Mapforge — Activity Book

A Spark & Anvil activity book — puzzles, questions, and fun from Mapforge.

Write in the book, circle your answers, and check the Answer Key at the back.

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1. Tectonics

Circle the correct answer

1. What is a tectonic plate?
(A) A large slab of Earth's outer rocky shell that slowly moves over time (B) A layer of melted rock in the very center of Earth (C) A flat piece of rock found at the bottom of rivers (D) A type of mineral that forms inside volcanoes

2. How many major tectonic plates make up Earth's surface?
(A) Hundreds of tiny plates (B) About 7 major plates plus several smaller ones (C) Exactly 12 plates all the same size (D) Only 2 plates, one for each hemisphere

3. What is a plate boundary?
(A) The center of a single tectonic plate (B) The deepest part of the ocean (C) The place where two tectonic plates meet (D) A border drawn by humans on a map

4. What happens at a divergent plate boundary?
(A) Two plates move apart from each other (B) Two plates slide sideways past each other (C) Two plates crash directly into each other (D) A plate stops moving completely

5. What happens at a convergent plate boundary?
(A) A plate splits into two smaller plates (B) Two plates stay completely still (C) Two plates move apart, creating new ocean floor (D) Two plates push toward each other and collide

6. What happens at a transform plate boundary?
(A) Two plates collide head-on and stop moving (B) Two plates slide sideways past each other (C) Two plates pull apart and form new ocean (D) A plate sinks straight down into the mantle

Write the answer

7. Why do tectonic plates move?
Answer: _____

8. Approximately how fast do tectonic plates move?
Answer: _____

9. Which layer of Earth do tectonic plates ride on top of?
Answer: _____

10. What is the name of the supercontinent that existed about 300 million years ago?
Answer: _____

Match each question to its answer

1. Who first proposed the idea of continental drift? →
2. What is evidence that South America and Africa were once joined? →
3. What is the 'Ring of Fire'? →
4. Where do most earthquakes happen? →
5. What is subduction? →

(A) Along tectonic plate boundaries
(B) When one tectonic plate slides beneath another and sinks into the mantle
(C) A zone around the Pacific Ocean with many volcanoes and earthquakes
(D) Alfred Wegener
(E) Their coastlines fit together and they share matching fossils and rock layers

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2. Landforms

Circle the correct answer

11. What is a mountain?
(A) A deep underground cave (B) A small hill less than 10 meters tall (C) A flat area of land near a river (D) A landform that rises high above the surrounding land, usually with steep sides

12. How do most large mountain ranges form?
(A) By tectonic plates pushing into each other and crumpling the crust upward (B) By people building them with rock and dirt (C) By wind slowly piling up sand (D) By rivers depositing soil over millions of years

13. What is a fold mountain?
(A) A small pile of folded paper used in geography class (B) A mountain that folds in half each year (C) A mountain formed when layers of rock bend and crumple from sideways pressure (D) A mountain made entirely of ice

14. What is a fault-block mountain?
(A) A small hill formed by a single rock (B) A mountain made out of building blocks by people (C) A mountain formed when blocks of crust are pushed up along faults (D) A mountain that has never moved from its original location

15. What is a volcanic mountain?
(A) A mountain made of frozen water (B) A mountain made of pure salt (C) A mountain built up from erupted lava and ash over time (D) A mountain that only exists underwater

16. Which is the tallest mountain above sea level on Earth?
(A) Mount McKinley (Denali) (B) Mount Everest (C) Mount Kilimanjaro (D) Mount Fuji

Write the answer

17. What is a valley?
Answer: _____

18. What shape are valleys carved by glaciers?
Answer: _____

19. What is a canyon?
Answer: _____

20. What is a plateau?
Answer: _____

Match each question to its answer

1. What is a plain? →
2. What is the difference between a hill and a mountain? →
3. What is bedrock? →
4. What is a peninsula? →
5. What is an island? →

(A) The solid layer of rock beneath soil and loose material
(B) A mountain is generally much taller and steeper than a hill
(C) A piece of land completely surrounded by water
(D) A large, mostly flat area of low-lying land
(E) A piece of land surrounded by water on three sides

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3. Climate

Circle the correct answer

21. What is climate?
(A) The weather on a single afternoon (B) A type of cloud that brings rain (C) The temperature reading right now (D) The average weather pattern of a region measured over many years

22. What is the main driver of Earth's weather and climate?
(A) The Moon's gravity (B) Human cars and factories (C) Volcanic eruptions (D) Energy from the Sun heating the planet unevenly

23. Why is the equator warmer than the poles?
(A) Sunlight hits the equator more directly, while it strikes the poles at a low angle and spreads out (B) The atmosphere is missing over the equator (C) The equator is closer to the Sun in distance (D) The poles are made of colder rock

24. What is wind?
(A) Sunlight reflecting off mountains (B) Heat coming from inside Earth (C) Air moving from areas of higher pressure to areas of lower pressure (D) Water vapor rising from oceans

25. What is the Coriolis effect?
(A) The shadow Earth casts on the Moon (B) The pull of the Moon on Earth's oceans (C) A type of thunderstorm in the tropics (D) The apparent deflection of moving air and water due to Earth's rotation

26. What are the trade winds?
(A) Winds that blow straight up from the ground (B) Winds created by passing ships (C) Winds that only blow during ocean storms (D) Steady winds that blow from the east toward the equator in tropical regions

Write the answer

27. What is the jet stream?
Answer: _____

28. What is an ocean current?
Answer: _____

29. How do ocean currents affect coastal climates?
Answer: _____

30. What is precipitation?
Answer: _____

Match each question to its answer

1. How do clouds form? →
2. Why does it rain more in tropical regions near the equator? →
3. Why are most of the world's great deserts found near 30° latitude? →
4. What is humidity? →
5. Why does the windward side of a mountain usually get more rain than the leeward side? →

(A) Air rises and cools as it goes up the windward side, condensing into rain before reaching the other side
(B) The amount of water vapor in the air
(C) Warm, moist air rises, cools, and the water vapor condenses into tiny droplets
(D) Air that rose at the equator descends here, warming and drying as it falls
(E) Intense solar heating evaporates lots of water and drives strong rising air that forms thunderstorms

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4. Biomes

Circle the correct answer

31. What is a biome?
(A) A type of cloud at high altitude (B) A small pond with a few fish (C) A single tree in a forest (D) A large region defined by its climate, plants, and animals

32. Which two factors most strongly determine a region's biome?
(A) The color of local soil and rocks (B) The number of birds and fish (C) Temperature and precipitation (D) Whether people live there or not

33. What is the tropical rainforest biome known for?
(A) Very little plant life (B) Sandy soil with cactuses (C) Long cold winters and snow (D) High year-round temperatures, heavy rainfall, and extreme biodiversity

34. What defines a desert biome?
(A) Very low precipitation, usually less than 25 cm of rain per year (B) Dense forest cover (C) Always extremely cold temperatures (D) Year-round snow on the ground

35. What is the tundra biome?
(A) A coral reef ecosystem (B) A grassland with herds of zebras (C) A cold biome with permafrost, short growing seasons, and no trees (D) A hot, wet biome full of tall trees

36. What is the taiga (boreal forest) biome?
(A) A wide grassland with no trees (B) A coral reef in tropical waters (C) A cold northern forest dominated by evergreen conifers like spruce and pine (D) A hot, sandy region with cactuses

Write the answer

37. What is a savanna?
Answer: _____

38. Why do temperate deciduous forests have trees that lose their leaves in fall?
Answer: _____

39. What adaptation helps cactuses survive in the desert?
Answer: _____

40. Why do many tundra plants grow low to the ground?
Answer: _____

Match each question to its answer

1. What is a temperate grassland? →
2. What is biodiversity? →
3. Why are coral reefs sometimes called 'rainforests of the sea'? →
4. What is the freshwater biome? →
5. What is the marine biome? →

(A) They have very high biodiversity, similar to rainforests on land
(B) The variety of different living things in an area
(C) The salty ocean ecosystem, the largest biome on Earth
(D) Aquatic ecosystems with low salt content, such as rivers, lakes, and wetlands
(E) A grass-dominated biome in middle latitudes with hot summers, cold winters, and moderate rain

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5. Settlement

Circle the correct answer

41. Why have most ancient cities been built near rivers?
(A) Rivers protect cities from enemies on all sides (B) Rivers provide drinking water, irrigation for farming, food, and transportation (C) Rivers reflect sunlight, keeping cities warm (D) Rivers always have flat land that is easy to build on

42. Why do few large cities exist in extremely hot desert interiors?
(A) People dislike the color of desert sand (B) Deserts have too much wind for buildings (C) Lack of freshwater and difficulty growing food limit large populations (D) Heat melts most building materials

43. What does 'habitability' mean in geography?
(A) The number of streets in a city (B) The age of the buildings in a region (C) The flag of a country (D) How suitable a place is for humans to live based on climate, resources, and terrain

44. Why do coastal areas often have larger populations than interior regions?
(A) The ocean has more oxygen than inland air (B) Coastlines have brighter sunlight (C) Access to ocean trade, fishing, milder climate, and flat coastal plains support more people (D) Coasts are always cooler than inland deserts

45. Why is Antarctica almost uninhabited by humans?
(A) Antarctica has too much oxygen for humans (B) Extreme cold, no native food sources, frozen ground, and 24-hour darkness in winter (C) The continent is too small for cities (D) No country is allowed to claim it

46. Why do mountain valleys often have more people than mountain peaks?
(A) Valleys have warmer temperatures, more level land, water access, and easier travel (B) Valleys are always perfectly safe (C) Mountain peaks are private property (D) Animals only live in valleys

Write the answer

47. What is a 'natural harbor' and why is it valuable?
Answer: _____

48. Why are floodplains often densely populated despite flooding risks?
Answer: _____

49. What is an oasis, and why are oases important in desert regions?
Answer: _____

50. Why do volcanic regions often have dense populations despite the dangers?
Answer: _____

Match each question to its answer

1. What is urbanization? →
2. Why have populations historically concentrated in fertile river valleys and deltas? →
3. Why is Singapore one of the most densely populated places on Earth? →

4. What is a 'megacity'? →
5. Why do many cities in high latitudes (like Stockholm or Oslo) still have moderate climates? →

(A) The movement of people from rural areas into cities, increasing the urban population
(B) It has a strategic port location, limited land area, strong economy, and tropical climate suited to year-round activity
(C) A city with more than 10 million inhabitants
(D) Their fertile soil and reliable water supply produce enough food to support large communities
(E) Warm ocean currents like the Gulf Stream carry heat from the tropics northward

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6. Economics

Circle the correct answer

51. What is a trade route?
(A) A road that only animals use (B) A river that flows in two directions (C) A path used by merchants to move goods from one region to another (D) A type of mountain pass with no roads

52. What was the Silk Road?
(A) A single road paved with silk (B) An underwater shipping path (C) A modern highway in China (D) A network of overland trade routes connecting China, Central Asia, the Middle East, and Europe

53. Why were natural harbors so valuable for early trading cities?
(A) Harbors were the only places to find food (B) Harbors caused cities to be very cold (C) They allowed ships to dock safely, enabling reliable trade and growth of port economies (D) Harbors prevented all sea storms

54. Why was control of the Bosporus Strait so strategically important?
(A) It is the longest river in the world (B) It is the coldest part of the Mediterranean (C) It connects the Black Sea to the Mediterranean, controlling trade between Europe and Asia (D) It contains the highest mountain in Europe

55. What is a chokepoint in geography?
(A) A narrow passage that controls movement of trade or people, like a strait or mountain pass (B) A region with no rainfall (C) A type of weather forecast (D) The middle of a continent

56. Why was the Suez Canal a major shift in global trade?
(A) It was the first canal ever built in history (B) It allows ships to fly between continents (C) It connected the Atlantic and Pacific Oceans directly (D) It allowed ships to travel between Europe and Asia without sailing around Africa

Write the answer

57. What does the Panama Canal connect?
Answer: _____

58. Why did spices like pepper, cinnamon, and cloves drive long-distance trade for centuries?
Answer: _____

59. How does a country's location near major shipping routes affect its economy?
Answer: _____

60. Why are landlocked countries often economically disadvantaged?
Answer: _____

Match each question to its answer

1. Why did the Sahara Desert still have busy trade routes in the past? →
2. What is comparative advantage in trade? →
3. Why are oil-producing regions so economically important globally? →
4. What is globalization? →
5. Why do many manufacturing centers cluster near major ports? →

(A) The increasing connection of economies, cultures, and societies worldwide through trade and communication
(B) Camel caravans crossed oases to move gold, salt, and slaves between West Africa and the Mediterranean
(C) When a region can produce a good more efficiently than another, making it worth specializing in that good
(D) Oil powers transportation, industry, and electricity generation worldwide
(E) Easy import of raw materials and export of finished goods reduces costs

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7. Topography

Circle the correct answer

61. What is the rain shadow effect?
(A) The dark side of a mountain where rain falls heaviest (B) Rain that falls only at

night near tall mountains (C) The dry region on the leeward side of a mountain caused by moisture being lost as air rises and cools on the windward side (D) A shadow cast by clouds during a hurricane

62. Why does air cool as it rises in elevation?
(A) Atmospheric pressure decreases with altitude, allowing the air to expand and cool adiabatically (B) The atmosphere creates fresh wind at altitude (C) Sun is colder at higher altitudes (D) Mountains absorb all the air's heat

63. What is a topographic map?
(A) A map of underground tunnels and caves (B) A map that shows the three-dimensional shape of the land using contour lines (C) A map showing only political borders (D) A map that shows only roads and cities

64. On a topographic map, what does it mean when contour lines are very close together?
(A) The slope is gentle and flat (B) There is a body of water nearby (C) The land is below sea level (D) The slope is steep

65. What is the contour interval on a topographic map?
(A) The age of the rock being mapped (B) The horizontal distance between two cities (C) The vertical distance between two adjacent contour lines (D) The depth of a nearby ocean

66. Why is the Atacama Desert one of the driest places on Earth?
(A) It receives no sunlight at all (B) It is at the highest elevation on Earth (C) It lies in a double rain shadow between the Andes and the Pacific cold-current coast (D) It only gets snow, never rain

Write the answer

67. What is orographic lift?
Answer: _____

68. What is a watershed (drainage basin)?
Answer: _____

69. Why do contour lines never cross on a topographic map?
Answer: _____

70. On a topographic map, how can you identify a hill versus a depression?
Answer: _____

Match each question to its answer

1. Why is elevation different from relief? →
2. What is treeline? →
3. Why does temperature generally decrease with elevation in the lower atmosphere? →
4. What is a watershed divide? →
5. Why are V-shaped valleys typically associated with river erosion? →

(A) Rivers cut downward more than sideways, creating narrow, steep-sided valleys
(B) A ridge or high point separating two watersheds, with water flowing in different directions on either side
(C) The elevation or latitude above which trees can no longer grow due to climate
(D) Elevation is height above sea level; relief is the difference in elevation between high and low points in a region
(E) Air pressure drops with altitude, causing rising air to expand and cool

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8. Cartography

Circle the correct answer

71. What is a map projection?
(A) A method for representing Earth's curved surface on a flat map, always with some distortion (B) A way to project a map onto a wall using light (C) A type of 3D hologram of Earth (D) A perfectly accurate flat copy of Earth's surface

72. Why does the Mercator projection make Greenland look almost as big as Africa?
(A) The mapmaker drew Greenland wrong on purpose (B) Greenland is actually bigger than Africa in real life (C) Mercator maps are completely accurate everywhere (D) It preserves shape and direction but distorts area, especially near the poles

73. Why is the Mercator projection still useful for nautical navigation?
(A) It is impossible to use any other projection at sea (B) It is the only projection ever created (C) A straight line on a Mercator map represents a constant compass bearing, making navigation simple (D) It makes oceans look smaller than they are

74. What is latitude?
(A) The height of a mountain above sea level (B) The angular distance north or south of the equator, measured in degrees (C) A line running from pole to pole (D) The time zone of a region

75. What is longitude?
(A) The distance from the equator to a point (B) The width of a continent (C) The angular distance east or west of the prime meridian, measured in degrees (D) The depth of a body of water

76. Why are lines of latitude parallel while lines of longitude converge?
(A) Parallels stay equally far apart because Earth's surface curves the same at every parallel; meridians converge at the poles where Earth's spherical geometry brings them together (B) There is no real difference between them (C) Earth used to be flat, and these lines reflect that history (D) Lines of latitude were drawn by a different mathematician

Write the answer

77. What is a map scale?
Answer: _____

78. What does it mean if a map has a 'large scale'?
Answer: _____

79. What is the difference between political and physical maps?
Answer: _____

80. What is a thematic map?
Answer: _____

Match each question to its answer

1. What is the equal-area (equivalent) property in a map projection? →
2. Why do some classroom maps now use the Robinson or Winkel Tripel projection instead of Mercator? →
3. What is the legend on a map? →
4. What is a compass rose? →
5. What does GPS stand for and what does it do? →

(A) A figure showing cardinal and intermediate directions (N, S, E, W, NE, etc.) on a map
(B) Global Positioning System; it uses satellite signals to determine precise location on Earth
(C) They balance distortions of area, shape, and distance better for showing the whole world
(D) Areas of regions on the map are proportional to their actual areas on Earth
(E) A key explaining what the colors, symbols, and lines on the map represent

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9. Oceans

Circle the correct answer

81. What is the Gulf Stream?
(A) A warm, fast ocean current that flows from the Gulf of Mexico up the U.S. East Coast and across the Atlantic toward Europe (B) A wind pattern over the Gulf of Mexico (C) A cold current that flows south down the U.S. East Coast (D) A type of underwater volcano

82. What are deep-water currents driven by?
(A) The Moon's gravity alone (B) Wind only (C) Boat traffic (D) Differences in water temperature and salinity (thermohaline circulation)

83. What is the abyssal plain?
(A) A type of underwater mountain range (B) The very top layer of ocean water (C) The wide, flat region of the deep ocean floor, typically 3–6 km below the surface (D) The shallowest part of the ocean near the beach

84. What lives near deep-sea hydrothermal vents?
(A) Only sharks and dolphins (B) Unique ecosystems including giant tube worms, vent crabs, and chemosynthetic bacteria (C) Only seaweed and kelp (D) Nothing — it is too hot and dark for any life

85. What is upwelling in the ocean?
(A) When water gets pushed deeper by sinking ice (B) When waves crash on the beach (C) When deep, cold, nutrient-rich water rises to the surface, supporting rich marine life (D) When the ocean freezes from the top down

86. What is the continental shelf?
(A) An island that has fallen below sea level (B) The flat top of an underwater mountain (C) The deepest trench in the ocean (D) The shallow, gently sloping underwater extension of a continent before the deep ocean begins

Write the answer

87. What is the deepest known point in Earth's oceans?
Answer: _____

88. Why does the Atlantic Ocean's 'conveyor belt' matter for climate?
Answer: _____

89. Why are the polar oceans important for global ocean circulation?
Answer: _____

90. What is a seamount?
Answer: _____

Match each question to its answer

1. How fast do most ocean surface currents move? →
2. Why is the Sargasso Sea unique? →
3. What are the five major oceans? →
4. Why is the deep ocean so cold and dark? →
5. What is a mid-ocean ridge system? →

(A) A continuous chain of underwater mountains forming the longest mountain range on Earth
(B) It is a calm region of the Atlantic bounded by ocean currents, with floating Sargassum seaweed and unusual marine life
(C) A few kilometers per hour — much slower than a person can walk
(D) Sunlight only penetrates the upper few hundred meters, and water gets colder with depth
(E) Pacific, Atlantic, Indian, Arctic, and Southern (Antarctic)

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10. Surface Processes

Circle the correct answer

91. What is weathering?
(A) The melting of rock into magma (B) The breaking down of rocks into smaller pieces by physical or chemical processes (C) The movement of rock pieces from one place to another (D) A type of weather forecast

92. What is the difference between weathering and erosion?
(A) Weathering moves rocks, erosion breaks them (B) Weathering happens in cold weather, erosion in hot (C) There is no difference (D) Weathering breaks rocks apart in place; erosion transports the pieces elsewhere

93. What is freeze-thaw weathering?
(A) Plants growing on top of rocks (B) Water enters cracks in rocks, freezes and expands, then thaws — repeatedly widening the cracks until the rock breaks (C) Heat melting rocks into lava (D) Wind smoothing the surface of rocks

94. What is chemical weathering?
(A) Rocks being broken by being struck physically (B) The breakdown of rocks by chemical reactions, such as with water, oxygen, or acids (C) Rocks being heated by lava (D) Rocks being moved by glaciers

95. How does acid rain accelerate weathering?
(A) It has no effect on rocks (B) It freezes rocks solid (C) It dissolves rocks like limestone and marble faster than normal rainwater (D) It makes rocks bigger by adding material

96. What is erosion?
(A) The breaking apart of rocks (B) The cooling of magma (C) The transportation of weathered rock and soil by wind, water, ice, or gravity (D) The growing of new rocks

Write the answer

97. How do glaciers erode the landscape?
Answer: _____

98. What is deposition?
Answer: _____

99. How does wind cause erosion in deserts?
Answer: _____

100. Why are river deltas important to humans?
Answer: _____

Match each question to its answer

1. How does plant root growth contribute to weathering? →
2. What is soil erosion, and why is it a concern? →
3. What are sand dunes? →
4. Why are coastal cliffs constantly changing? →
5. What is a meander in a river? →

(A) A bend in a river's course, formed as the river erodes the outside of curves and deposits sediment on the inside
(B) Waves, wind, and weathering steadily erode them, sometimes causing collapses
(C) Hills of windblown sand, common in deserts and along some coastlines
(D) The wearing away of topsoil by wind, water, or human activity, threatening agriculture and ecosystems
(E) Roots push into cracks and pry rocks apart as they grow

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11. GIS

Circle the correct answer

101. What does GIS stand for?
(A) Geological Imaging Satellite (B) Global Internet Service (C) Galactic Information Survey (D) Geographic Information System

102. What is a GIS 'layer'?
(A) A piece of paper map taped over another (B) A layer of soil under a city (C) A specific type of satellite (D) A digital map that shows one type of information, like roads, rivers, or population, which can be stacked with other layers

103. What is the difference between vector and raster data in GIS?
(A) Vector is always faster to display (B) Raster is only for political boundaries (C) Vector uses points, lines, and polygons; raster uses a grid of cells (pixels) each holding a value (D) There is no difference

104. Why is GIS used in disaster response?
(A) GIS replaces emergency responders (B) It quickly shows hazards, populations at risk, infrastructure, and evacuation routes on integrated maps (C) GIS is just a fancy paper map (D) GIS only helps after disasters end

105. What is geocoding?
(A) Translating a map into another language (B) Hiding a code inside a map (C) Drawing a code-shaped boundary (D) Converting an address or place name into geographic coordinates (latitude and longitude)

106. What is remote sensing?
(A) Collecting information about Earth's surface from a distance using satellites, aircraft, or drones (B) Sensing earthquakes from far away (C) Reading paper maps from across a room (D) Drawing maps using only memory

Write the answer

107. How can GIS help fight wildfires?
Answer: _____

108. What is a GIS 'attribute table'?
Answer: _____

109. Why are color choices important on GIS maps?
Answer: _____

110. What is spatial analysis in GIS?
Answer: _____

Match each question to its answer

1. How is GIS used in urban planning? →
2. What is GPS data used for in GIS? →
3. How do scientists use GIS to study deforestation? →
4. What is the difference between an interactive online map and a static printed map?

→

5. What is a 'basemap' in GIS? →

(A) Recording precise locations of features in the field that can be added to a GIS map
(B) By comparing satellite images and forest layers over time to measure rate and location of forest loss
(C) Interactive maps let users zoom, pan, and toggle layers; static maps show only one fixed view
(D) Planners map zoning, traffic, utilities, demographics, and proposed developments to decide where to build and how
(E) The background reference map showing physical or topographic features over which thematic data is overlaid

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12. Human Geography

Circle the correct answer

111. What is human geography?
(A) The study of map-making materials (B) The study of how people relate to and shape the places they live (C) The study of weather patterns only (D) The study of human bodies

112. What is human migration?
(A) The shifting of tectonic plates (B) The rotation of Earth around the Sun (C) Animals flying between countries (D) The movement of people from one place to another to settle, temporarily or permanently

113. What are 'push' and 'pull' factors in migration?
(A) Both terms mean the same thing (B) Push factors drive people away from a place (war, drought); pull factors attract them to a new place (jobs, safety) (C) Push and pull only apply to physics, not people (D) Push factors are stronger than pull factors

114. What is a refugee?
(A) A wealthy traveler (B) A person who refuses to leave home (C) A person forced to flee their country because of war, persecution, or serious danger (D) Anyone who moves to a new country for any reason

115. What is the difference between an immigrant and a refugee?
(A) Refugees travel by plane; immigrants travel by boat (B) Refugees move for jobs; immigrants move for safety (C) Immigrants generally choose to move, while refugees are forced to flee to escape danger (D) There is no difference

116. Why have climate change and environmental disasters become migration drivers?
(A) Migration causes climate change (B) Rising seas, droughts, and extreme storms make some regions less livable, pushing people to move (C) Migrants prefer the harshest climates (D) Climate change has no effect on people

Write the answer

117. What is rural-to-urban migration?
Answer: _____

118. What is the demographic transition?
Answer: _____

119. Why are many countries' populations aging?
Answer: _____

120. What is cultural diffusion?
Answer: _____

Match each question to its answer

1. What is a diaspora? →
2. Why do migrants often face challenges in their new homes? →
3. How does migration affect both sending and receiving countries? →
4. What is urbanization, and how does it relate to migration? →
5. What is a borderland or border region? →

(A) A community of people living outside their ancestral homeland, often retaining cultural ties
(B) They may encounter language barriers, discrimination, legal hurdles, and culture shock
(C) An area near a national border with shared cultural, economic, or environmental ties between two countries
(D) Receiving countries gain workers and diversity; sending countries lose labor but often gain remittances
(E) The growing share of people living in cities, largely driven by rural-to-urban migration

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13. Synthesis

Circle the correct answer

121. How does plate tectonics influence climate over long time scales?

(A) Plates change daily weather instantly (B) Moving continents change ocean currents, mountain ranges, and CO2 levels, slowly altering global climate (C) Plate tectonics has no effect on climate (D) Tectonics only causes earthquakes, never climate change

122. How are biomes and ocean currents connected?
(A) Currents only affect underwater biomes (B) Biomes and currents are completely unrelated (C) Currents redistribute heat, shaping coastal climates and which biomes can exist nearby (D) All biomes have the same climate regardless of currents

123. How do mountains affect both climate AND biomes nearby?
(A) Mountains create rain shadows and altitudinal zones, leading to different climates and biomes on different sides and elevations (B) Mountains have no effect on climate or biomes (C) Mountains change biomes but not climate (D) Mountains only affect the air immediately above them

124. Why do many ancient cities lie at the intersection of trade routes and fertile river valleys?
(A) Fertile valleys grew food, and trade routes brought wealth — together they supported the rise of large cities (B) Trade routes destroyed all cities (C) Cities only formed in deserts (D) Cities are unrelated to rivers or trade

125. How do volcanoes connect to both biome creation and human settlement?
(A) Volcanic eruptions create new land and fertile soil, attracting plant ecosystems and human farming communities (B) Volcanoes only matter to scientists (C) Volcanoes don't change the land at all (D) Volcanoes prevent any life nearby

126. How are erosion and human settlement connected?
(A) Erosion only destroys human settlements (B) Erosion creates fertile floodplains and deltas where humans settle, but also threatens settlements with landslides and coastal loss (C) Erosion only helps human settlements (D) Erosion is unrelated to human life

Write the answer

127. How does climate affect the location of trade routes?
Answer: _____

128. How does GIS combine information from multiple geographic systems?
Answer: _____

129. How do rain shadows connect to where people live?
Answer: _____

130. How are tectonic plate boundaries linked to natural hazards?
Answer: _____

Match each question to its answer

1. How do mountain ranges shape human migration patterns? →
2. How does an ocean current connect to a coastal city's economy? →
3. How are biomes important for human food systems? →
4. How does cartography help us understand global problems? →
5. How do trade routes and biomes influence each other? →

(A) Trade routes introduce new species and crops to biomes; biomes determine what trade goods are produced and where
(B) Warm or cold currents affect fishing, weather, and even tourism, shaping coastal economic life
(C) They can block migration, channel it through passes, or create distinct cultural regions on either side
(D) Different biomes support different crops and animals, shaping which foods are grown where
(E) Maps make complex global data — like climate change, pandemic spread, or refugee flows — visible and analyzable

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14. Real-World

Circle the correct answer

131. What should you do during an earthquake if you are indoors?
(A) Lie flat on a bed in front of a window (B) Drop to the ground, take cover under sturdy furniture, and hold on until the shaking stops (C) Run outside as fast as possible (D) Stand in the middle of the room

132. Why should communities near coasts know about tsunami warning signs?
(A) A rapidly receding ocean and strong earthquake can precede a tsunami; quick movement to high ground can save lives (B) Tsunamis give weeks of warning (C) Tsunamis only happen at night (D) There are no warning signs for tsunamis

133. What is a tornado watch versus a tornado warning?
(A) Warnings are issued days in advance (B) A watch means conditions are favorable for tornadoes; a warning means a tornado has been spotted or detected on radar — take shelter now (C) Both terms mean the same thing (D) A watch is more urgent than a warning

134. Why are floodplains often the riskiest place to build homes?
(A) They flood by definition during major river overflows (B) Floodplains are too cold for homes (C) Floodplains have the worst soil for building (D) Floodplains are completely safe

135. What is an emergency kit, and what should it contain?
(A) A pre-packed kit with water, non-perishable food, a flashlight, batteries, first-aid supplies, and important documents (B) A box of candy for emergencies (C) Only a cell phone with no charger (D) Just a flashlight by itself

136. Why is evacuation often the safest response to a hurricane?
(A) Hurricanes only affect outdoor pets (B) Sheltering on a beach during a hurricane is safe (C) Hurricanes never reach inland areas (D) Hurricanes can bring deadly storm surge, hurricane-force winds, and inland flooding — and moving away from the coast greatly reduces risk

Write the answer

137. How can geography influence wildfire risk?
Answer: _____

138. Why are early-warning systems important for natural disasters?
Answer: _____

139. Why is volcanic ash a danger far from an erupting volcano?
Answer: _____

140. How can communities prepare for earthquakes?
Answer: _____

Match each question to its answer

1. Why is freshwater supply a growing concern in many disaster scenarios? →
2. How does GIS help coordinate disaster response? →
3. Why is climate change increasing the intensity of some weather disasters? →
4. Why should people in mountain areas know about avalanche risks? →
5. Why are sandbags used during floods? →

(A) It maps damage, infrastructure, populations, hazards, and resources in real time for emergency managers
(B) Floods can contaminate drinking water, droughts can dry out reservoirs, and infrastructure damage can cut off supply
(C) Warmer air holds more moisture (heavier rain), warmer oceans fuel stronger hurricanes, and shifting patterns extend droughts
(D) They form temporary barriers that divert floodwater away from homes and

infrastructure
(E) Snow can suddenly slide downhill at high speed, burying skiers, hikers, and homes in seconds

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15. Misconceptions

Circle the correct answer

141. Misconception: 'Volcanoes only erupt in tropical regions.' What's correct?
(A) Volcanoes erupt only in ocean trenches (B) Volcanoes really do only erupt near the equator (C) Volcanoes erupt only in deserts (D) Volcanoes occur worldwide, including in cold regions like Iceland, Alaska, and Antarctica

142. Misconception: 'The Sahara has always been a desert.' What's correct?
(A) The Sahara was once an ocean only (B) The Sahara has always been a desert (C) The Sahara has shifted between green grassland and desert many times due to climate cycles (D) The Sahara was created by humans

143. Misconception: 'Earthquakes always cause tsunamis.' What's correct?
(A) Tsunamis are caused only by hurricanes (B) Every earthquake creates a tsunami (C) Tsunamis occur only in fresh water (D) Most earthquakes do not produce tsunamis; only large underwater earthquakes that displace seafloor typically do

144. Misconception: 'All deserts are hot.' What's correct?
(A) Antarctica isn't a desert (B) Deserts are defined by low rainfall, not by temperature; Antarctica is the world's largest desert (C) Deserts must always be hot (D) Sand is required for a desert

145. Misconception: 'Rivers flow north to south.' What's correct?
(A) Rivers must flow from north to south (B) All rivers flow toward Russia (C) Rivers flow downhill in whatever direction the terrain slopes, including south to north (like the Nile) (D) Rivers flow in the direction of the equator

146. Misconception: 'Tornadoes only happen in the United States.' What's correct?
(A) Tornadoes happen only in Australia (B) Tornadoes only happen in winter (C) Tornadoes happen only in the U.S. (D) Tornadoes occur on every continent except Antarctica; the U.S. has the most because of its unique geography

Write the answer

147. Misconception: 'Continents are anchored in place.' What's correct?
Answer: _____

148. Misconception: 'Lightning never strikes the same place twice.' What's correct?
Answer: _____

149. Misconception: 'Greenland is bigger than South America.' What's correct?
Answer: _____

150. Misconception: 'Tsunamis are like really big surfer waves.' What's correct?
Answer: _____

Match each question to its answer

1. Misconception: 'Mountains are made by volcanoes.' What's correct? →
2. Misconception: 'The Great Wall of China is visible from the Moon.' What's correct? →
3. Misconception: 'Climate and weather are the same thing.' What's correct? →
4. Misconception: 'The ozone hole is the same as climate change.' What's correct? →
5. Misconception: 'Antarctica is just sea ice.' What's correct? →

(A) Some mountains are volcanic, but many form from tectonic plate collisions or faulting, not eruptions
(B) The Great Wall cannot be seen from the Moon, and even from low Earth orbit it is barely visible
(C) Weather is short-term atmospheric conditions; climate is the long-term average pattern, usually over 30 years
(D) Antarctica is a continent with a thick ice sheet over rock, while the Arctic is mostly sea ice over the Arctic Ocean
(E) The ozone hole is a separate issue: loss of stratospheric ozone from CFCs, while climate change is global warming from greenhouse gases

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16. Synthesis

Circle the correct answer

151. Why has the Pacific Ring of Fire produced such intense human-natural system interactions?
(A) Geography there has no impact on people (B) The Ring of Fire prevents any human use (C) The Ring of Fire is fictional (D) It concentrates volcanic soils, mineral resources, and harbors — attracting settlement despite earthquake, tsunami, and eruption hazards

152. How do plate tectonics, climate, and biodiversity interact to make certain regions biodiversity hotspots?
(A) Hotspots have only one type of plant (B) Hotspots only occur in deserts (C) Tectonic uplift creates diverse habitats, climate patterns provide varied conditions, and long evolutionary time produces unique species (D) Biodiversity is random and unconnected to geology

153. How do ocean currents, atmospheric circulation, and continental positions together drive climate zones?
(A) Climate zones are random (B) Climate zones don't really exist (C) Only the Sun's angle matters (D) They redistribute heat and moisture, creating tropical wet, dry subtropical, mid-latitude temperate, and polar zones across continents

154. How does GIS contribute to global climate change research?
(A) Climate scientists only use one data type (B) GIS has no role in climate research (C) GIS only handles weather forecasts (D) It integrates satellite data, model projections, and ground measurements to map past and future change across Earth

155. How do landforms shape both natural ecosystems AND human cultures across long timescales?
(A) Landforms only affect cultures (B) Landforms only affect natural ecosystems (C) Landforms have no long-term effect (D) Mountains, rivers, and coastlines define ecological zones AND constrain or enable cultural development, language, and identity

156. Why are deltas particularly vulnerable to sea-level rise?
(A) Deltas are growing too fast to sink (B) Deltas are at high elevation (C) They sit at low elevation, are sinking from sediment compaction, and depend on river sediment that dams now trap upstream (D) Sea-level rise doesn't affect deltas

Write the answer

157. How does the relationship between humans and groundwater illustrate sustainability challenges?
Answer: _____

158. How can ocean acidification be understood as a synthesis problem?
Answer: _____

159. Why are island nations like Tuvalu and Kiribati on the frontlines of climate change?
Answer: _____

160. How do migration patterns interact with climate change to reshape regional geography?
Answer: _____

Match each question to its answer

1. How does the geography of energy resources shape global geopolitics? →
2. How can the Anthropocene be understood through geographic systems? →
3. How do mountains affect rainfall, biodiversity, and human population all at once? →
4. Why is forest restoration considered both an environmental and economic strategy? →
5. How can urban heat islands be understood as a geographic system problem? →

(A) Mountains create wet/dry climate contrasts, varied habitats with rich biodiversity, and population concentrations in valleys
(B) Cities trap heat through dark surfaces, lack of vegetation, and waste heat from buildings and traffic, intensifying climate stress
(C) Oil, gas, lithium, and uranium concentrate in specific regions, creating strategic dependencies and tensions
(D) Forests store carbon, support biodiversity, prevent erosion, and provide jobs, timber, and ecotourism revenue
(E) Human activity has now become a dominant driver of geological, biological, climatic, and topographic change — a new geological epoch

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Answer Key

1. A — A large slab of Earth's outer rocky shell that slowly moves over time
2. B — About 7 major plates plus several smaller ones
3. C — The place where two tectonic plates meet
4. A — Two plates move apart from each other
5. D — Two plates push toward each other and collide
6. B — Two plates slide sideways past each other
7. Heat from inside Earth creates slow currents in the mantle that drag the plates
8. A few centimeters per year, about as fast as fingernails grow
9. The asthenosphere, a soft, hot layer of the upper mantle

10. Pangaea
    Matching (Tectonics): 1→D, 2→E, 3→C, 4→A, 5→B
11. D — A landform that rises high above the surrounding land, usually with steep sides
12. A — By tectonic plates pushing into each other and crumpling the crust upward
13. C — A mountain formed when layers of rock bend and crumple from sideways pressure
14. C — A mountain formed when blocks of crust are pushed up along faults
15. C — A mountain built up from erupted lava and ash over time
16. B — Mount Everest
17. A low area of land between hills or mountains, often carved by a river or glacier
18. A wide U-shape
19. A deep, narrow valley with steep sides, usually carved by a river over a long time
20. A large, mostly flat area of land that is raised high above the surrounding terrain
    Matching (Landforms): 1→D, 2→B, 3→A, 4→E, 5→C
21. D — The average weather pattern of a region measured over many years
22. D — Energy from the Sun heating the planet unevenly
23. A — Sunlight hits the equator more directly, while it strikes the poles at a low angle and spreads out
24. C — Air moving from areas of higher pressure to areas of lower pressure
25. D — The apparent deflection of moving air and water due to Earth's rotation
26. D — Steady winds that blow from the east toward the equator in tropical regions
27. A fast, narrow band of strong winds high in the atmosphere
28. A continuous, directed movement of seawater
29. Warm currents make nearby coasts milder and wetter; cold currents make them cooler and drier
30. Any form of water (rain, snow, sleet, hail) that falls from clouds to the ground
    Matching (Climate): 1→C, 2→E, 3→D, 4→B, 5→A
31. D — A large region defined by its climate, plants, and animals

32. C — Temperature and precipitation
33. D — High year-round temperatures, heavy rainfall, and extreme biodiversity
34. A — Very low precipitation, usually less than 25 cm of rain per year
35. C — A cold biome with permafrost, short growing seasons, and no trees
36. C — A cold northern forest dominated by evergreen conifers like spruce and pine
37. A tropical grassland with scattered trees and seasonal rainfall
38. Dropping leaves conserves water and energy during cold winters when photosynthesis is hard
39. Thick stems that store water and small spines instead of broad leaves
40. It helps them stay warmer, escape harsh winds, and survive short summers
    Matching (Biomes): 1→E, 2→B, 3→A, 4→D, 5→C
41. B — Rivers provide drinking water, irrigation for farming, food, and transportation
42. C — Lack of freshwater and difficulty growing food limit large populations
43. D — How suitable a place is for humans to live based on climate, resources, and terrain
44. C — Access to ocean trade, fishing, milder climate, and flat coastal plains support more people
45. B — Extreme cold, no native food sources, frozen ground, and 24-hour darkness in winter
46. A — Valleys have warmer temperatures, more level land, water access, and easier travel
47. A protected coastal inlet where ships can safely dock, supporting trade and city growth
48. They have fertile soil, flat land, and easy access to river water and transport
49. A fertile area in a desert where water reaches the surface, supporting plants and settlement
50. Volcanic soils are very fertile, supporting productive farming
    Matching (Settlement): 1→A, 2→D, 3→B, 4→C, 5→E
51. C — A path used by merchants to move goods from one region to another
52. D — A network of overland trade routes connecting China, Central Asia, the

Middle East, and Europe

53. C — They allowed ships to dock safely, enabling reliable trade and growth of port economies
54. C — It connects the Black Sea to the Mediterranean, controlling trade between Europe and Asia
55. A — A narrow passage that controls movement of trade or people, like a strait or mountain pass
56. D — It allowed ships to travel between Europe and Asia without sailing around Africa
57. The Atlantic Ocean to the Pacific Ocean across Central America
58. They preserved food, flavored bland diets, and were rare in Europe but valuable everywhere
59. It can boost trade, port jobs, and shipping-related industries
60. They lack direct access to oceans, raising the cost of importing and exporting goods
    Matching (Economics): 1→B, 2→C, 3→D, 4→A, 5→E
61. C — The dry region on the leeward side of a mountain caused by moisture being lost as air rises and cools on the windward side
62. A — Atmospheric pressure decreases with altitude, allowing the air to expand and cool adiabatically
63. B — A map that shows the three-dimensional shape of the land using contour lines
64. D — The slope is steep
65. C — The vertical distance between two adjacent contour lines
66. C — It lies in a double rain shadow between the Andes and the Pacific cold-current coast
67. The forced rising of air as it encounters a mountain barrier
68. An area of land where all precipitation drains into a common body of water
69. A single point on Earth can only have one elevation, so two different elevation lines cannot share that point
70. Hills have contour lines that get smaller and higher inside; depressions show hachure marks pointing inward

Matching (Topography): 1→D, 2→C, 3→E, 4→B, 5→A

71. A — A method for representing Earth's curved surface on a flat map, always with some distortion
72. D — It preserves shape and direction but distorts area, especially near the poles
73. C — A straight line on a Mercator map represents a constant compass bearing, making navigation simple
74. B — The angular distance north or south of the equator, measured in degrees
75. C — The angular distance east or west of the prime meridian, measured in degrees
76. A — Parallels stay equally far apart because Earth's surface curves the same at every parallel; meridians converge at the poles where Earth's spherical geometry brings them together
77. A ratio that shows how a distance on the map relates to actual distance on Earth
78. It covers a small area with lots of detail (like a city street map)
79. Political maps show country and state boundaries; physical maps show natural features like mountains and rivers
80. A map showing a specific theme or data, like population density, climate, or election results
    Matching (Cartography): 1→D, 2→C, 3→E, 4→A, 5→B
81. A — A warm, fast ocean current that flows from the Gulf of Mexico up the U.S. East Coast and across the Atlantic toward Europe
82. D — Differences in water temperature and salinity (thermohaline circulation)
83. C — The wide, flat region of the deep ocean floor, typically 3–6 km below the surface
84. B — Unique ecosystems including giant tube worms, vent crabs, and chemosynthetic bacteria
85. C — When deep, cold, nutrient-rich water rises to the surface, supporting rich marine life
86. D — The shallow, gently sloping underwater extension of a continent before the deep ocean begins
87. Challenger Deep, in the Mariana Trench
88. It moves heat from the tropics toward the poles, influencing weather patterns

across the Northern Hemisphere

89. Cold, salty water sinks there, driving the deep ocean conveyor belt
90. An underwater mountain that doesn't reach the surface
    Matching (Oceans): 1→C, 2→B, 3→E, 4→D, 5→A
91. B — The breaking down of rocks into smaller pieces by physical or chemical processes
92. D — Weathering breaks rocks apart in place; erosion transports the pieces elsewhere
93. B — Water enters cracks in rocks, freezes and expands, then thaws — repeatedly widening the cracks until the rock breaks
94. B — The breakdown of rocks by chemical reactions, such as with water, oxygen, or acids
95. C — It dissolves rocks like limestone and marble faster than normal rainwater
96. C — The transportation of weathered rock and soil by wind, water, ice, or gravity
97. They scrape, pluck, and grind rock as they slowly move, carving U-shaped valleys and depositing huge piles of rock
98. The dropping or settling of sediment after it has been transported by erosion
99. It picks up sand and dust, scouring rocks (abrasion) and creating dunes and sculpted landforms
100. Their flat, fertile land supports productive farming and dense settlements
     Matching (Surface Processes): 1→E, 2→D, 3→C, 4→B, 5→A
101. D — Geographic Information System
102. D — A digital map that shows one type of information, like roads, rivers, or population, which can be stacked with other layers
103. C — Vector uses points, lines, and polygons; raster uses a grid of cells (pixels) each holding a value
104. B — It quickly shows hazards, populations at risk, infrastructure, and evacuation routes on integrated maps
105. D — Converting an address or place name into geographic coordinates (latitude and longitude)
106. A — Collecting information about Earth's surface from a distance using satellites, aircraft, or drones

107. It maps fire perimeter, fuel types, terrain, weather, and populated areas to guide firefighting and evacuations
108. A spreadsheet-like table linked to map features that stores their properties (name, area, population, etc.)
109. Color helps viewers understand patterns quickly, but bad choices can mislead or exclude colorblind users
110. Using GIS to find patterns and relationships in geographic data, like clustering or overlapping features
Matching (GIS): 1→D, 2→A, 3→B, 4→C, 5→E
111. B — The study of how people relate to and shape the places they live
112. D — The movement of people from one place to another to settle, temporarily or permanently
113. B — Push factors drive people away from a place (war, drought); pull factors attract them to a new place (jobs, safety)
114. C — A person forced to flee their country because of war, persecution, or serious danger
115. C — Immigrants generally choose to move, while refugees are forced to flee to escape danger
116. B — Rising seas, droughts, and extreme storms make some regions less livable, pushing people to move
117. People moving from the countryside to cities, usually for jobs and services
118. The shift from high birth and death rates to low birth and death rates as a country develops
119. Birth rates have dropped while people live longer, increasing the share of older adults
120. The spread of cultural beliefs, practices, foods, and technologies from one group to another
Matching (Human Geography): 1→A, 2→B, 3→D, 4→E, 5→C
121. B — Moving continents change ocean currents, mountain ranges, and CO2 levels, slowly altering global climate
122. C — Currents redistribute heat, shaping coastal climates and which biomes can exist nearby
123. A — Mountains create rain shadows and altitudinal zones, leading to different

climates and biomes on different sides and elevations

124. A — Fertile valleys grew food, and trade routes brought wealth — together they supported the rise of large cities
125. A — Volcanic eruptions create new land and fertile soil, attracting plant ecosystems and human farming communities
126. B — Erosion creates fertile floodplains and deltas where humans settle, but also threatens settlements with landslides and coastal loss
127. Routes avoid impassable climate zones, favoring oases in deserts, ice-free harbors, and seasonal sailing winds
128. It overlays maps of tectonics, climate, biomes, and human activity to reveal interactions and patterns
129. Dry rain-shadow regions tend to have fewer farms and lower population density than wetter regions nearby
130. Earthquakes, volcanic eruptions, and tsunamis happen most often along plate boundaries
    Matching (Synthesis): 1→C, 2→B, 3→D, 4→E, 5→A
131. B — Drop to the ground, take cover under sturdy furniture, and hold on until the shaking stops
132. A — A rapidly receding ocean and strong earthquake can precede a tsunami; quick movement to high ground can save lives
133. B — A watch means conditions are favorable for tornadoes; a warning means a tornado has been spotted or detected on radar — take shelter now
134. A — They flood by definition during major river overflows
135. A — A pre-packed kit with water, non-perishable food, a flashlight, batteries, first-aid supplies, and important documents
136. D — Hurricanes can bring deadly storm surge, hurricane-force winds, and inland flooding — and moving away from the coast greatly reduces risk
137. Steep slopes, dry climate, dense fuel (vegetation), and prevailing winds increase wildfire risk in certain regions
138. They give people time to evacuate, take shelter, or otherwise protect themselves and property
139. Ash can travel hundreds of kilometers in the air, damaging crops, blocking sunlight, harming lungs, and disabling aircraft engines

140. Through building codes, secured furniture, regular drills, emergency kits, and clear evacuation plans
Matching (Real-World): 1→B, 2→A, 3→C, 4→E, 5→D
141. D — Volcanoes occur worldwide, including in cold regions like Iceland, Alaska, and Antarctica
142. C — The Sahara has shifted between green grassland and desert many times due to climate cycles
143. D — Most earthquakes do not produce tsunamis; only large underwater earthquakes that displace seafloor typically do
144. B — Deserts are defined by low rainfall, not by temperature; Antarctica is the world's largest desert
145. C — Rivers flow downhill in whatever direction the terrain slopes, including south to north (like the Nile)
146. D — Tornadoes occur on every continent except Antarctica; the U.S. has the most because of its unique geography
147. Continents ride on tectonic plates and drift a few centimeters per year
148. Lightning frequently strikes the same place multiple times, especially tall structures like the Empire State Building
149. South America is about 8 times larger than Greenland; Mercator maps distort high-latitude areas
150. Tsunamis are huge fast-moving walls of water that pile up onshore, carrying massive amounts of debris — very different from surf
Matching (Misconceptions): 1→A, 2→B, 3→C, 4→E, 5→D
151. D — It concentrates volcanic soils, mineral resources, and harbors — attracting settlement despite earthquake, tsunami, and eruption hazards
152. C — Tectonic uplift creates diverse habitats, climate patterns provide varied conditions, and long evolutionary time produces unique species
153. D — They redistribute heat and moisture, creating tropical wet, dry subtropical, mid-latitude temperate, and polar zones across continents
154. D — It integrates satellite data, model projections, and ground measurements to map past and future change across Earth
155. D — Mountains, rivers, and coastlines define ecological zones AND constrain or enable cultural development, language, and identity

156. C — They sit at low elevation, are sinking from sediment compaction, and depend on river sediment that dams now trap upstream
157. Aquifers store water built up over millennia, but humans extract it far faster than it recharges, leading to depletion
158. CO2 from human emissions dissolves in oceans, lowering pH and threatening shell-building organisms across marine ecosystems
159. They are low-elevation atolls facing existential risks from sea-level rise, saltwater intrusion, and storms
160. Worsening droughts and disasters drive migration, while climate-attractive regions face new growth pressures and conflicts
Matching (Synthesis): 1→C, 2→E, 3→A, 4→D, 5→B
