Geographers and the Thames Estuary 2100 Plan – Teacher Support Pack

Royal Geographical Society with IBG
Advancing geography and geographical learning

This teacher support pack supplements the Royal Geographical Society's 'Geographers and the Thames Estuary 2100 Plan' resource.

This teacher support park contains the following:

1. Aim of student resource
2. Links to GCSE and A Level specification
3. Answers to the activities in the student resource
4. Links to further support

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1. Aim of student resource

The aim of the 'Geographers and the Thames Estuary 2100 Plan' resource is to show students the role that geographers play in contributing to the development of flood risk strategy in response to climate change. More specifically, the resource focuses on the development of the TE2100 Plan in response to heightened tidal flood risk along the Thames Estuary. The resource showcases the numerous organisations that have contributed to the development of the Thames Estuary 2100 Plan, therefore exposing students to employers who hire geographers. It also introduces students to the types of real jobs available to geographers who work in these organisations, and the role that each of these jobs plays in contributing to flood risk strategy.

Teachers may wish to spend time reading through page 1 and 2 of the resource with students, pausing at points to allow for questioning and/or group discussion.

The activity has a decision making, fieldwork focus; requiring students to place themselves in the position of geographical professionals involved in flood risk strategy. Activity 1a and 1b requires students to reflect on the aims of the TE2100 Plan, and decide which geographer is best place to advise on each aim. Activity 2 is a fieldwork-based exercise that asks students to plan their own fieldwork investigation to measure the success of the TE2100 Plan. Activity 2 is well-suited to GCSE and A Level students, helping prepare them for conducting their own geographical investigations, boosting their overall understanding of the fieldwork investigation process.

More information about the TE2100 Plan, and partner organisations involved can be found here: Thames Estuary 2100 (TE2100) - GOV.UK and Thames Estuary 2100 Plan | JBA Consulting.

Please note that, as referenced, the employment data on page 2 has been put together using data published on LinkedIn, therefore may not reflect actual employment statistics.

The resource supports teachers in providing careers provision under *Gatsby Benchmark 4: Linking curriculum learning to careers*. For more information on the Gatsby Benchmarks, visit: Gatsby benchmarks of good career guidance

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2. Links to specification

GCSE links:

Edexcel A: 1B River landscapes and processes, 1.9: 'Human activities can lead to changes in river landscapes which affect people and the environment', 1.9a and 1.9b

Edexcel B: Topic 4 sub topic: river processes and pressure; enquiry question, 'What are the challenges for river landscapes, people and property and how can they be managed?', Key Idea 4.8 (b)

AQA: Living with the physical environment, Section C: Physical landscapes in the UK, 3.1.3.3 River landscapes in the UK 'Different management strategies can be used to protect river landscapes from the effects of flooding.'

OCR A: Living in the UK today, 1.3 UK Environmental challenges 1.3.2 'the management of a flood event at a variety of scales'

OCR B: Our Natural World, 3.2b 'What are the characteristics of your chosen landscapes?', more specifically 'how human activity, including management, works in combination with geomorphic processes to impact the landscape'

WJEC: Key idea 3.2 Vulnerability and hazard reduction, specifically 3.2.2 'How might the risks associated with tectonic hazards be reduced?'

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A Level links:

AQA: 3.1.1 Water and carbon cycles, specifically 3.1.1.6 Case studies, 'Case study of a river catchment at a local scale', 3.1.5.5 Storm hazards,' risk management designed to reduce the impacts of the hazard through preparedness, mitigation, prevention and adaptation', 3.3 Geographical fieldwork investigation

Edexcel: Area 3, Topic 5 'The water cycle and water insecurity', Enquiry question 2, 5.5a 'Human actions that can exacerbate flood risk (changing land use within the river catchment, mismanagement of rivers using hard engineering systems'
Topic 6 'The carbon cycle and energy security', Enquiry question 3, 6.9b 'Adaptation strategies for a changed climate (water conservation and management, resilient agricultural systems, land-use planning, flood-risk management) have different costs and risks.' Fieldwork

OCR: Topic 3 Climate change, 4 'In what ways can humans respond to climate change?',4.c 'Mitigation and adaptation are complementary strategies for reducing and managing the risks of climate change.' 2e Geographical fieldwork and skills

WJEC: Unit 3 Global Systems, Water and carbon cycles 'field survey to investigation .. areas of flood risk/vulnerability' , Unit 4, Section B 4.5 Weather and climate, 4.5.7 People, climate and the future Strategies to mitigate and adapt to climate change at a variety of scales', Unit 5 Independent investigation

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3. Answers

Activity 1a:

Correct answers

Adaptive	Adjusting something to respond to changing situations
Climate resilient	The ability of people and ecosystems to bounce back from climatic hazards
Tidal tributaries	Smaller river flowing from a larger river into the sea
Floodplain	Land surrounding the river which is susceptible to flooding
Sustainability	Something being able to last into the future
Ecosystems	The interaction between biotic (living) and abiotic(non-living) components in an environment
Biodiversity net gain	Increasing the level of biodiversity (number of plant and animal species) living in an environment

Activity 1b:

Whilst there is no one correct answer as students have autonomy over which geographical professional they assign to each role, an example response may look like this:

Aims	Who is the most appropriate person help meet each aim?	Explain why
A - Take an adaptive approach to manage tidal flooding and create climate resilient communities.	Flood risk analyst at an engineering consultancy	• Flood risk analysts are able to map changes in flooding over time • They are able to map flooding before and after flood defences are put in place • They are able to map flooding under different climate change scenarios • The work with flood defence databases therefore have a good knowledge of how flood defences operate and can help make suggestions as to how flood defences should be maintained • They work with geospatial data
B - Protect and enhance the value of the Thames, its tidal tributaries and floodplain. Deliver social, cultural and commercial benefits for communities and support resilient growth.	Senior programme officer at a governmental administration organisation	• They have a good understanding of how climate change impacts London and its people and economy • They conduct lots of research to find out how communities and businesses are impacted by climate change • They work to help improve lives for local communities • They want to ensure that local communities and businesses thrive despite increased flood risk
C - Tackle the climate and nature crises by putting sustainability at the heart of this Plan. Restore ecosystems, reduce carbon emissions, and deliver environmental and biodiversity net gain.	Climate change adaptation officer at wildlife conservation charity	• Their work prioritises restoring and protecting habitats • A big aim of their work is to increase biodiversity along the river Thames • They have a good understanding of local habitats and are climate change experts

Activity 2 – Example response:

This example explores local economic changes over the last decade as a result of the implementation of the Thames Estuary 2100 Plan in 2012.

Hypothesis Example: The number of shops located along Wapping High Street in the Isle of Dogs has increased between 2012 and 2022
Null hypothesis Example: The number of shops located along Wapping High Street in the Isle of Dogs **has not** increased between 2012 and 2022

Primary data collection

What?

Examples may include:

- Retail value survey
- Land use mapping
- Clone town survey
- Questionnaires and interviews
- Annotated photographs
- EQS

Why?

- Able to compare data between different locations
- Able to plot quantitate data onto a graph or map to analyse

Limitations

- Data is representative of just one point in time
- Subject to bias

Primary data collection

Type of data

☐ Qualitative ☑ Quantitative

Type of sampling strategy

☐ Stratified ☐ Random

☑ Systematic

Number of samples

20

Justify – why are you going to collect this number of samples?

- Work out averages/measures of central tendency
- Able to conduct statistical testing

Secondary data collection

What?

Examples may include:

- Annotated historical photographs
- Videos/vlogs in the area
- Online blogs
- Google street view
- Maps
- Newspaper articles
- Books
- Census

Why?

- Visual; able to see changes over time and make comparisons between past and present

Limitations

- Data may be subjective and bias
- Data might not directly match to exact location of primary data collection

Secondary data collection

Type of data

☑ Qualitative ☐ Quantitative

Type of sampling strategy

☐ Stratified ☑ Random

☐ Systematic

Number of samples

12

Justify – why are you going to collect this number of samples?

- Representative
- Improves accuracy

You may wish to adapt how this resource is used. For example, by providing students with the completed template and asking them to critique the hypothesis and/or fieldwork methods. Critiques may include:

- Is measuring change over a 10 year period too long/unrealistic?
- Is Wapping High Street an appropriately sized area to carry out research? Is this area too large, too small or is it appropriate?
- What other locations could data be collected from?
- What are the ethical considerations of carrying out fieldwork like this?

Students may also wish to structure their investigation around the following themes:

- Changes in biodiversity over time
- Changes in land use over time
- Opinions of local community groups/ place perception
- Changes in flood risk over time
- Changes in retail value over time
- Population trends over time

Links to further support

- Royal Geographical Society's career pages: Choose a career with geography - RGS
- Teacher CPD: Teacher events - RGS
- I am a geographer: I am a geographer - RGS
- Statutory careers guidance for schools: Careers guidance and access for education and training providers - GOV.UK