Revision Checklist: Urban Change in a LIC

Definition of urbanisation and urban growth.	
Patterns of urbanisation in HICs and LICs.	
Factors affecting urbanisation rate: migration (push and pull factors), natural increase.	
Definition of megacity.	
Rio de Janeiro	
Location of Rio.	
Importance of Rio: regional, national, international	
Causes of urban growth: migration, natural increase.	
Social opportunities of urban growth: access to water, energy, healthcare, education.	
Economic opportunities of urban growth: multiplier effect.	
Challenges of urban growth: favelas, access to water, energy, healthcare, education.	
Challenges of urban growth: unemployment, crime, waste disposal, pollution, congestion.	
Example of urban planning to improve quality of life: Favela Barrio Project.	

Revision Checklist: Urban Change in a HIC

Distribution of UK population and major cities.	
Location of Cambridge.	
Importance of Cambridge: regional, national, international.	
Impacts of migration on the character of Cambridge.	
Social opportunities of urban growth: cultural diversity, services, entertainment.	
Economic opportunities of urban growth: employment.	
Environmental opportunities of urban growth: urban greening.	
Social challenges of urban growth: unequal housing, health, education.	
Economic challenges of urban growth: unequal employment, income.	
Environmental challenges of urban growth: brownfield sites, greenfield sites.	
Challenges of managing urban growth: urban sprawl, waste disposal.	
Example of urban regeneration: CB1.	
Example of urban sustainability: Eddington.	
Examples of reducing congestion: expensive parking, cycle paths, Park & Ride, North Station.	

Knowledge Organiser – Physical Fieldwork

Hypothesis, Location, Risks (1 / 3)

Key Ideas

Changes in Coldham's Brook match the Bradshaw model (width, depth, velocity, sediment)

- Source = start of a river.
- Mouth = end of a river.
- Water flows downstream.

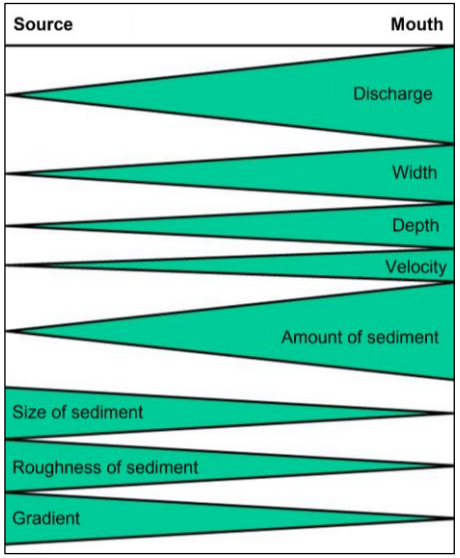
- Width should increase downstream because of lateral erosion.

- Depth should increase downstream because of vertical erosion.

- Velocity should increase downstream because the water has more momentum.

- Sediment size and sediment roughness should decrease downstream due to attrition.

Bradshaw model



- What is your hypothesis?
- What is the title of your physical fieldwork investigation / enquiry?

- What is the source of a river?
- What is the mouth of a river?
- Water flows _____ from the source to the mouth.

- How should river width change from source to mouth? Why?

- How should river depth change from source to mouth? Why?

- How should river velocity change from source to mouth? Why?

- How should sediment size change from source to mouth?
- How should sediment roughness change from source to mouth?
- Why does sediment size and roughness change?

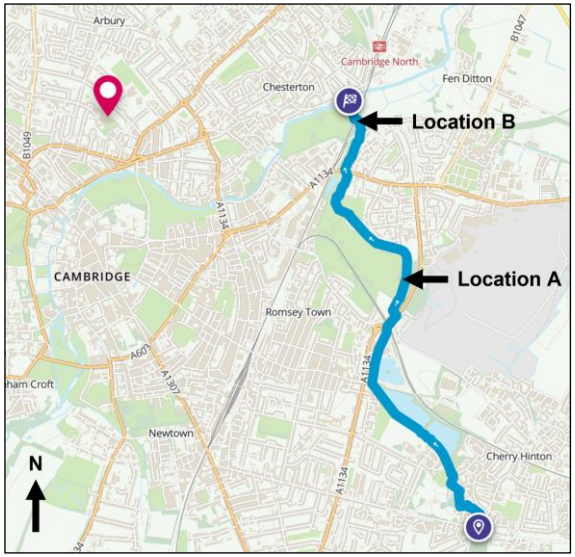
- How does the Bradshaw model suggest Coldham's Brook should change from its source to its mouth?

Knowledge Organiser – Physical Fieldwork

Hypothesis, Location, Risks (2 / 3)

Changes in Coldham's Brook match the Bradshaw model (width, depth, velocity, sediment)

Coldham's Brook



- Location A is closer to the source. It should be narrower, shallower, and slower. Sediment should be larger and rougher.

- Location B is closer to the mouth. It should be wider, deeper, and faster. Sediment should be smaller and rounder.

- What is your hypothesis?
- What is the title of your physical fieldwork investigation / enquiry?

- Where is Location A?
- What does the Bradshaw model suggest about Location A?

- Where is Location B?
- What does the Bradshaw model suggest about Location B?

Knowledge Organiser – Physical Fieldwork

Hypothesis, Location, Risks (3 / 3)

Changes in Coldham's Brook match the Bradshaw model (width, depth, velocity, sediment)

- This is an appropriate hypothesis because:
    - The scale is appropriate. We could walk to Location B and collect enough data.
    - It is based on a geographical theory: the Bradshaw model. We could see how it applies to a real river.
- The locations were suitable because:
    - Location A was closer to the source while Location B was closer to the mouth, so they could be compared.
    - There were many places to collect data in each location. This means that we could calculate averages.
- We reduced the risks of completing fieldwork:
    - Risk of sunburn, so we used suncream.
    - Risk of slipping, so we entered the river on gentle slopes.
    - Risk of drowning, so we had groups to watch each other.

- What is your hypothesis?
- What is the title of your physical fieldwork investigation / enquiry?
- Why was your title appropriate for a geographical enquiry?
- Why were the locations suitable for a fieldwork investigation?
- What were the risks of your fieldwork?
- How did you reduce the risks?

Knowledge Organiser – Physical Fieldwork

Data **Collection** Methods (1 / 2)

Changes in Coldham's Brook match the Bradshaw model (width, depth, velocity, sediment)

Data	How did you collect the data?	What were the problems?
Width	Used a tape to measure the distance between the banks. Held it tight and 10 cm above the river so it was not pulled by the water. This may have shown an inaccurate width.	Some parts of the bank were overgrown with plants. Some parts of the bank were not vertical. It was difficult to decide where to measure from. Some groups decided differently.
Depth	Used a ruler to measure the distance from the bed to the water surface. Measured at 10 equally separated places along the width. Calculated mean (average) depth.	Some parts of the bed had layers of rock and mud on them. It was difficult to decide where to measure from. Some groups decided differently.
Velocity	Measured the time for a cork to move 2m downstream. Repeated twice to calculate a mean (average) time. Converted this to velocity.	(1) Some groups dropped the cork into the water, so it did not move downstream immediately. (2) The timer may have been started / stopped slightly early / late.
Sediment size	Collected a random sample of 10 rocks from the river. Measured the greatest width and length of each stone. Calculated mean (average) width and length.	Subconscious bias stopped our samples from being random. Few people collected rocks from muddy parts of the river. Many people collected large, easy to hold rocks.
Sediment roughness	Used the same random 10 rocks. Compared them to Power's Index of Roundness to give a score from 1 (jagged) to 6 (rounded)	Rocks were compared to drawings, so scores of roundness are subjective. Some groups may have similar judgements for a rock but decide different scores.

Knowledge Organiser – Physical Fieldwork

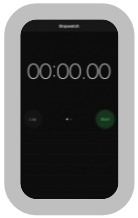
Data **Collection** (2 / 2)

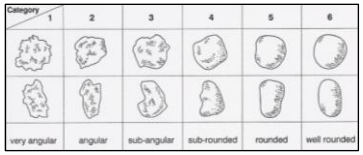
Changes in Coldham's Brook match the Bradshaw model (width, depth, velocity, sediment)

- **Primary data** is collected by you or your team.
- **Secondary data** is collected by someone else.

- You used primary and secondary data in your physical fieldwork.
- **Location A** – Your teachers collected **secondary data** for you.
- **Location B** – You collected **primary data** in groups.

- You only used primary data in your human fieldwork.





- What is the difference between primary and secondary data?

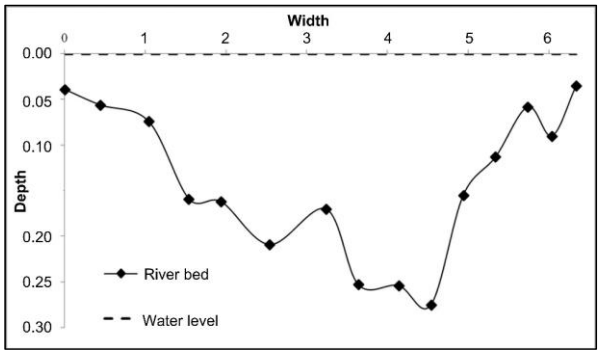
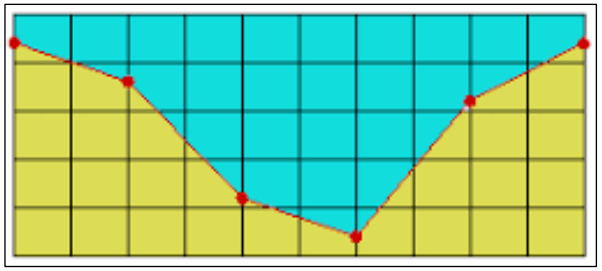
- What types of data did you use in your physical fieldwork?
- What types of data did you use for each location?

- What types of data did you use in your human fieldwork?

Knowledge Organiser – Physical Fieldwork

Data **Presentation**

Changes in Coldham's Brook match the Bradshaw model (width, depth, velocity, sediment)

Data	What data presentation method did you use?	Advantages	Disadvantages
Width, depth	**Cross sections** For each location we drew axes for width (x) and depth (y) then plotted the depth points and joined them with a line. This showed a 'slice' through the river from bank to bank.  	• We used the same width axis for both graphs, so we could easily see and compare the shape of the channel in both locations. This means that we could identify how width and depth change from source to mouth.	• We used the same width axis for both graphs. As the width measurements were different in each location, it was difficult to draw the cross sections correctly.

Knowledge Organiser – Physical Fieldwork

Data **Analysis**

Changes in Coldham's Brook match the Bradshaw model (width, depth, velocity, sediment)

Data	How did you analyse the data?	Advantages	Disadvantages
Depth	**Averages** • For both locations we calculated the mean, median, and mode for depth.	• The mean can be affected by anomalies. Using many averages allowed us to manage anomalies in the data.	• Risk of human error when calculating.
Sediment size / roundness	**Averages** • For both locations we calculated the mean, median, and mode of the width, length, roughness score of sediment.	• The mean can be affected by anomalies. Using many averages allowed us to manage anomalies in the data.	• Risk of human error when calculating. • There was not a mode for some data.
Width, depth, velocity	**Discharge** • For both locations we calculated the cross section area and then discharge. • Discharge is the amount of water flowing in a river.	• We could easily compare another river feature to the Bradshaw model, improving the validity of our conclusion.	• Risk of human error when calculating. • Any inaccurate data for width or depth will have changed the discharge.

Knowledge Organiser – Physical Fieldwork

Conclusion, Evaluation (1 / 3)

Changes in Coldham's Brook match the Bradshaw model (width, depth, velocity, sediment)

The hypothesis is somewhat true.

Changes in Coldham's Brook somewhat match the Bradshaw model (width, depth, velocity, sediment).

- Some changes do match the Bradshaw model but others do not.
- Width / depth increased. Sediment size / roughness decreased.
- However, velocity did not change between the locations.

- Matches to the Bradshaw model are insignificant.
- Width increased by just a few cm, within the margin of error.
- Mean sediment size / roundness decreased only slightly.

- Was your hypothesis true or false?
- What was your conclusion? Why?

Validity

- Valid data is relevant to the hypothesis.
- All data we collected was relevant to the hypothesis.
- E.g. width is part of the Bradshaw model, so we could compare width for Coldham's Brook to the Bradshaw model.
- However, we could have collected data for the gradient, which is also on the Bradshaw model. We could have used a clinometer.

- What is valid data?
- Was your conclusion based on valid data? Why?
- How could the validity of your conclusion have been improved?

Knowledge Organiser – Physical Fieldwork

Conclusion, Evaluation (2 / 3)

Changes in Coldham's Brook match the Bradshaw model (width, depth, velocity, sediment)

- Similarly, we could have collected data at more than two locations because they were quite close together.

Accuracy

- Accurate data is close to the true value.
- Lots of our data was not accurate because there were problems with the data collection methods.
- E.g. some parts of the bank were overgrown with plants so it was difficult to decide where to measure from.
- E.g. sediment samples were not random because of subconscious bias like avoiding muddy water.

- What is accurate data?
- Was your data accurate? Why?

Reliability

- Reliable conclusions are consistent if the fieldwork is repeated.
- Our conclusion is somewhat reliable because repeating the fieldwork on another day is unlikely to give different data.

- What is a reliable conclusion?
- Was your conclusion reliable or unreliable? Why?

Knowledge Organiser – Physical Fieldwork

Conclusion, Evaluation (3 / 3)

Changes in Coldham's Brook match the Bradshaw model (width, depth, velocity, sediment)

- However, seasonal differences may give different conclusions. During winter, when there is more rain, depth would be greater. This could show a larger difference between the locations, matching the Bradshaw model more strongly.

Improvements

- Agree rules about how to measure width and depth, like clearing the bed of rocks which may disrupt the ruler. This would improve the accuracy of the data.
- Use a transect to ensure the sediment sample is random. An online random number generator could decide where sediment should be collected along the transect. This would improve the accuracy of the data.
- Collect other data, such as amount of sediment and gradient. Gradient could be measured using a clinometer and ranging poles. This would improve the validity of the conclusion because more river features would be compared to the Bradshaw model.
- Repeat at different times of the day, week, and year to calculate averages. This would improve the reliability of the conclusion.

- How could your physical fieldwork enquiry be improved?

Knowledge Organiser – Physical Fieldwork

Interaction

Changes in Coldham's Brook match the Bradshaw model (width, depth, velocity, sediment)

From the specification:

'For at least one of the fieldwork enquiries students are expected to show an **understanding of the interaction between physical and human geography**.'

- Coldham's Brook has not been significantly managed by people in both locations. The concrete blocks under the bridge in Location B may have caused velocity to be unnaturally fast, but it is a small bridge so this is unlikely.
- However, downstream of Location B, the channel has been straightened for hundreds of metres. This means that width and depth are different to the original, natural channel. Similarly, velocity will be unnaturally fast here.
- Therefore, collecting data closer to the mouth would be unsuitable. It would be inaccurate for the original, natural river.

- How was your physical fieldwork affected by human activity?
- How did your physical fieldwork interact with human processes?

Exam Questions – Familiar Fieldwork – Past Papers

2018
- Explain why the location of your **physical** geography enquiry was suitable for the collection of data. (2 marks)
- Justify one primary data collection method used in your **physical** geography enquiry. (3 marks)
- Explain how **one** data presentation technique used in your **human** geography enquiry helped you to interpret the data. (6 marks)
- For **one** of your fieldwork enquiries, assess the extent to which the accuracy of the results and the reliability of the conclusions could be improved. (9 marks)

2019
- Suggest why **one** set of data you collected in your **physical** fieldwork enquiry may not have been accurate. (2 marks)
- Identify **one** potential risk in your **physical** geography fieldwork and explain how the risk was reduced. (3 marks)
- Assess the suitability of the location chosen for your **human** geography enquiry. (6 marks)
- To what extent did the data collected for **one** of your enquiries allow you to reach valid conclusions? (9 marks)

2020
- For **one** of your fieldwork enquiries, suggest how anomalies in your data could affect your fieldwork enquiry. (2 marks)
- Justify the use of **one** of the following in your **human** geography enquiry: maps, photographs, field sketches. (3 marks)
- Assess the effectiveness of your data collection method(s) for your **physical** geography fieldwork enquiry. (6 marks)
- For **one** of your fieldwork enquiries, to what extent did your results and conclusions meet the original aim of your enquiry. (9 marks)

2021, **2022** – No familiar fieldwork questions due to the impact of the pandemic.

2023
- Suggest **one** reason why the chosen location was suitable for data collection in your **human** geography enquiry. (2 marks)
- Justify **one** primary data collection method used in your **physical** geography enquiry. (3 marks)
- Assess the effectiveness of your data presentation technique(s) in your **physical** geography enquiry. (6 marks)
- For **one** of your fieldwork enquiries, to what extent did the data collected help you to obtain accurate results and reach a valid conclusion(s)? (9 marks)

Exam Questions – Familiar Fieldwork – Sample Papers

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Sample 1

- Explain the advantage(s) of the location(s) used for your **physical** fieldwork enquiry. (2 marks)
- Justify **one** primary data collection method used in relation to the aim(s) of your **physical** geography enquiry. (3 marks)
- Assess how effective your presentation technique(s) were in representing the data collected in your **human** enquiry. (6 marks)
- For **one** of your geography enquiries, to what extent were results of this enquiry helpful in reaching a reliable conclusion(s)? (9 marks)

Sample 2

- State the title of your **human** fieldwork enquiry. Explain why it was a suitable topic for a geographical enquiry. (2 marks)
- Justify **one** primary data collection method used in your **human** geography enquiry. (3 marks)
- To what extent were the data collected useful in satisfying the original aim(s) of your **physical** geography enquiry? (6 marks)
- With reference to your methods, results, and conclusions, suggest how **one** of your fieldwork enquiries could be improved. (9 marks)

Sample 3

- Suggest **one** reason why risk assessment was important when planning your **physical** geography enquiry. (2 marks)
- Justify the use of maps **or** photographs **or** field sketches in your **physical** geography enquiry. (3 marks)
- Write the title of your **human** geography fieldwork enquiry. Assess the effectiveness of your data collection method(s). (6 marks)
- For **one** of your fieldwork enquiries, to what extent did the result(s) and the conclusion(s) meet the original aim(s)? (9 marks)

Exam Questions – Familiar Fieldwork – By Topic (1 / 2)

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Hypothesis
- State the title of your **human** fieldwork enquiry. Explain why it was a suitable topic for a geographical enquiry. (2 marks)

Location
- Explain the advantage(s) of the location(s) used for your **physical** fieldwork enquiry. (2 marks)
- Justify the use of maps **or** photographs **or** field sketches in your **physical** geography enquiry. (3 marks)
- Explain why the location of your **physical** geography enquiry was suitable for the collection of data. (2 marks)
- Assess the suitability of the location chosen for your **human** geography enquiry. (6 marks)
- Suggest **one** reason why the chosen location was suitable for data collection in your **human** geography enquiry. (2 marks)

Risks
- Suggest **one** reason why risk assessment was important when planning your **physical** geography enquiry. (2 marks)
- Identify **one** potential risk in your **physical** geography fieldwork and explain how the risk was reduced. (3 marks)

Data Collection
- Justify **one** primary data collection method used in relation to the aim(s) of your **physical** geography enquiry. (3 marks)
- Justify **one** primary data collection method used in your **human** geography enquiry. (3 marks)
- Write the title of your **human** geography fieldwork enquiry. Assess the effectiveness of your data collection method(s). (6 marks)
- Justify one primary data collection method used in your **physical** geography enquiry. (3 marks)
- Suggest why **one** set of data you collected in your **physical** fieldwork enquiry may not have been accurate. (2 marks)
- Assess the effectiveness of your data collection method(s) for your **physical** geography fieldwork enquiry. (6 marks)
- Justify **one** primary data collection method used in your **physical** geography enquiry. (3 marks)

Data Presentation
- Assess how effective your presentation technique(s) were in representing the data collected in your **human** enquiry. (6 marks)
- Explain how **one** data presentation technique used in your **human** geography enquiry helped you to interpret the data. (6 marks)
- Justify the use of **one** of the following in your **human** geography enquiry: maps, photographs, field sketches. (3 marks)
- Assess the effectiveness of your data presentation technique(s) in your **physical** geography enquiry. (6 marks)

Exam Questions – Familiar Fieldwork – By Topic (2 / 2)

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Data Analysis

- No past questions explicitly / exclusively about data analysis.

Conclusions and Evaluation

- For **one** of your geography enquiries, to what extent were results of this enquiry helpful in reaching a reliable conclusion(s)? (9 marks)
- To what extent were the data collected useful in satisfying the original aim(s) of your **physical** geography enquiry? (6 marks)
- With reference to your methods, results, and conclusions, suggest how **one** of your fieldwork enquiries could be improved. (9 marks)
- For **one** of your fieldwork enquiries, assess the extent to which the accuracy of the results and the reliability of the conclusions could be improved. (9 marks)
- To what extent did the data collected for **one** of your enquiries allow you to reach valid conclusions? (9 marks)
- For **one** of your fieldwork enquiries, suggest how anomalies in your data could affect your fieldwork enquiry. (2 marks)
- For **one** of your fieldwork enquiries, to what extent did your results and conclusions meet the original aim of your enquiry. (9 marks)
- For **one** of your fieldwork enquiries, to what extent did the data collected help you to obtain accurate results and reach a valid conclusion(s)? (9 marks)