Skills 2: Dynamic Risk Assessment: Risks which may river trip, stranger danger in a town.

Site Specific Risk assessment: cream weather, very hot, sunburn/wear a hat/suntan

Enquiry/Investigation Approach

<table>
<thead>
<tr>
<th>Study area</th>
<th>Aim</th>
<th>Hypothesis</th>
<th>Prediction/ context</th>
<th>Data Collection Methods (methodology)</th>
<th>Data collection</th>
<th>Presentation</th>
<th>Interpretation/ analysis</th>
<th>Conclusion</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The big idea that we are investigating/ trying to find out eg to investigate how a river changes along the long profile.</td>
<td>An idea you are going to test to help you meet your aim eg the gradient should get flatter the closer you get to the mouth of the river</td>
<td>What you think the answer to your hypothesis is and supported by geography theory</td>
<td>How you collected the data – what, where, when, how including equipment used, why</td>
<td>Using your methods to gather your results.</td>
<td>Your results shown in graphs, maps etc</td>
<td>Description and explanation of your data/results</td>
<td>The answer to your aim &amp; hypothesis, drawing upon your results/evidence</td>
<td>A summary of how reliable your data collections methods were and therefore, your results and the conclusions you drew from them.</td>
</tr>
</tbody>
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Risk Assessments

1. What is the hazard or risk to Health and or safely.
2. What is the consequence / impact of the risk?
3. How can the risk be controlled?

Generic Risk assessment: General risks that could apply to any type / location of fieldwork e.g. Weather, Very hot, sunburn/ wear a hat/ sunscreen cream

Site Specific Risk assessment: Risks associated with a precise location e.g. Drowning on a river trip, stranger danger in a town.

Dynamic Risk Assessment: Risks which may come to light on the day e.g. recent weather made the rocks at the beach slippery

Analysis

Remember to apply DEAD:
Describe the overall trends, use terms like increasing, decreasing, fluctuating sparsely, clustered, steadily, exponentially.

Explain your results, link what you found to theory, does it fit? Why? doesn’t it fit with theory? Why not?

Anomalies—-are there any results that stick out as odd, why might this be? Data— throughout your analysis make sure you quote raw data and manipulate your data—range, Mode, median, mean, IQR, Standard deviation, Spearman’s rank, if appropriate.

Conclusion

- Which results help you answer your Aim? How? Why?
- Which results help you answer each Hypothesis? How? Why?
- How secure are your conclusions?

Tentative: you got a gut feeling but have little evidence or your evidence was not reliable

Partial: You can back your gut feeling up with statistical evidence

Complete: Someone else doing your enquiry would get the same results, well supported with evidence and statistics.

Evaluation

Link back to your methods, what was good about your methods/data: what were the problems & limitations and also how these could be sorted to improve the reliability, standardisation and reproducibility of your results. Also evaluate:

- Why the aim and hypothesis were good ones to choose, How could they be improved
- Why the location was a good choice, why / why not?
- Why the data presentation worked or not (see Graphs KO)

Therefore how could you change your enquiry be improved if you were to do it again.

Sampling

<table>
<thead>
<tr>
<th>Sampling Method</th>
<th>Description</th>
<th>Pros and cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Random</td>
<td>You collect data at sites that are chosen randomly with each site having equal chance of being selected</td>
<td>Eliminates bias, You might not get full coverage, Takes time to work out</td>
</tr>
<tr>
<td>Systematic</td>
<td>You collect data at fixed intervals. Eg every 50m</td>
<td>Can get full coverage, Could miss out significant data, Easy to set up and start</td>
</tr>
<tr>
<td>Stratified</td>
<td>You collect data that is proportional to the whole area/population that you are testing. Eg if you were collecting the opinions of people from Minehead, 33 would need to be aged 65+, 33 aged 16-64 &amp; 14 under 15 to represent Minehead’s population structure.</td>
<td>Gives a better representation of the whole population/area, Difficult to work out/collection</td>
</tr>
<tr>
<td>Pragmatic Sampling</td>
<td>You choose sites that are based on practical decisions eg safe, accessible, legal!</td>
<td>Easy and safe to collect data, Introduces a lot of bias and therefore may not be representative</td>
</tr>
</tbody>
</table>

Aim & Hypothesis

- What was the aim (title) of your fieldwork
- What were the hypothesis
- Why these were good ones to choose

Study Area

- Where your study area is
- Why your study area was a good one to choose (link to location & theory)

Method

- What data did you collect?
- Why did you collect that data?
- How did you carry out your data collection? What equipment did you use?
- What sample method did you use
- Why did you choose that sample method?
- What problems arose (things you could sort out e.g. Operator error/ Equipment error)
- What limitations did you experience (things you can’t sort out, e.g. Tide, Weather)?
- How did these problems and limitations affect your results?
- Was their Bias in your findings?

Extensions

- How does your investigation fit in with the wider world
- Who would benefit/be interested in the results of your investigation
- How could your investigation be used for further investigation
Investigation Terms / Glossary

Bias: your data shows a one sided view, or skewed results, perhaps because you set up your aim wrong, or your sampling technique.

Equipment Error: a problem with the apparatus used to collect data that may affect your results

Operator Error: A mistake the person collecting the data has made which may affect your results

Primary Data: data you collected yourself, this is good as it can be up to date and targeted to what you want to find out, but can be time consuming and biased if you don’t set up your sampling well.

Qualitative data: Data that is based on opinion, subjective, such as how people feel about living in a town, This is good to get a range of views, but difficult to put into graphs.

Quantitative data: This is numeric, objective data, for examples temperatures over a year. It is good because it is measurable, factual and you can do graphs, statistics and data manipulation. However, it is time consuming to get enough data to be representative.

Representative: Getting a set of data that reflects the whole area / population you are sampling without Biased. As a minimum you should aim to sample 10% of the total data set, but the more data you collect, the more representative your results will be.

Reproducible: Making sure that your method is as free form operator and equipment errors as possible so if someone were to redo your enquiry they would get the same results.

Sample size: How many sets of data you took, ideally should be at least 10% of the total population, the more you collect the more representative of the whole your results will be but more sets of data may be more difficult to analyse.

Sample method: A way an area/site to survey/observe/measured etc is chosen eg random, systematic (see table over the page for more detail)

Secondary data: data that someone else collected. If this is done by large organisations such as the government collecting eg. Census data this can be very useful as they have more time, money and resources to collect a lot of data which will be representative. However, the data may be out of date or not exactly what you want/need

Standardised: Devising a method that is systematic and reproducible to reduce operator and equipment errors and ensure your results are more reliable.

Numerical Skills

<table>
<thead>
<tr>
<th>Mode: The most common</th>
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<tbody>
<tr>
<td>Median: The middle value when all the values are put in order</td>
</tr>
<tr>
<td>Mean (Average): Total all the items then divide by the number of items</td>
</tr>
<tr>
<td>Range: The difference between the highest and lowest</td>
</tr>
<tr>
<td>Percentages: To give the amount X as a percentage of Y, you need to divide X by Y and multiply by 100.</td>
</tr>
<tr>
<td>Percentage Change: how much something has increased or decreased.</td>
</tr>
<tr>
<td>Percentage change = ( \frac{\text{Final value} - \text{original value}}{\text{original value}} \times 100 )</td>
</tr>
</tbody>
</table>

For example:

<table>
<thead>
<tr>
<th>Sample</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>River Discharge ((\text{Cumecs}))</td>
<td>184</td>
<td>90</td>
<td>159</td>
<td>142</td>
<td>64</td>
<td>64</td>
<td>95</td>
</tr>
</tbody>
</table>

Mode = 64 appears twice, all other numbers once = 64
Median = 64,64,90,95,142,159,184 = 95
Mean = \( \frac{184+90+159+142+64+64+95}{7} = 114 \)
Range = 184-64=120

Statistical Skills

Interquartile Range= Once you have found the middle value, (median), you can also find the upper and lower quartiles (i.e. 25% and 75% values of the ordered data).

Example:

The number of shoppers in each shop in a village were counted as:

\[2,3,6,6,7,9,13,14,17,22,22\]

The median is 9
The lower quartile is 6, the upper quartile is 17
The interquartile range is the difference between the upper and lower quartiles, i.e. \(17-6 = 11\), it contains the middle 50% of the values and gets rid of outlies / anomalous data.

Spearman’s rank = a way of quantifying the relationship between two sets of data. If you can draw a scatter graph, you can do spearman’s rank.

The answer comes as a Value R from –1 through 0 to +1.
If \(R = \frac{-1}{2} = \) perfect negative correlation, \(0 = \) no correlation \(+1 = \) perfect positive correlation

You also need to work out how significant your answer is using significance tables. Usually we work at the 95% confidence level, i.e. we check the R value against a significance table to check that there is over a 95% chance that our result was not

Tips for the Issue Evaluation section

- This paper is all about analysing and interpreting information which you will get 12 weeks before the exam...
- You may need to think about the issue on a variety of Spatial scales: Local / Regional / National / International / Global
- You may need to have opinions on the Temporal (time) scales involved in the Issue—Short term / Long Term
- When thinking about impacts or consequences try to categorise – Social / Economic / Environmental / Political / Negative / Positive
- Think about the stake holders involved in the issue: Locals / Residents / Farmers / Government / NGO’s / Businesses.
- Remember a key idea in Geography is Sustainability - using resources today in a way which will not ruin our planet for future generations. Can you get this idea into your answers? Is something sustainable or not?