

The Case of the Changing Landscape

Geography of Europe & the Americas: Demonstrate a broad understanding of the major countries, capitals, and regions of Europe and the Americas, and locate, describe, and compare the major cultural and physical characteristics (such as climate and landforms) of these regions.

Learning target: I can use latitude and longitude and explain how physical features and climate affect how people live.

Success looks like: Students use the vocabulary correctly, complete the mystery case, and score 80% or higher on the evidence-based exit ticket.

Materials: Student devices, the printed lesson worksheet (one per student), projector for the mini-lesson presenter.

LESSON AT A GLANCE

60 minutes

Time	Part	Teacher does	Students do
0:00-0:08	Warm-up	Project the warm-up. Circulate, then call on 2-3 students. Save question 3 for the debrief.	Answer Part 2 of the lesson worksheet; share with a partner.
0:08-0:20	Mini-lesson	Teach with the 4-step presenter. Run each quick check with the whole class.	Complete worksheet Parts 4-11 as each slide appears; answer checks with fingers.
0:20-0:48	Mystery Case	Launch The Case of the Changing Landscape. Assign mission levels; circulate with the answer key.	Play solo or in pairs; record code pieces; complete any written evidence task.
0:48-0:52	Debrief	Ask 2 debrief questions and revisit warm-up question 3.	Finish worksheet Part 13 (prediction check + one thing learned).
0:52-1:00	Exit ticket	Hand out the exit ticket. Collect and sort with the mastery guide.	Answer with evidence independently.

Key vocabulary

Word	Student-friendly definition
Latitude	Imaginary lines running east-west that measure distance north or south of the Equator.
Longitude	Imaginary lines running north-south that measure distance east or west of the Prime Meridian.
Physical feature	A natural feature of Earth's surface: mountains, rivers, plains, peninsulas.
Climate	The usual weather of a place over a long time.

Word	Student-friendly definition
Human-environment interaction	How people adapt to, depend on, and change their environment.

1. WARM-UP

0:00–0:08 · 8 min

Warm-up expectations (post these): Answer in Part 2 of the lesson worksheet (or on this sheet). Number each answer to match the question. Answer in complete sentences. For math, show your work. Work silently for 5 minutes, then share with a partner for 2 minutes. Be ready to share one answer with the class.

#	Question	Look for
1	What is the Equator? What is special about it?	An imaginary line around the middle of Earth at 0° latitude; it divides the Northern and Southern Hemispheres.
2	Why is it usually colder on top of a mountain than at the bottom?	Temperature drops as elevation increases.
3	Give one way people in Indiana change their environment.	Examples: building dams or reservoirs, draining wetlands for farms, building roads, planting crops.

2. MINI-LESSON

0:08–0:20 · 12 min

Project the Lesson presenter from the room page. It runs the whole hour: target and agenda, warm-up with timer, hook vote, 4 teaching steps (key idea, interactive tool, turn and talk, check for understanding), I do / we do / you do, a work-time screen with a timer and expectations, debrief, and the exit ticket. Press N for teacher notes, T to pause the timer, and P to pick a student.

Hook (1 min): Indianapolis (40° N) and Madrid, Spain (40° N) are the same distance from the Equator. Will their weather be the same? Class vote: Yes / No / Not sure

Step 1 (3 min): Latitude and longitude

Teach	Latitude lines run east-west and measure north or south of the Equator (0°). Longitude lines run from pole to pole and measure east or west of the Prime Meridian (0°).
Interactive tool	Visual: Latitude and longitude grid
Students do	Write the coordinates of the point where the Equator meets the Prime Meridian.
Turn and talk	Why do mapmakers need BOTH latitude and longitude to find one spot?
Worksheet Part 5A	LATITUDE measures north or south of the Equator. LONGITUDE measures east or west of the Prime Meridian.
Check for understanding	Which line is at 0° latitude? Answer: (B) The Equator

Step 2 (3 min): Latitude first

Teach	Always write latitude first, then longitude: Indianapolis is about 40° N, 86° W.
Interactive tool	Board and notes
Students do	Write London's coordinates from the grid (latitude first).
Turn and talk	What would go wrong if one person wrote longitude first and another wrote latitude first?
Worksheet Part 6A	Write LATITUDE first, then LONGITUDE: 40° N, 86° W.
Check for understanding	Which coordinate is written correctly? Answer: (C) 40° N, 86° W

Step 3 (3 min): What shapes climate

Teach	Climate depends on latitude, elevation, distance from oceans, and ocean currents. The Gulf Stream keeps western Europe mild.
Interactive tool	Visual models
Students do	Compare London and Montréal. Which is colder? Why?
Turn and talk	Two cities are at the same latitude but have very different winters. What could explain it?
Worksheet Part 7A	Climate depends on latitude, ELEVATION, distance from oceans, and ocean CURRENTS.
Check for understanding	Why is London milder than Montréal in winter? Answer: (D) A warm ocean current (Gulf Stream)

Step 4 (3 min): Human-environment interaction

Teach	People adapt to (terraces in the Andes), depend on (fishing in Norway), and modify (dikes in the Netherlands) their environments.
Interactive tool	Flip cards: Dikes in the Netherlands, Fishing in Norway, Terraces in the Andes, Warm coats in Canada
Students do	Sort the flip cards into adapt, depend, and modify.
Turn and talk	Is building a dam adapting, depending, or modifying? Could it be more than one?
Worksheet Part 8A	People ADAPT to, DEPEND on, and MODIFY their environments.
Check for understanding	Building a dam across a river is an example of people... Answer: (C) Modifying the environment

I do: worked example (shown one step at a time)

1. Problem: find 20° S, 60° W on the grid.
2. Step 1: Start at the Equator (0°). Move DOWN to 20° S.
3. Step 2: Start at the Prime Meridian (0°). Move LEFT to 60° W.
4. Step 3: Where they meet is in South America.
5. Remember: latitude first, then longitude.

What to say on every slide is in the presenter script PDF.

We do: guided practice

A city is at 34° S, 58° W. Which hemispheres is it in, and which continent?

1. S latitude means south of the Equator: Southern Hemisphere.
2. W longitude means west of the Prime Meridian: Western Hemisphere.
3. Southern and Western Hemispheres together include South America.
4. This is Buenos Aires, Argentina.

Answer: Southern and Western Hemispheres; South America

You do: independent check (2 min)

Which factor BEST explains why a mountaintop at the Equator can have snow? (A) High elevation (B) Low latitude (C) Distance from the Prime Meridian (D) The Gulf Stream

Answer: (A) High elevation. Students who miss it: 3-minute reteach at the teacher table, then start the room at the Explorer level.

Misconception: "Latitude and longitude are the same thing." Latitude = north/south position, longitude = east/west position.

Misconception: "Places at the same latitude have the same climate." Elevation, oceans, and currents matter too.

Misconception: "South America is directly south of North America." Most of South America is east of Florida.

3. MYSTERY CASE: THE CASE OF THE CHANGING LANDSCAPE

0:20–0:48 · 28 min

Launch: project the start screen, read the story aloud, and assign mission levels (Explorer = extra support, Agent = on level, Legend = challenge). Students can open Supports any time for read-aloud, bigger text, a word bank, and a scratch pad.

- Evidence files can be opened in any order. Tell students detectives always read the whole file before answering.
- Pairs can be "lead detective" and "note taker." The note taker records the code pieces as they are found.
- For the debrief, ask students which piece of evidence was most convincing and why.

Students turn in: the completion code plus their copied "turn in your work" block (Canvas Text Entry).

4. DEBRIEF

0:48–0:52 · 4 min

1. Why do we always write latitude first?
2. Give an example of people changing their environment. Was it helpful or harmful?
3. How does the Gulf Stream affect people in Europe?

Close the loop: return to warm-up question 3. Answer: Examples: building dams or reservoirs, draining wetlands for farms, building roads, planting crops.

5. EXIT TICKET

0:52–1:00 · 8 min

Print the exit ticket PDF (page 2 is the key and mastery guide). Every item requires evidence: Part A asks students to justify each choice, Part B asks for an explanation, and Part C applies the standard to a new situation using Historian's Claim (Claim, Evidence, Source, Explain). Sort results into Mastered, Approaching, and Beginning to plan tomorrow's groups.

LESSON RESOURCES

Resource	How it fits the lesson
Warm-up worksheet (PDF)	Optional standalone warm-up (also Part 2 of the lesson worksheet), with a key.
Mini-lesson presenter	Projectable, step-by-step interactive lesson with tools and quick checks (room page).
Lesson worksheet (PDF + key)	One printable packet students complete during the whole lesson: short fill-ins and quick checks in 13 small parts that match the presenter slides.
The Case of the Changing Landscape (.html)	The mystery case for Canvas, with differentiated levels, supports, and a turn-in.
Exit ticket (PDF + key)	Evidence-based check with a rubric and a mastery sorting guide.
National Geographic MapMaker (extra)	Free interactive maps with climate, population, and physical layers. https://mapmaker.nationalgeographic.org/
Google Earth (extra)	Fly to any coordinates and take a virtual trip. https://earth.google.com/web/
Seterra Geography (extra)	Free map quiz games for Europe and the Americas. https://www.seterra.com/
National Geographic Education (extra)	Lessons on latitude, longitude, and climate regions. https://education.nationalgeographic.org/

ANSWER KEY: THE CASE OF THE CHANGING LANDSCAPE

Evidence File #1: The Netherlands (code piece: A)

1. How did the Dutch create new land? -> Building dikes and pumping out water to make polders
2. This is an example of people... -> Modifying the environment
3. Tap the land that lies BELOW sea level. -> Tap The polder

Evidence File #2: The Panama Canal (code piece: D)

1. About how many miles did the Panama Canal save on a trip from New York to San Francisco? -> 8000 miles
2. Why did people build the canal at Panama? -> It is a narrow strip of land between two oceans
3. What is one effect of the canal on world trade? -> Shipping between the Atlantic and Pacific became faster and cheaper

Evidence File #3: The Amazon (code piece: A)

1. Sort the effects of clearing the rainforest. -> Benefit to people: New farmland and ranches, Jobs in logging and farming | Cost to the environment: Loss of animal habitats, Fewer species, More carbon dioxide in the air
2. Which action could help protect the rainforest while still helping people? -> Creating protected areas and supporting sustainable farming

Evidence File #4: The Andes Terraces (code piece: P)

1. How do terraces help farmers? -> They create flat land and prevent soil erosion
2. Match each example to the type of human-environment interaction. -> Norwegians fishing along fjords for food = Depend on the environment; Andean people wearing thick alpaca wool in the cold = Adapt to the environment; The Dutch building dikes = Modify the environment
3. A storm is coming. Tap the hillside where rain will wash away the most soil. -> Tap The steep, bare hillside

Evidence File #5: Your Own Backyard (code piece: T)

1. Is each Indiana example depending, adapting, or modifying? -> Depend: Using fertile soil to grow corn, Using Lake Michigan for drinking water | Adapt: Wearing winter coats in January, Building homes with basements for tornado safety | Modify: Draining the Kankakee Marsh, Building a dam to create Lake Monroe
2. Which statement best summarizes your investigation? -> People everywhere depend on, adapt to, and change their environments, with both benefits and costs

Final code: ADAPT