

Preparing to undertake fieldwork

Collecting reliable fieldwork data

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Key Questions

What type of data can be collected?

How can valid data be collected?

What data collection techniques can be used?

How can we plan for reliable data collection techniques?

Documents

Handout 2.1a Starter

Handout 2.1b Data Collection Techniques

Handout 2.2 Key terms

Handout 2.3a Types of data

Handout 2.3b

Handout 2.3c

Worksheet 2.4a Sampling Shoppers

Worksheet 2.4b Physical Fieldwork Sampling

Worksheet 2.4c Sampling the Environment

Handout 2.5 Secondary data sources

Starter

Review of Lesson 1 - *Geographical enquiry questions*.

Use photo and questions from lesson 1 (Handout 1.1). Follow on either with the same place or a different location e.g. may swap from physical to human.

What data will be needed to answer the enquiry questions? Discussion of how to collect the information. Reference can be made to techniques students have already used and to Handout 2.1b Data Collection Techniques

Complete Handout 2.1a Starter (using handout 2.1b Data collection techniques)

Students to write a list of data they would need and how to collect it.

Review

Main

How can we classify the data?

Using list of types of data discussion of how to classify.

Handout 2.2 Key terms.

Teaching of key terminology and definitions.

QUANTITATIVE, QUALITATIVE, PRIMARY, SECONDARY

Task: Classification of data.

Students use Venn diagrams on 2 handouts to classify data into primary/secondary and quantitative/qualitative.

Handout 2.3a Types of data

Handout 2.3b

Handout 2.3c

Review of task by using *Handout 2.1a Starter* to classify and add any further data or techniques.

Task: Designing fieldwork to collect reliable data.

Task to include concepts of reliability, bias and sampling strategies using scenarios for human and physical and settings.

Students will evaluate reliability of data, sampling strategy, specifics of data collection and design of data collection techniques.

Refer back to *Handout 2.2 Key terms* for teaching of key terminology and definitions.

Worksheet 2.4a Sampling Shoppers

Worksheet 2.4b Sampling Physical Fieldwork

Worksheet 2.4c Sampling the Environment

Follow on from this task will be to trail and evaluate the data collection sheets, this could be as homework or within the school grounds prior to the fieldtrip.

Plenary

Review and assessment of understanding of key terms.

e.g. Quick fire definitions, giving examples.

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Handout 2.1a Starter - Data Collection

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Enquiry Question	Data	How will I collect the data?

Handout 2.1b - Data Collection Techniques

Questionnaire	Land use survey	Residential housing survey
Pedestrian/traffic counts	Retail Diversity Survey	Air quality and noise measurements
Car park survey	Field sketch	Photograph
Interview	Environmental Quality Evaluation	Litter survey
River velocity measurement	Sediment analysis	Wave counts/observations
Beach profile	Soil analysis	Vegetation survey
Weather data	Quality of life survey	Sketch
Infiltration measurement	Cross profile measurements of a river	Long profile measurements of river
Observation of coastal protection	Observation of flood protection	FieldworkGB App
Collector App (ArcGIS Online)	Environmental Impact Analysis	Survey123 (ArcGIS Online)

This list is not exhaustive, so see what other techniques you can add to it.

Handout 2.2 - Key terms

Key term	Definition	Example
Primary data	Your own or group data that is collected in on the day of the fieldwork.	
Secondary data	Data that you have collected from another source. It may be current or historical data collected by someone else.	
Quantitative data	Data with a numerical value.	
Qualitative data	Data as words, views or feelings.	
Reliability	Where the data can be trusted to give an accurate representation.	
Bias	Where your sampling does not represent the whole data set because you have selected preferred data.	
Sampling	A selection of data to represent the information you want to collect, sampled in a planned way to avoid bias.	
Random sampling	Using random numbers to select a sample. It could be a location using grid references or number of choice of person to interview.	
Systematic sampling	Having a system to collect samples. Every 2m along a transect or every 5 th person.	
Stratified sampling	Using prior knowledge to decide where you collect samples from a selected area or group.	
Line, point and area sampling	Choice of how to take a sample. Along a transect line at specific points or over an area.	

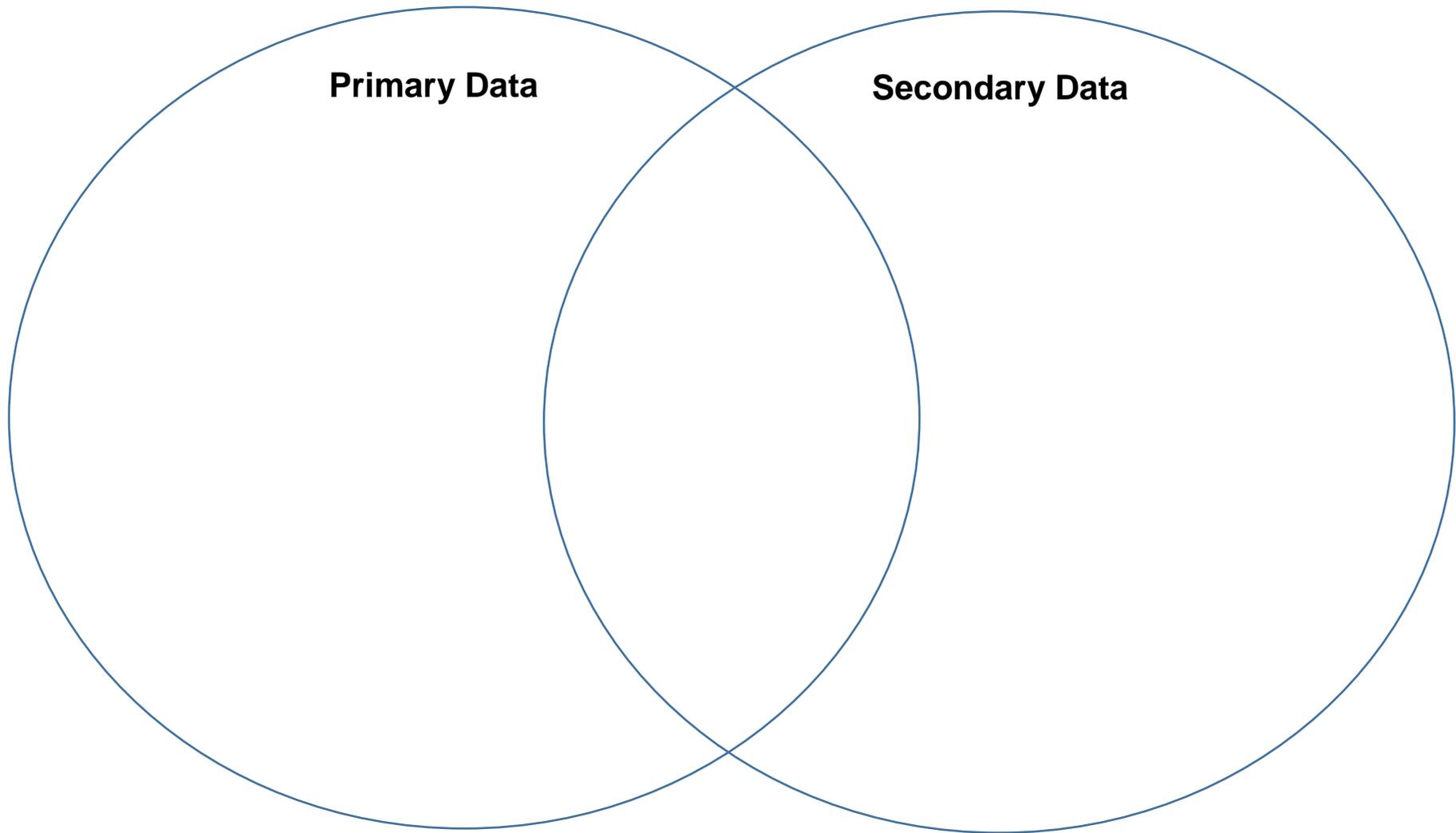
Handout 2.3a - Types of Data

Answer from interview question	Number of shops along High Street	Housing type
Pedestrian counts	Litter count	Traffic Counts
	Field sketch	Photograph
Personal opinion about the environment	Height and area of last flood	GOAD maps of Shops in town centre
River velocity m/sec	Size of sediment mm	Wave counts
Slope angle	Tourist numbers per year	Newspaper reports on flooding
Weather records for past month	Width & depth of river cm	Opinion from local about new development
Observation of coastal defences	Observation of flood protection	Interview with shop worker
Current OS Maps	Historic OS maps	Hydrological Data
Population of town	Arial Photographs	Number of parked cars

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Handout 2.3b - Classification of Data - Primary and Secondary

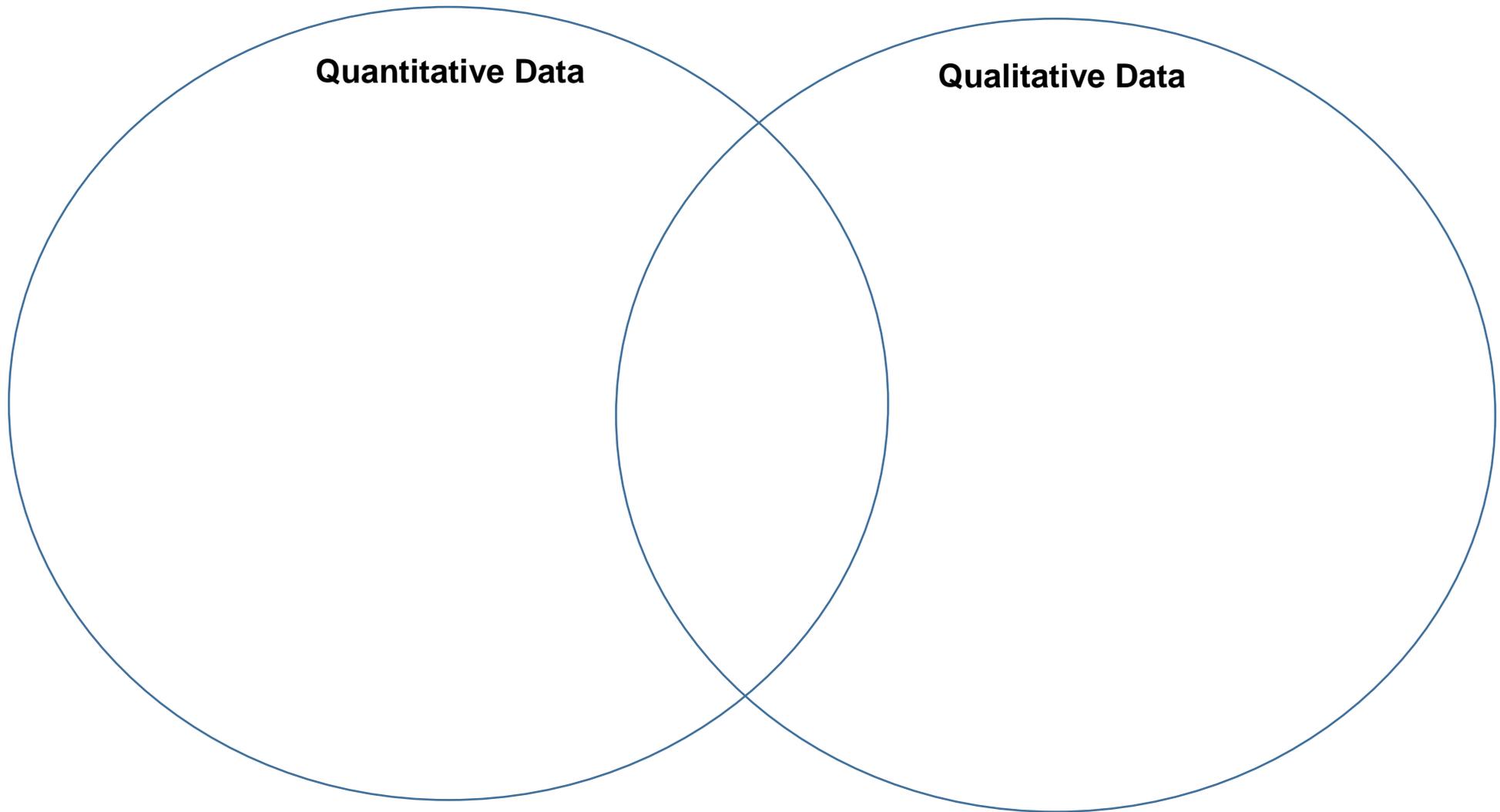
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Handout 2.3c: Classification of Data – Quantitative and Qualitative

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Worksheet 2.4a - Sampling shoppers

How can we collect reliable data?

What is the best way to sample?

A group of GCSE students are planning their Urban Fieldwork they are visiting a shopping centre to investigate changes in urban retailing. They have decided to use a questionnaire of shoppers to collect data, they have 1 hour to complete this part of the fieldwork. Members of the group have suggested different methods for sampling the shoppers on their visit.

Task 1: For each suggestion evaluate how reliable the data would be. Write notes on what the problems might be in terms of reliability, sampling size and bias. What other factors should you consider when asking questions?

Suggestion for sampling	Evaluation
1. Ask people in the car park when they arrive.	
2. Spread out in the shopping centre and ask other young people.	
3. Stand outside one shop and ask everyone who comes out of the shop.	
4. Walk around and ask as many people as possible.	

Task 2: Using your notes, make your own suggestion for sampling and collecting reliable data in the shopping centre. Justify your decision.





Task 3:

The group then discussed the data they wanted to collect from the fieldwork. They decided on a list of data to collect. Complete the table to ensure they have the correct questions and other methods to collect reliable data. Include sample size and sampling strategy. Add any other data you think would be relevant.

Shoppers data	Method/ question to ask
Home location of shopper	
Transport used	
Frequency of visit	
Main items bought	
Reasons for choosing this centre	
Opinions by shoppers of the centre	
Pedestrian flow	
Footfall	

Task 4:

Design a questionnaire and data collection sheet to be used in the field.

Task 5:

Trial your questionnaire. Evaluate how successful it is in collecting the data you need. Make adjustments to the questionnaire.

Worksheet 2.4b - Sampling Physical Fieldwork

How can we collect reliable data?

What is the best way to sample?

A group of GCSE students are planning their physical fieldwork. They are investigating changes along the course of a local river. They have an OS map and transport arranged to take them to sites where they are going to take measurements of the river. Using members of the group have suggested different methods for sampling the river along its course.

Task 1:

For each suggestion evaluate how reliable the data would be. Write notes on what the problems might be in terms of reliability, sampling method and bias.

What other factors should you consider when planning rivers fieldwork?

Suggestion for sampling	Evaluation
1. Walk down the river and look for good places to take measurements.	
2. Choose one sampling site in the upper, middle and lower course of the river.	
3. Measure a stretch of river of 5km then choose sites every 500m to stop and take the measurements.	
4. Check access points along the river and choose 5 places to take the measurements	

Task 2:

Using your notes, make your own suggestion for sampling and collecting reliable data on rivers. Justify your decision.



Task 3:

The group then discussed the data they wanted to collect at each site. They decided on a list of variables to measure. Complete the table to ensure they have the correct equipment and instructions to collect reliable data. Include sample size and sampling strategy. Add any other variables you think would be relevant.

River variable	Equipment	Method
Channel width (m)		
Channel depth (cm)		
Velocity (m/sec)		
Wetted perimeter (m)		
Gradient		
Bedload shape		
Bedload size		

Task 4:

Design a data collection sheet to be used in the field. The same sheet should be used at each sampling site.

Task 5:

Trial your data collection sheet. Evaluate how successful it is in collecting the data you need. Make any adjustments to the data collection sheet to improve it if necessary.

Worksheet 2.4c - Sampling the environment

How can we collect reliable data?

What is the best way to sample?

A group of GCSE students are planning their fieldwork. They are visiting a tourist destination to investigate the impact of tourism on the environment. They have decided to use an Environmental Quality Assessment to collect data. They have a map of the town and 1 hour to complete this part of the fieldwork.

Members of the group have suggested different methods for sampling the location on their visit.

Task 1:

For each suggestion evaluate how reliable the data would be. Write notes on what the problems might be in terms of reliability, sampling size and bias.

What other factors should you consider when sampling environmental quality?

Suggestion for sampling	Evaluation
1. Take the survey in the car park when they arrive.	
2. Spread out in the town and look for places to take the survey.	
3. Using the map choose locations along a transect line at regular intervals e.g. every 500m	
4. Using the map choose sites in different locations around the town e.g. sea front, park, shopping area.	

Task 2: Using your notes, make your own suggestion for sampling and collecting reliable data in the tourist destination. Justify your decision.



Task 3:

The group then discussed the data they wanted to collect from the fieldwork. They decided on a list of data to collect. Complete the table to ensure they have the correct methods to collect reliable data. Include sample size and sampling strategy. Add any other data you think would be relevant.

Tourist data	Method/ question to ask
Home location of visitor	
Transport used	
Reasons for coming to this destination	
Activities of visitor whilst here	
Opinions by visitors of the location	
Litter	
Graffiti	
Types of facilities available	
Impact of visitor on the environment.	

Task 4:

Design an Environmental Quality Assessment and data collection sheet to be used in the field. Remember, the same sheet should be used at each sampling site.

Task 5:

Trial your Environmental Quality Assessment and data collection sheet. Evaluate how successful they are in collecting the data you need. Make any adjustments to improve them if necessary.

Handout 2.5 - Secondary Data collection sources

Current OS maps	Historic OS maps	GOAD maps
Satellite images	Arial photographs	Hydrological data
Climate data	Flood maps	Newspaper reports
Census data	Environmental Agency website	BGS iGeology app
Google Earth/ streetview	Old photographs	Open Street Map

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