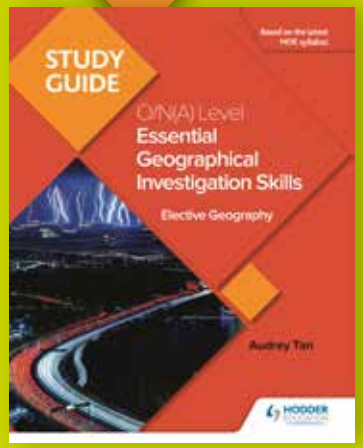
STUDY GUIDES

Essential Geographical Investigation Skills for O/N(A) Level
Core/Elective Geography

Present opportunities for students to investigate geographical phenomena in authentic real-life contexts to generate a meaningful geographical inquiry process, and ensure thorough coverage of the latest Geography Syllabus with content focused on the 2 main topics: Coasts and Global Tourism for Core, Weather & Climate and Global Tourism for Elective.



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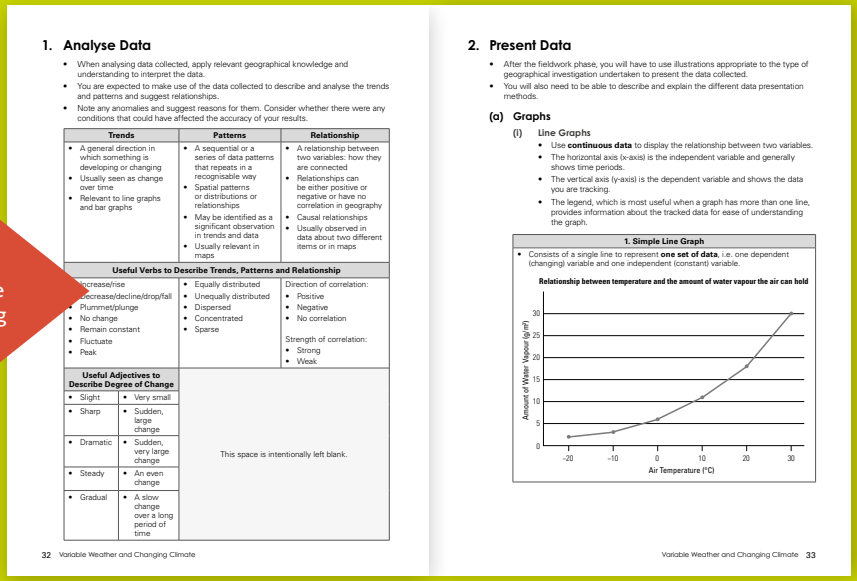
Cultivate in-depth thinking through data analysis and encourage reflection by presenting findings.



1. **Analyse Data**

- When analysing data collected, apply relevant geographical knowledge and understanding to interpret the data.
- You are expected to make use of the data collected to describe and analyse the trends and patterns and suggest relationships.
- Note any anomalies and suggest reasons for them. Consider whether there were any conditions that could have affected the accuracy of your results.

Trends	Patterns	Relationship
• A general direction in which something is developing or changing • Usually seen as change over time • Relevant to line graphs and bar graphs	• A sequential or a series of data patterns that repeats in a recognisable way • Spatial patterns or distributions or relationships • May be identified as a significant observation in trends and data • Usually relevant in maps	• A relationship between two variables: how they are connected • Relationships can be either positive or negative or have no correlation in geography • Causal relationships • Usually observed in data about two different items or in maps

Useful Verbs to Describe Trends, Patterns and Relationship

• Increase/rise • Decrease/decline/drop/fall • Plummet/plunge • No change • Remain constant • Fluctuate • Peak	• Equally distributed • Unequally distributed • Dispersed • Concentrated • Sparse	Direction of correlation: • Positive • Negative • No correlation Strength of correlation: • Strong • Weak

Useful Adjectives to Describe Degree of Change		
• Slight	• Very small	This space is intentionally left blank.
• Sharp	• Sudden, large change	
• Dramatic	• Sudden, very large change	
• Steady	• An even change	
• Gradual	• A slow change over a long period of time	

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2. **Present Data**

- After the fieldwork phase, you will have to use illustrations appropriate to the type of geographical investigation undertaken to present the data collected.
- You will also need to be able to describe and explain the different data presentation methods.

(a) Graphs

(i) Line Graphs

- Use **continuous data** to display the relationship between two variables.
- The horizontal axis (x-axis) is the independent variable and generally shows time periods.
- The vertical axis (y-axis) is the dependent variable and shows the data you are tracking.
- The legend, which is most useful when a graph has more than one line, provides information about the tracked data for ease of understanding the graph.

1. Simple Line Graph

- Consists of a single line to represent **one set of data**, i.e. one dependent (changing) variable and one independent (constant) variable.

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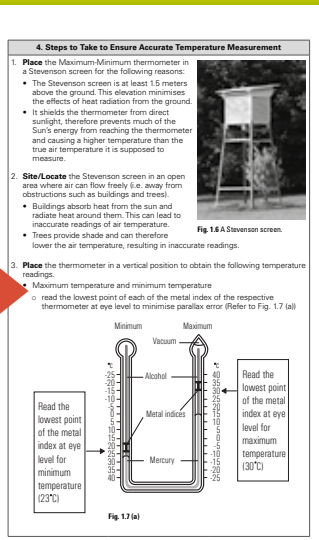
Build geographical investigation skills with experiment walk throughs and practice.



4. Steps to Take to Ensure Accurate Temperature Measurement

1. **Place** the Maximum-Minimum thermometer in a Stevenson screen for the following reasons:
   - The Stevenson screen is at least 1.5 meters above the ground. This elevation minimises the effects of heat radiation from the ground.
   - It shields the thermometer from direct sunlight, therefore prevents much of the Sun's energy from reaching the thermometer and causing a higher temperature than the true air temperature it is supposed to measure.
2. **Site/Locate** the Stevenson screen in an open area where air can flow freely (i.e. away from obstructions such as buildings and trees).
   - Buildings absorb heat from the sun and radiate heat around them. This can lead to inaccurate readings of air temperature.
   - Trees provide shade and can therefore lower the air temperature, resulting in inaccurate readings.
3. **Place** the thermometer in a vertical position to obtain the following temperature readings.
   - Maximum temperature and minimum temperature
     - read the lowest point of each of the metal index of the respective thermometer at eye level to minimise parallax error (Refer to Fig. 1.7 (a))

Fig. 1.6 A Stevenson screen.

Fig. 1.7 (a)

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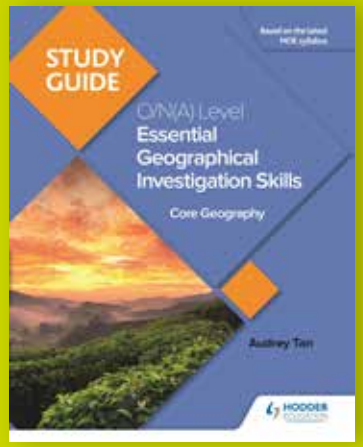

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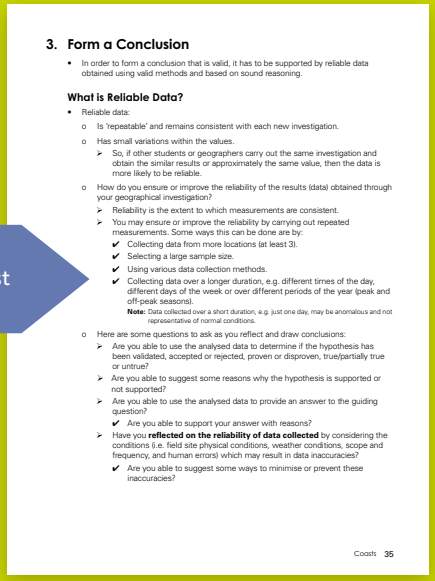
Identify limitations of the studies and suggest improvements.



3. **Form a Conclusion**

- In order to form a conclusion that is valid, it has to be supported by reliable data obtained using valid methods and based on sound reasoning.

What is Reliable Data?

- Reliable data:
  - Is 'repeatable' and remains consistent with each new investigation.
  - Has small variations within the values.
    - ➢ So, if other students or geographers carry out the same investigation and obtain the similar results or approximately the same value, then the data is more likely to be reliable.
  - How do you ensure or improve the reliability of the results (data) obtained through your geographical investigation?
    - ➢ Reliability is the extent to which measurements are consistent.
    - ➢ You may ensure or improve the reliability by carrying out repeated measurements. Some ways this can be done are by:
      - ✔ Collecting data from more locations (at least 3).
      - ✔ Selecting a large sample size.
      - ✔ Using various data collection methods.
      - ✔ Collecting data over a longer duration, e.g. different times of the day, different days of the week or over different periods of the year (peak and off-peak seasons).

      Note: Data collected over a short duration, e.g. just one day, may be anomalous and not representative of normal conditions.
  - Here are some questions to ask as you reflect and draw conclusions:
    - ➢ Are you able to use the analysed data to determine if the hypothesis has been validated, accepted or rejected, proven or disproven, true/partially true or untrue?
    - ➢ Are you able to suggest some reasons why the hypothesis is supported or not supported?
    - ➢ Are you able to use the analysed data to provide an answer to the guiding question?
      - ✔ Are you able to support your answer with reasons?
    - ➢ Have you **reflected on the reliability of data collected** by considering the conditions (i.e. field site physical conditions, weather conditions, scope and frequency, and human errors) which may result in data inaccuracies?
      - ✔ Are you able to suggest some ways to minimise or prevent these inaccuracies?

Coasts 35

Learn how to annotate photographs of fieldwork sites.

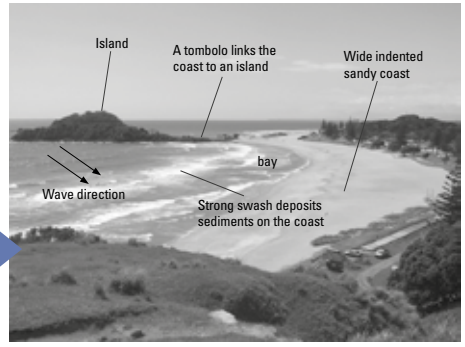


Fig. 1.17 An example of an annotated photograph.

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