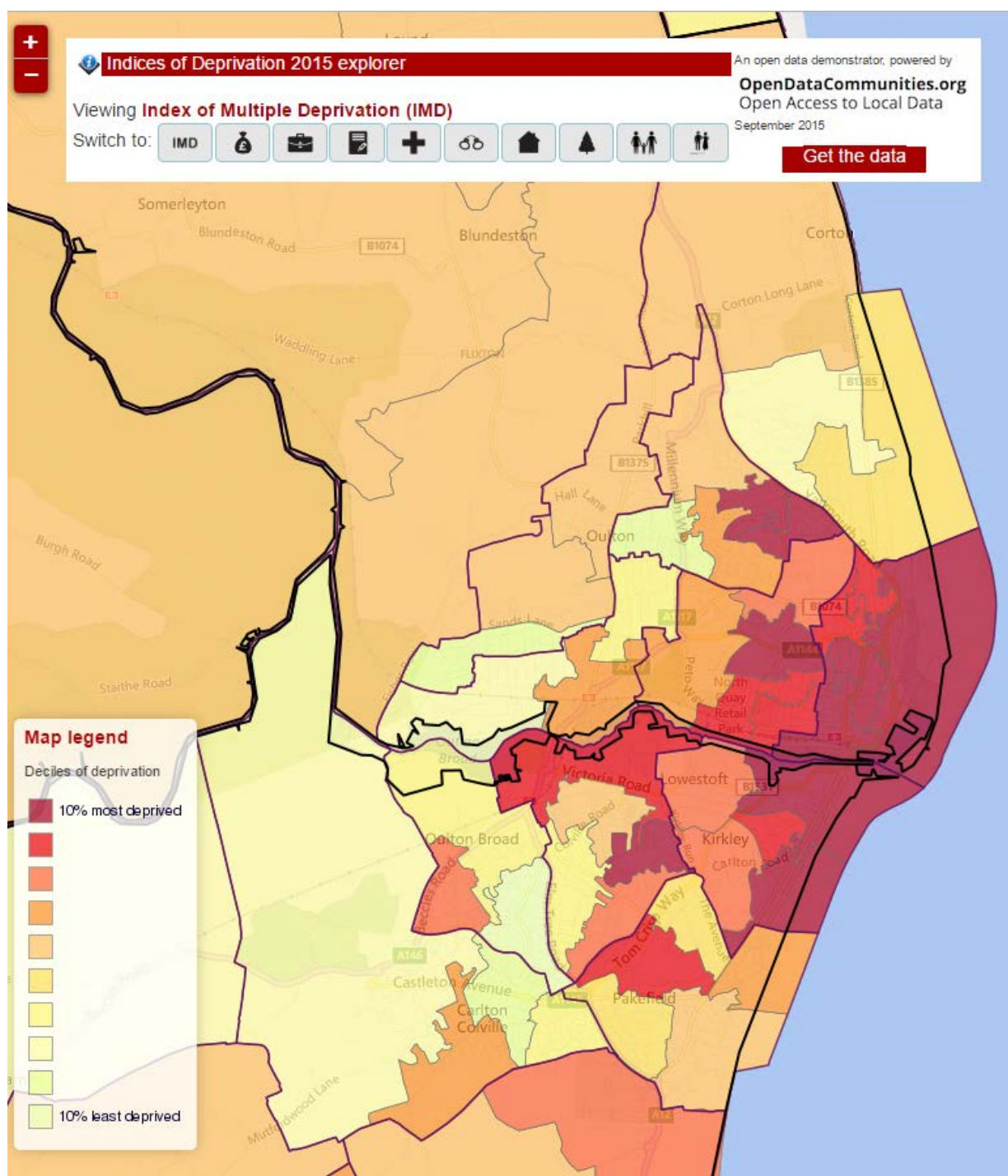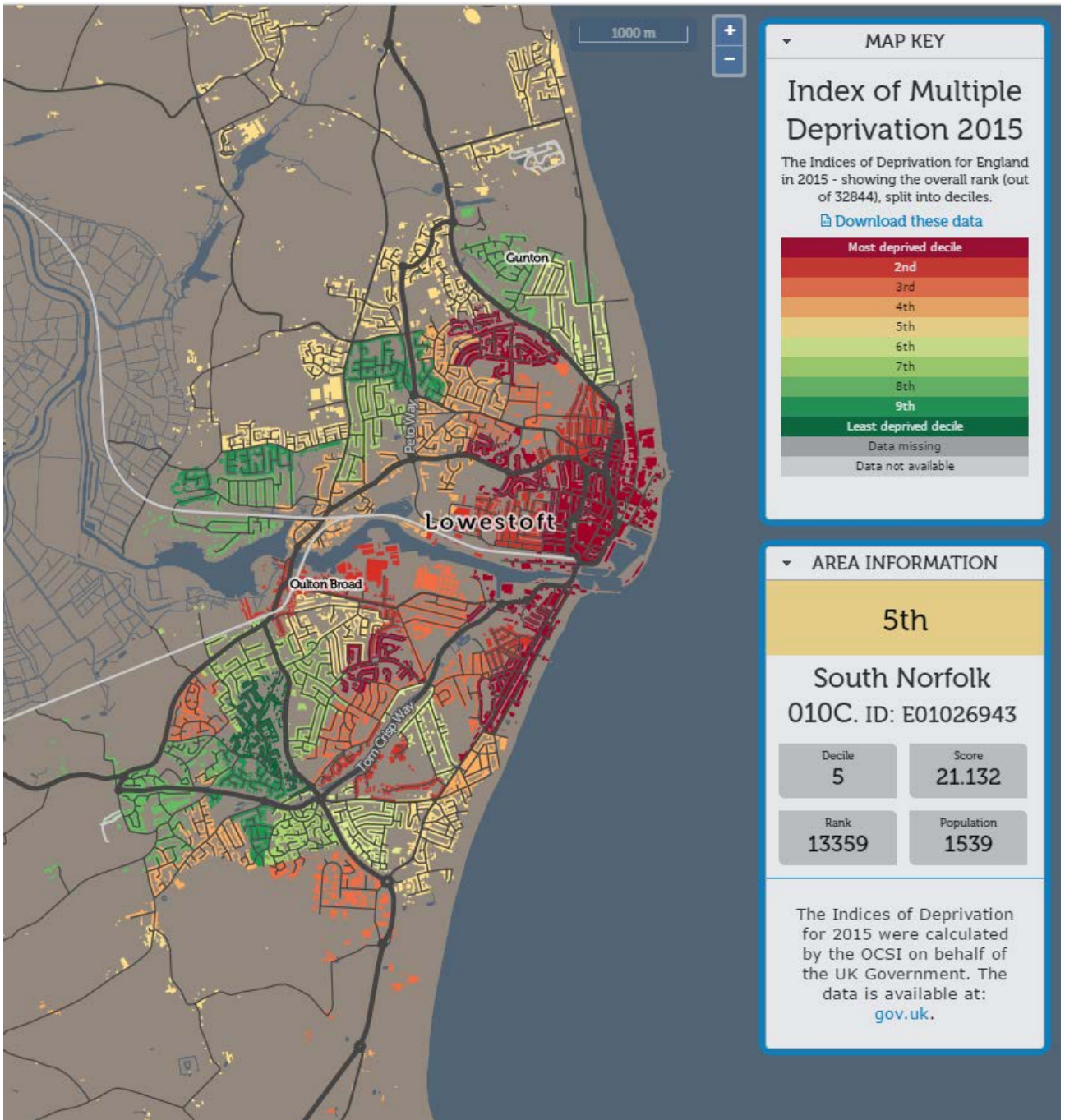
The English Index of Multiple Deprivation (IMD) 2015

The official measure of relative deprivation for small areas

The IMD ranks each small area in England
from:

1st most deprived area

32,844th least deprived area

32,844 small areas (called Lower-layer Super Output Areas) in England with an average of 1,500 residents each

Supplementary index - Income Deprivation Affecting Children Index (IDACI)

7 domains of deprivation
included in the Index:

| Income 22.5% | Employment 22.5% | Education 13.5% | Health 13.5% | Crime 9.3% | Barriers to housing & services 9.3% | Living environment 9.3% |

Supplementary index - Income Deprivation Affecting Older People Index (IDAOPI)
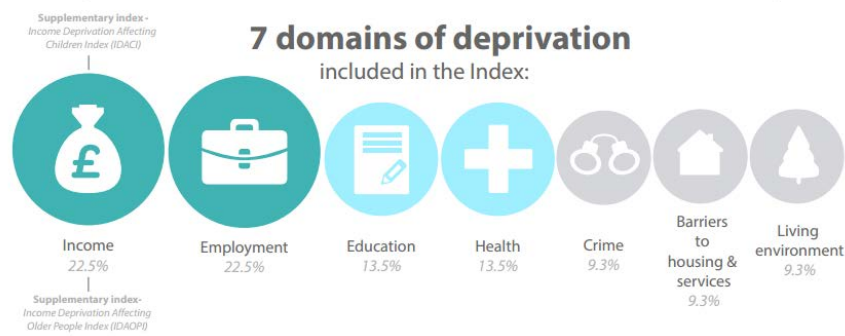
HOW CAN IT BE USED?

✓ comparing small areas across England
✓ identifying the most deprived small areas
✓ exploring the domains (or types) of deprivation
✓ comparing larger areas e.g. local authorities
✓ looking at changes in relative deprivation between versions (i.e. changes in ranks)

✗ quantifying how deprived a small area is
✗ identifying deprived people
✗ saying how affluent a place is
✗ comparing with small areas in other UK countries
✗ measuring real change in deprivation over time

Source:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/464431/English_Index_of_Multiple_Deprivation_2015_-_Infographic.pdf

Also visit this website http://www.neighbourhood.statistics.gov.uk/HTMLDocs/dvc147/ and get a more depth of a profile of Lowestoft, based on 20111 census data. Use this central postcode NR32 1ET. Why not compare to your own area?

Please make brief notes as you will need those ideas for the next activity.

This town profile should also help.

Town Profile: **Lowestoft**

Published July 2014

Population 56,932 **Dwellings** 26,949 **Area** 23 sqkm **Vacant town centre units** 18%

Focus on... town centre
core and main shopping streets

- x**134** Shops (A1)
- x**35** Financial and professional services (A2)
- x**15** Restaurants and cafes (A3)
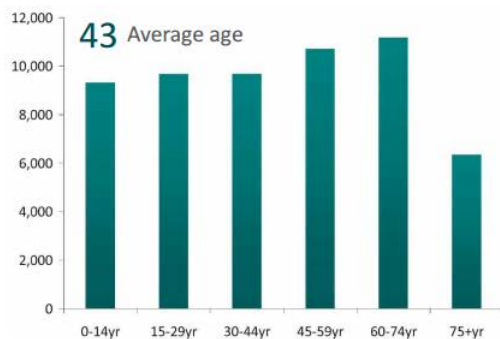- x**9** Drinking establishments (A4)
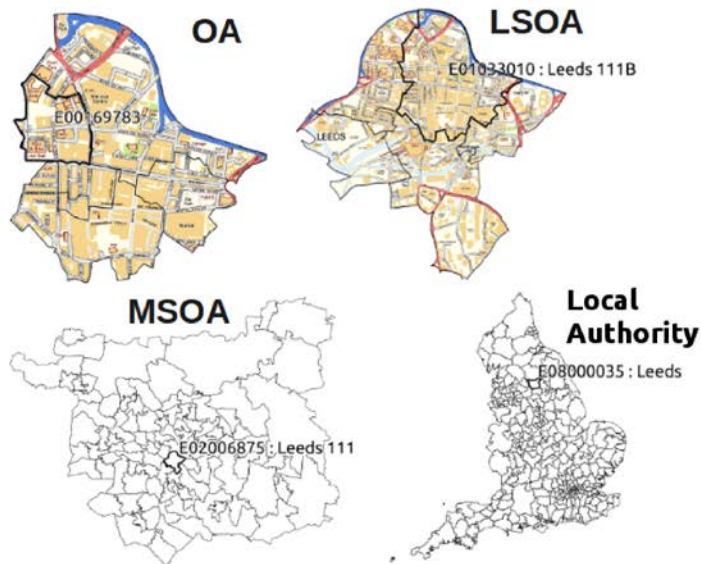- x**4** Hot food takeaways (A5)

Typical home

Terraced

2 people

Bungay **Beccles** **Lowestoft**

Waveney District

Halesworth **Southwold**

Age

12,000
10,000
8,000
6,000
4,000
2,000
0

43 Average age

0-14yr 15-29yr 30-44yr 45-59yr 60-74yr 75+yr

Gender

27,578 male   29,354 female

Ethnicity

Ethnicity broad bands	Percentage
White	97.5%
Mixed	1.1%
Asian	1.0%
Black	0.3%
Other	0.1%

Source: http://www.eastsuffolk.gov.uk/assets/Planning/Neighbourhood-Planning/Town-and-village-profiles/Lowestoft-Town-Profile.pdf

2011 Census geography hierarchy

OA
E00 69783

LSOA
E01033010 : Leeds 111B
LEEDS

MSOA
E02006875 : Leeds 111

Local Authority
E08000035 : Leeds

UK Data Service
Census Support

Source: https://www.slideshare.net/JamesCrone3/an-introduction-to-2011-census-geography?from_action=save

An understanding of the census is also important for the context of IMD

It is these small census areas that provide detailed, localised secondary data. These areas vary in size but
generally:
• MSOAs have a resident population of about 7000 people
• LSOAs have a population of around 1500
• OAs have a population between 100 and 600 people

IMD is based around LSOA geography.

(3) Geographical narrative: quantitative to qualitative

This is all about seeing images through a geographical lens, or "telling geographical stories"

Here is a practice one so that you get the idea of structure and formatting; please use this as a template to follow

Zone of urban land-use, showing some retail, residential and transport functions. At the time the photo is taken there are relatively low traffic flows and low pedestrian densities, suggesting the image is taken either away from the core CBD area, or at a time (e.g. early morning) when there are fewer people around. The residential dwellings are typical of 1960's upwards build (tower blocks) enabling high density housing in areas of higher bid-rent. Nowadays, this type of accommodation is often viewed as less desirable and is sometimes associated with a higher than average incidence of crime (security cameras are evident).

The retail outlets look to be of a similar age, perhaps 1970, with a typical mix of concrete and block-work giving a utilitarian landscape. There is evidence of modernisation in the scene with the addition of flags and other coloured steelwork, together with more recent facia boards.

Quantitative information from IMD

A PLACE DESCRIPTION

Quantitative information from census

Qualitative picture analsysis
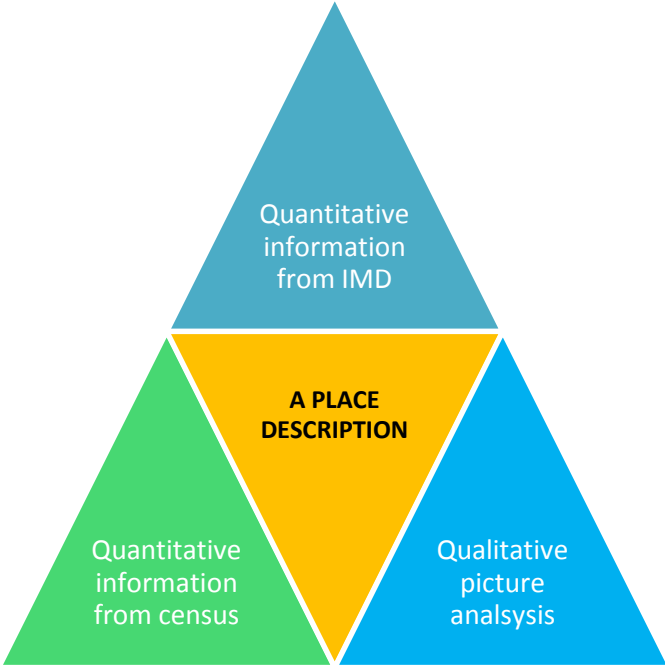
We would like you to now begin to piece together some of the quantitative data you have found out from census, IMD and the image to create a written place narrative about Lowestoft.

Source: http://www.dac.dk/Images/img/1920x1200M/(39048)/39048/havnepromenaden14.jpg

Below: space for your place narrative.

(4) Thinking about quantitative data analysis

Work in your group to discuss the range of numerical and statistical tools that could be applied to these two data sets. A quick reminder of those tools from the OCR GCSE and GCE Specifications.

GCSE

Numerical skills

- Demonstrate an understanding of number, area and scale and the quantitative relationships between units.

- Design fieldwork data collection sheets and collect data with an understanding of accuracy, sample size and procedures, control groups and reliability.

- Understand and correctly use proportion and ratio, magnitude and frequency (*e.g. 1:200 flood; and logarithmic scales such as the Richter scale, in orders of magnitude.*)

- Draw informed conclusions from numerical data.

Statistical skills

- Use appropriate measures of central tendency, spread and cumulative frequency (*e.g. median, mean, range, quartiles and inter-quartile range, mode and modal class*).

- Calculate percentage increase or decrease and understand the use of percentiles.

- Describe relationships in bivariate data: sketch trend lines through scatter plots; draw estimated lines of best fit; make predictions; interpolate and extrapolate trends.

- Be able to identify weaknesses in selective statistical presentation of data.

A Level

4.4 Quantitative skills:
With respect to quantitative skills, learners should understand the purposes and difference between the following and be able to use them in appropriate contexts:
a) mean, median, mode, range, interquartile range and standard deviation
b) tests of association and significance tests, such as Chi-squared, Spearman's rank, Mann-Whitney U test and T-test
c) lines of best fit and correlation on graphical representations
d) measurement, measurement errors and sampling.

In your groups, discuss how you would use tools and features from Excel (or similar) to manage this data. In other words can you, sort, filter and extract relevant data from a spreadsheet?

Here is some examples of areas and deprivation scores from some students fieldwork in a similar area. *Justify a range of quant skills that you might use to help analyse this information.*
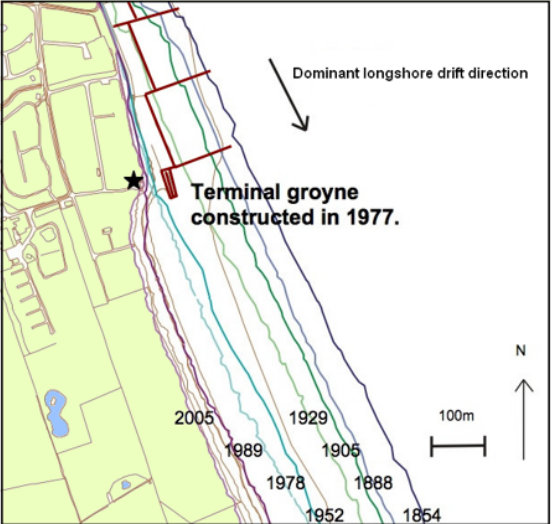
Location	Census Area Code	Deprivation Score
1	Norwich 012D	3
2	Norwich 011G	14
3	Norwich 006E	58
4	Norwich 013F	42
5	Norwich 007E	53
6	Norwich 014A	28
7	Norwich 004C	37
8	Norwich 003B	16
9	Norwich 014D	18
10	Norwich 005D	22
11	Norwich 012C	5
12	Norwich 011A	5

(5) Analysis, interpretation and evaluation

At both GCSE and GCE students may be required to demonstrate of a sequence of understanding for AO2 and AO3 respectively.

AO3 GCSE	Apply knowledge and understanding to interpret, analyse and evaluate geographical information and issues and to make judgements.
AO2 AS and A Level	Apply knowledge and understanding to interpret, analyse and evaluate geographical information and issues

This next activity requires a writing in sequence to demonstrate those AO2 and AO3 skills. *Again, work in a group to come up with some answers for this flow of ideas that are linked to each other.* It's hard to tease these apart, but you are at least coming up with a geographical story which is evidence based. A coastal example has been provided for you.

Analysis

'Pick the information apart'
- Cliff retreat is less where the groynes are, more south of the Terminal groyne
- 200m of erosion 1854-1978 = 1.6m per year
- 120m of erosion 1978-2005 = 4.4 m per year
- Erosion has stopped north of the groynes since 1952

Interpretation

'Come up with some explanations'
- Coastal management appears to have altered the shape of the coastline
- Creates areas of ceased and increased erosion rates
- Interference with longshore drift

Evaluation

'Make evidenced judgements'
- Groynes effectively prevent erosion
- The Terminal groyne has increased erosion rates to the south by over 2m per year
- Might raise issues of 'fairness'

Dominant longshore drift direction

Terminal groyne constructed in 1977.

2005   1929   100m
1989   1905
1978   1888
1952   1854

A section of the coast at Hornsea, East Yorkshire, showing cliff position since 1854

Analysis	*'Pick the information apart'*
Interpretation	*'Come up with some explanations'*
Evaluation	*'Make evidenced judgements'*