Grade 11 Geography

CBC NOTES | Terms 1, 2 and 3 - notes for 15 topics

IN EVERY TOPIC

- What you will learn, the key words and key terms explained.
- Clear notes under headings and subheadings, with labelled pictures and step-by-step procedures.
- Comparison tables, and advantages and disadvantages where methods are compared.
- Key points to remember, then structured questions to practise.
- All the answers and a glossary at the back.

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Strand 1.0 Practical Geography | Term 1

1.1 Map Reading and Interpretation

WHAT YOU WILL LEARN

By the end of this topic you should be able to:

- read and interpret human activities on topographical maps
- enlarge and reduce parts of topographical maps for interpretation

KEY WORDS

topographical map, key, conventional sign, grid reference, settlement pattern, nucleated, linear, dispersed, all-weather road, enlargement, reduction, scale.

A topographical map shows both natural features (relief, drainage, vegetation) and human features (settlement, roads, farms, industries). In this topic you will read human activities from conventional signs, describe settlement patterns, enlarge and reduce parts of a map, interpret relationships between activities, and see how maps are used in planning.

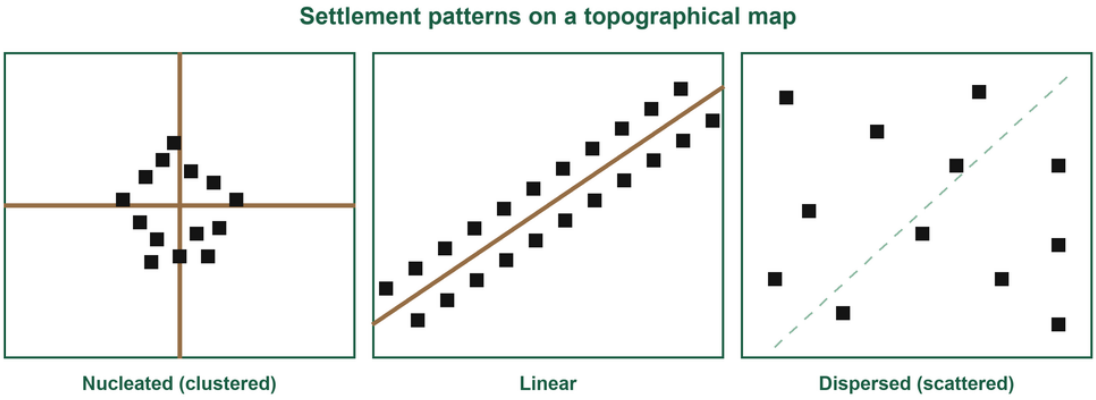
1. Reading human activities on a map

Human features are shown by conventional signs explained in the key. Always name the activity and quote the evidence with its location: "Agriculture: there is a tea estate in grid square 3540."

Human activities and their evidence

Activity	Evidence on the map
Agriculture	estates and plantations (tea, coffee, sisal), cattle dips, dams, irrigation channels, processing factories
Forestry	forest reserves, tree plantations, forest stations, saw mills
Fishing	fish landing beaches, fish ponds, jetties
Trade	markets, shops, trading centres, petrol stations
Industry and mining	factories, quarries, posho mills, ginneries, mines, murram pits
Tourism and wildlife	national parks, game reserves, lodges, hotels, campsites, viewpoints
Social services	schools, hospitals, dispensaries, churches, mosques, police posts, chief's camps

2. Settlement patterns and transport

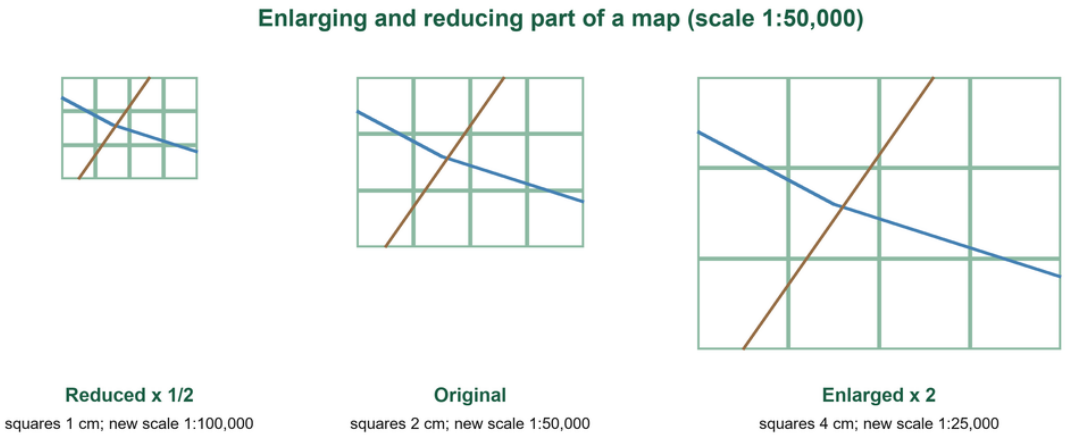


Nucleated, linear and dispersed settlement

- NUCLEATED (clustered): buildings grouped at a trading centre, mission or road junction.
- LINEAR: buildings along a road, railway, river or ridge.
- DISPERSED (scattered): buildings spread out where people farm their own land.
- SPARSE or none: steep slopes, forests, game parks, swamps or very dry areas.

Gentle slopes, water, roads, fertile soils and services attract settlement; steep slopes, swamps, forests and protected areas discourage it. Transport shown on maps includes all-weather and dry-weather roads, tracks, railways with stations, airstrips and telephone lines.

3. Enlarging and reducing part of a map



The same area reduced, at the original size and enlarged

Enlarging two times (x2)

1. Frame the area on the map (e.g. eastings 32 to 35, northings 40 to 43).
2. The map's grid squares are 2 cm; draw a frame with the same number of 4 cm squares.
3. Copy the features square by square, keeping their position in each square.
4. Work out the new scale: 1:50,000 enlarged two times = 1:25,000 (50,000 / 2).
5. Add a title, key, north arrow, the new scale and a frame.

To reduce by half, draw 1 cm squares and copy only the main features (main roads, railway, rivers, towns). The new scale of a 1:50,000 map reduced by half is 1:100,000 (50,000 x 2). Reduced maps show the general pattern of a large area.

4. Relationships and maps in planning

- Agriculture and industry: estates supply raw materials to nearby factories (tea, coffee, sugar).
- Transport and trade: trading centres grow at road junctions and railway stations.
- Settlement and services: schools and dispensaries are found where many people live.
- Tourism and wildlife: hotels and campsites are near parks and reached by roads or airstrips.

Topographical maps in planning

+ Advantages

- Choose road, railway and pipeline routes with gentle slopes and few river crossings.
- Locate housing, markets, schools, hospitals, irrigation and dams; identify flood plains and landslide risks.

- Disadvantages

- Old maps may not show new roads, towns or cleared forests.
- Small-scale maps leave out details needed for exact planning.

KEY POINTS TO REMEMBER

- Name each human activity and quote its evidence and location.
- Settlement patterns: nucleated, linear, dispersed; influenced by relief, water, roads, soils and services.
- Enlarging x2: double the square size; 1:50,000 becomes 1:25,000.
- Reducing by half: halve the square size; 1:50,000 becomes 1:100,000.
- Maps guide planning of roads, towns, farms, water, conservation and disaster management.

ANSWER THESE

1. Give the evidence on a topographical map for (a) agriculture (b) trade (c) tourism. (3 marks)

2. Describe three settlement patterns and give one cause of each. (6 marks)

3. A 1:50,000 map is enlarged three times. What is the new scale? (2 marks)

4. What happens to the grid squares and the details when a map is reduced by half? (2 marks)

5. Give three uses of topographical maps in planning. (3 marks)

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1.2 Elementary Surveying

WHAT YOU WILL LEARN

By the end of this topic you should be able to:

- explore types of surveying in geographical studies
- examine the importance of surveying in the society
- map the school compound by pacing methods

KEY WORDS

surveying, cadastral survey, topographic survey, hydrographic survey, engineering survey, aerial survey, astronomic survey, pace, pacing, base line, offset, field book.

Surveying is the science of measuring and recording the positions, distances, directions, heights and areas of features, and showing them on maps and plans. In this topic you will learn the six types of surveying, why surveying matters, and how to map the school compound by pacing.

1. Meaning and types of surveying

Surveying

Measuring and recording the positions, distances, directions, heights and areas of features on or near the Earth's surface, and representing them on maps and plans.

Six types of surveying

Cadastral	Topographic	Engineering
fixes land boundaries for registration and title deeds	measures natural and human features and heights for maps	data for designing and setting out roads, dams, bridges, buildings

Hydrographic	Aerial	Astronomic
depth and floor of lakes, rivers, harbours (echo sounders)	photographs and scans from aircraft or drones	exact positions and true north from the sun and stars

The six types of surveying

Surveyors use measuring tapes and chains, compasses, levels, theodolites, total stations, GPS receivers and drones. In Kenya, land surveys are regulated by the Survey Act and carried out by licensed surveyors; the Survey of Kenya produces official maps.

2. Importance of surveying

- Fixes land boundaries for registration and title deeds, reducing disputes.
- Provides data for maps used in planning, navigation, security and tourism.
- Guides the safe construction of roads, railways, bridges, dams and buildings.
- Supports urban and rural planning, and the management of forests, water and minerals.
- Helps in disaster management by mapping flood zones and unstable slopes.
- Creates careers: surveyors, GIS technicians, cartographers, drone pilots.

REMEMBER

Valuing surveying means respecting beacons and boundaries and supporting proper land registration.

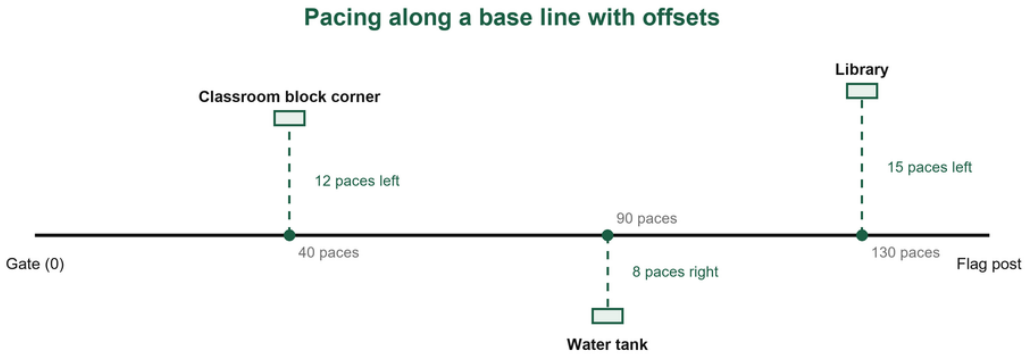
3. Pacing: calibrating your pace

> **Pacing**
> Estimating distance by counting steps (paces) of a known length. It is quick and needs no instruments, but it is only approximate.

Calibrating

1. Measure and peg a straight line of 20 m on level ground.
2. Walk it normally and count the paces; repeat three times, e.g. 31, 30 and 32 paces.
3. Average: (31 + 30 + 32) / 3 = 93 / 3 = 31 paces.
4. Pace length = 20 m / 31 paces = about 0.65 m.

4. Mapping the school compound



Pacing along a base line with offsets to features

From field data to a plan

1. Pace a straight base line (e.g. gate to flag post); record the chainage where each feature lies to the side.
2. Pace the offset at right angles to each feature; record left or right.
3. Convert paces to metres: 40 paces x 0.65 m = 26 m.
4. Draw to scale (1 cm to 10 m): a 150 m base line is 15 cm; a 26 m offset is 2.6 cm.
5. Add a title, key, north arrow, scale, date and surveyors' names.

> **SAFETY**
> Stay inside the compound, avoid vehicles and do not enter offices.

> **KEY POINTS TO REMEMBER**
> - Surveying measures and records positions, distances, heights and areas for maps and plans.
> - Six types: cadastral, topographic, engineering, hydrographic, aerial and astronomic.
> - Surveying supports land registration, construction, planning, resources and disaster management.
> - Calibrate your pace over a known distance before pacing.
> - Chainage is along the base line; an offset is at right angles to it.

ANSWER THESE

1. Name the type of surveying for each: (a) fixing land boundaries for title deeds (b) measuring the depth of a harbour (c) designing a new bridge. (3 marks)
2. A learner walked a 20 m line in 26, 25 and 24 paces. Work out the average number of paces and the pace length. (3 marks)
3. Using a pace length of 0.65 m, convert 60 paces to metres. (2 marks)
4. Explain the difference between chainage and an offset. (2 marks)
5. Give three ways in which surveying is important to society. (3 marks)

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