St Mary's Yala

Reading the Landscape: Interpreting Drainage Patterns from Contour Lines

Grade 10 · Social Sciences · 40 minutes

Rosenshine (2012) Principles of Instruction | Black & Wiliam (1998) formative assessment | CBE competency evidence logic

Lesson Objective: By the end of this lesson, learners will be able to interpret contour patterns to identify drainage features on topographical maps and justify why different drainage patterns develop in relation to the underlying physical landscape

🔍 Prior Knowledge Check

Activity	Quick recall: Show learners a simple topographical map extract. Ask them to identify and point out different map symbols they recognize
Opening question	What do the brown lines on this map represent, and what do the blue lines show?

👩‍🏫 I Do — Teacher Models

Teacher action	Model interpretation of contour patterns and drainage features using a topographical map extract of the Yala River area in Siaya County. Demonstrate how to read contour direction to determine river flow
Worked example	Using the Yala River basin: 'I can see brown contour lines forming V-shapes. The V points uphill, away from where the river flows. Since contour lines connect points of equal elevation, and rivers flow downhill, I know the Yala River flows from higher ground toward Lake Victoria. The contour spacing tells me about the landscape - where lines are close together, the slope is steep.'
Think-aloud	Let me trace this river step by step. First, I identify the blue solid line - that's a permanent river. Now I look at the brown contour lines around it. See how they form V-shapes? The rule is: the V always points upstream, toward higher ground. So if I follow the point of the V, that tells me which direction is uphill, and water flows the opposite way - downhill toward the wider part of the V.
Rosenshine principle	Present new material in small steps with clear modeling and worked examples before student practice

Key vocabulary: Contour line, Drainage pattern, Confluence

🤝 We Do — Guided Practice

Guided task	Working in pairs, learners analyze a topographical map extract showing part of the Yala River system. They identify drainage features, trace flow direction using contour patterns, and explain the relationship between landscape and drainage

Circulation focus	Check that learners correctly identify contour V-shapes pointing upstream, distinguish between solid and broken blue lines, and can justify their flow direction reasoning
Hinge question	When contour lines form V-shapes around a river, which direction does the point of the V indicate?
Correct answer	B — The direction toward higher ground (upstream)
If <80% correct	Re-demonstrate using physical model: pour water on inclined surface and show how it creates V-shaped channels pointing uphill

✏️ You Do — Independent Practice

Independent task	Individual analysis of a new topographical map extract. Learners identify drainage features, determine flow directions, classify the drainage pattern type, and explain how the physical landscape influences this pattern
Competency evidence	Learners demonstrate critical thinking by analyzing map evidence, making logical deductions about flow direction, and justifying their reasoning with reference to contour patterns and elevation changes
Link to performance task	This prepares learners for extended performance tasks involving drainage basin analysis and environmental management decisions in Kenyan river systems

🎫 Exit Ticket

Prompt	Explain how you can determine the direction a river flows using contour lines. Give one reason why this skill is important for understanding Kenya's landscape
What it proves	Demonstrates understanding of contour-drainage relationship and can apply geographical reasoning to real-world contexts
Recording method	Collect written responses as learners leave. Sort into three piles: secure understanding, developing understanding, needs reteaching

SUPPORT

Provide simplified map extracts with clearer contour patterns. Use color-coding to highlight V-shapes. Offer sentence starters for explanations

CORE

Standard topographical map interpretation with guided worksheet support and vocabulary scaffolds

EXTENSION

Analyze more complex drainage patterns. Compare different areas and predict environmental challenges. Consider human impact on drainage systems

RESOURCES NEEDED

Topographical map extracts of Yala River area (Siaya County) · Printed worksheets for each phase · Whiteboard markers for demonstration

This lesson plan is a teacher-designed classroom resource supporting CBE delivery. It does not replace KNEC or KICD curriculum designs.