



What is GIS?

GIS stands for Geographical Information Systems. It is a computer-based tool that helps us collect, store, analyse and display spatial or geographical data.

GIS links maps with data, allowing geographers to look at patterns and relationships in the real world.

Example: A map showing areas most at risk of flooding, with data on rainfall, elevation, and land use layered together.

What is GIS used for?

GIS is used in many real-world situations:

- Urban Planning: Designing towns, roads, and public transport.
- Disaster Management: Predicting floods, wildfires, or earthquakes.
- Environmental Protection: Monitoring pollution, deforestation, and habitats.
- Agriculture: Managing crops, soil types, and weather data.
- Business: Choosing the best location for new shops or services.
- Crime Mapping: Spotting patterns in crime rates.

Strengths of GIS

- Combines multiple types of data on one map.
- Helps make better, informed decisions.
- Can be updated quickly.
- Allows analysis of patterns and trends over time.
- Helps solve real-world problems using evidence.

Limitations of GIS

- Can be expensive to set up and use.
- Requires technical skills to use properly.
- Data can be outdated or incomplete.
- Needs good internet access and reliable devices.

How to Set Up a Simple GIS

1. Choose a GIS Software: e.g. ArcGIS, QGIS, or online tools like Digimap.
2. Collect Data: Find geographical data like rainfall, population, or land use.
3. Upload a Base Map: Start with a map of the area you're studying.
4. Add Data Layers: Overlay different sets of data (e.g. rivers, roads, buildings).
5. Analyse the Map: Look for patterns, trends, and relationships.
6. Export or Share: Save or present your GIS map as part of your research.

Key Terms to Know

- Layer: A single set of related data (e.g. schools, rivers).
- Attribute Data: Information about features (e.g. a river's length).
- Base Map: The background map you add data to.
- Spatial Data: Data that includes location (e.g. GPS coordinates).
- Thematic Map: A map that shows a particular theme or topic (e.g. pollution).