

Study Guide: Chapter 2 Test

Lesson 1 — Looking at Earth · Lesson 2 — Forces of Change · Lesson 3 — Land Takes Different Forms

HOW TO USE THIS STUDY GUIDE

Work through it over **several days** — not all at once the night before. Cover the green answer with your hand, say the answer out loud, then check. For any question you miss, go back to the heading in the text where that term appears and reread that paragraph. The test follows the same six-part format as the Chapter 1 test.

SECTION	WHAT IT COVERS	HOW TO STUDY IT
I. True / False	Big-picture ideas and easy-to-mix-up pairs	Watch for one wrong word
II. Matching	Vocabulary definitions	Memorize the ten terms below
III. Multiple Choice	Definitions and cause-and-effect	Know <i>why</i> , not just <i>what</i>
IV. Reading Passage	2 questions on a passage you have not seen	Cannot be studied — read carefully
V. Essay	One paragraph, academic language	Practice writing it out
Bonus	5 questions from readings, videos, discussion	Review the Jeopardy game

PART I · TRUE AND FALSE WILL FOCUS ON THESE CONCEPTS

Know these well enough to catch a single changed word.

What is the difference between rotation and revolution?

→ Rotation is Earth spinning on its axis — one rotation every 24 hours, which gives us day and night. Revolution is one complete trip around the sun — 365¼ days, which gives us one year.

Why do we have a leap year?

→ A revolution takes 365¼ days. Every four years the extra fourths add up to one whole day, added to the calendar as February 29.

What causes the seasons?

→ Earth is tilted 23.5 degrees on its axis and **stays** tilted as it orbits. So one half of the planet is always tilted toward the sun and the other half away. It is **not** caused by Earth being closer to or farther from the sun.

What is the difference between weather and climate?

→ Weather is the state of the atmosphere at a given time — a week, a day, an afternoon. Climate is the average weather conditions in a region over a much longer period. Measuring precipitation for one day gives you weather data; measuring for one full year gives you climate data.

What is the difference between weathering and erosion?

→ Weathering **breaks** rock down where it sits. Erosion **moves** the weathered bits somewhere else by water, wind, or ice. They work together.

Why don't we feel the tectonic plates moving?

→ The plates move only a few inches each year — far too slowly for humans to feel — but over millions of years that adds up to thousands of miles.

Is the North Pole region a continent? Is Greenland?

→ Neither. The region around the North Pole is a huge mass of dense ice, not land. Greenland is classified as the world's largest island.

Which continents are completely surrounded by water?

→ Only Australia and Antarctica.

Is the total amount of water on Earth increasing?

→ No. Scientists believe the total amount has not changed since the planet formed billions of years ago. Water is never made or destroyed — it only changes form and is recycled through the water cycle.

Can humans drink salt water?

→ No — because of its high concentration of minerals. Desalination can remove the minerals to make it drinkable, but the process is expensive.

PART II · MATCHING WILL FOCUS ON THESE TERMS

Have a working knowledge of each of these ten terms.

Axis

An imaginary line that runs through Earth's center from the North Pole to the South Pole.

Magma

Melted rock. When a volcano erupts, the glowing-hot lava that flows out is magma from Earth's outer mantle.

Biosphere

All that is living on the surface of Earth, close to the surface, or in the atmosphere.

Rain shadow

A region of reduced rainfall on the side of a high mountain facing **away** from the ocean.

Biome

A type of large ecosystem with similar life-forms and climates — rain forest, desert, grassland, tundra.

Fault

The result when the rocks on one side or both sides of a crack in Earth's crust have been moved by forces within Earth.

Tsunami

A giant ocean wave caused by volcanic eruptions or movement of the earth under the ocean floor.

Isthmus

A narrow strip of land connecting two larger land areas — for example, Panama.

Delta

An area where sand, silt, clay, or gravel is deposited at the **mouth** of a river.

Aquifer

An underground layer of rock through which groundwater flows.

ALSO KNOW THESE TEN — PRACTICE TEST B DRAWS ITS MATCHING FROM HERE

Revolution

One complete trip around the sun, taking 365¼ days. (Rotation is the 24-hour spin on the axis.)

Equinox

A day — about September 23 and March 21 — when the sun's rays are directly overhead at the Equator and day and night are equal everywhere on Earth.

Elevation

How far above sea level a landform or location is.

Plateau

A flat landform that rises above the surrounding land, often with a steep cliff on at least one side.

Peninsula

A long, narrow area of land that extends into a river, a lake, or an ocean, connected at one end to a larger landmass.

Continental shelf

An underwater plain that borders a continent, usually ending at cliffs or downward slopes.

Weathering

A process by which Earth's surface is worn away by wind, rain, chemicals, and the movement of ice and flowing water. It **breaks rock down**.

Groundwater

Water contained inside Earth's crust.

Desalination

A process that separates most of the dissolved chemical elements from salt water to produce water safe to drink. It is expensive.

Condensation

The process in which water vapor in a saturated cloud transforms into a denser liquid or solid state, causing water to fall back to Earth.

WATCH OUT — THESE GET MIXED UP

Peninsula extends *into* water and is attached at one end | **Isthmus** connects two land areas

Plateau is flat but *rises above* the land around it | **Plain** is flat or gently rolling

Trench is a long, narrow, steep-sided *cut* | **Continental shelf** is an underwater *plain* bordering a continent

Evaporation = liquid → vapor (heat) | **Condensation** = vapor → denser liquid or solid, which falls as precipitation

PART III · MULTIPLE CHOICE WILL FOCUS ON THESE CONCEPTS

What are Earth's three layers, from the center outward?

→ Core (a solid inner core and a liquid outer core), then the mantle, then the crust. The mantle is the layer between the crust and the outer core.

What are Earth's four physical subsystems?

→ Hydrosphere (water), lithosphere (land), atmosphere (gases), biosphere (living things).

How does elevation affect temperature?

→ Temperature **decreases** about 3.5°F (1.9°C) for every 1,000 feet of elevation gained, because the atmosphere thins as altitude increases and thinner air retains less heat. A high elevation is colder than a low elevation at the same latitude.

What causes wind?

→ Changes in air pressure caused by uneven heating of Earth's surface. Warm, low-pressure air rises; cooler, high-pressure air rushes in underneath it. This helps balance Earth's temperature.

How do ocean currents balance Earth's temperature?

→ Warm water moves away from the Equator toward higher latitudes, and cold polar water moves toward the Equator.

Who created the climate zone system, and what are the zones?

→ German scientist Wladimir Köppen, in 1900. Five original zones: Tropical (A), Desert (B), Humid Temperate (C), Cold Temperate (D), Polar (E). A sixth was added later: High Mountain (F). Zones are classified by temperature, precipitation, and distance from the Equator.

What is a continent, and how many are there?

→ A large, continuous mass of land, part of Earth's crust. There are seven: Asia, Africa, North America, South America, Europe, Antarctica, and Australia.

What causes earthquakes and volcanoes?

→ Plate movement. Earthquakes are caused by plate movement along fault lines, and can also be caused by the force of erupting volcanoes.

What is the Ring of Fire?

→ A long, narrow band of volcanoes around the Pacific Ocean, stretching more than 24,000 miles, formed where the edges of Pacific plates were forced under the surrounding plates.

What is elevation?

→ How far above sea level a landform or location is.

What is the difference between a bay and a gulf?

→ A bay is a coastal area where ocean waters are partially surrounded by land. A gulf is a **larger** area of ocean water partially surrounded by landmasses — for example, the Gulf of Mexico.

What are the three steps of the water cycle?

→ Evaporation (the sun's heat turns liquid water into water vapor, which rises because moist air is less dense than dry air) → water vapor gathers into clouds until they are saturated → condensation (the vapor transforms into a denser liquid or solid) → precipitation (water falls back to Earth as rain, hail, or snow). Then it repeats.

PART IV · READING PASSAGE

You will read a passage you have not seen and answer two multiple-choice questions about it. You cannot study for this ahead of time — it assesses reading comprehension.

STRATEGY FOR THE PASSAGE

1. Read the **questions first**, then the passage — you'll know what to look for.
2. Find the sentence that proves your answer and put your finger on it. If you can't point to it, it's probably not the answer.
3. Watch for answers that are *true* but don't actually answer the question asked.
4. Watch for absolute words like *always*, *never*, *all*, *only* — passages rarely support them.

PART V · ESSAY

LIKELY PROMPT

Write a one-paragraph essay explaining how **natural forces** change Earth's surface and how **human actions** change Earth's surface. Give at least two ways for each.

Required structure: an introduction (topic sentence), at least **three supporting details**, and a conclusion. Part of the grade comes from academic language — spelling, punctuation, capitalization, and word choice — the same feedback Mr. Schwartz has been giving on Bellringers.

DETAILS YOU CAN USE

NATURAL FORCES CHANGE EARTH	HUMAN ACTIONS CHANGE EARTH
Tectonic plates collide and build mountains, volcanoes, and ocean trenches	Coal mining has leveled entire mountains
Earthquakes along fault lines change the surface in minutes	Dynamite blasts tunnels through mountain ranges for highways and railroads
Weathering rounded and crumbled the Appalachian Mountains over millions of years	Canals dug by humans change the natural course of waterways
Weathering and erosion carved the Grand Canyon	Deforestation causes deadly landslides and terrible erosion
Ocean waves grind rock into sand and build beaches; rivers deposit soil to form deltas and coastal plains	Burning fossil fuels releases chemicals that poison waterways and cause chemical erosion of buildings

THE CONTRAST THAT EARNS THE STRONGEST SCORE

Natural changes like weathering and erosion happen **slowly** — over hundreds, thousands, or millions of years — and create the landforms that make our planet unique. Human-caused changes happen **quickly** and can threaten our safety and survival. Studies show humans have changed Earth's environment faster and more broadly in the last 50 years than at any time in history. End with why protecting the environment matters for future generations.

BONUS · FIVE QUESTIONS WORTH 2 POINTS EACH

Mr. Schwartz does not release the bonus questions or answers — they come from readings, discussion, and videos, and they are on the Jeopardy review game. These are the specific numbers and names most likely to show up.

FACT	NUMBER / NAME TO REMEMBER
Distance from Earth to the sun	About 93 million miles (150 million km)
Earth's tilt on its axis	23.5 degrees
Thickness of the mantle	About 1,800 miles (2,897 km)
Thickness of the crust	About 2 miles under oceans to about 75 miles under mountains
Deepest hole ever drilled into Earth	About 8 miles (13 km) — still inside the crust
Farthest a human has traveled into the crust	About 2.5 miles (4 km)
Percentage of Earth's surface that is water / land	71% water, 29% land
Composition of the atmosphere	About 78% nitrogen, 21% oxygen, small amounts of other gases

Where outer space begins	100 miles (161 km) above Earth
Summer solstice / winter solstice (Northern Hemisphere)	About June 21 (rays at Tropic of Cancer) / about December 22 (rays at Tropic of Capricorn)
Equinoxes	About September 23 and March 21 — rays overhead at the Equator, 12 hours day and night everywhere
Temperature drop per 1,000 feet of elevation	About 3.5°F (1.9°C)
Scientist who created the climate zones	Wladimir Köppen, a German scientist, in 1900
Number of tectonic plates	16
Length of the Ring of Fire	More than 24,000 miles (38,624 km)
Salt water vs. freshwater on Earth	About 97% salt water, 3% freshwater — only about 1% of all water is usable liquid freshwater
The five oceans, largest to smallest	Pacific, Atlantic, Indian, Southern, Arctic
Deepest location on Earth	The Mariana Trench, in the Pacific — more than 35,000 feet (10,668 m) deep
Longest underwater mountain range	The Mid-Atlantic Ridge
Ice masses, smallest to largest	Glacier → ice cap → ice sheet (over 20,000 sq. miles; covers most of Greenland and Antarctica)

THREE-DAY STUDY PLAN

Day 1 — Read Parts I and II out loud. Write the ten matching terms and definitions from memory, then check.

Day 2 — Take Practice Test A closed-book. Grade it. For every miss, find the sentence in the text that proves the right answer.

Day 3 — Write the essay paragraph out by hand. Take Practice Test B. Review the bonus number table one last time.