EARTH SCIENCE 6 · POGUELIFE STUDY

Chapter 2 Study Guide

Section 1 The Study of Earth Science · Section 2 Lab Safety · Test: Friday, September 4

Name _____ Date _____

What the test looks like — 100 + 10 bonus

The same six parts every time, so there are no surprises about format.

PART	WHAT IT IS	WORTH
Part I	True or False	10 × 3 = 30 pts
Part II	Matching	10 × 2 = 20 pts
Part III	Multiple Choice	12 × 2.5 = 30 pts
Part IV	Reading Passage	2 × 5 = 10 pts
Part V	Paragraph	10 pts
Bonus	Extra Credit	5 × 2 = 10 pts

HOW TO USE THIS GUIDE

Read the concepts, then cover the definitions in **Terms to Know** and say them out loud. When you can do that, run a live practice test on the site — it marks every answer and tells you why. Come back here for whatever it flags.

Concepts by section

Section 1 — What Earth science is

Earth science is the study of the Earth and its place in the universe. Earth scientists look at Earth's structure, its history, its position in the solar system, and the forces that have changed its surface.

- **Constructive forces build Earth's surface up.** The two examples given are volcanic eruptions that create new land, and tectonic plate movements that form mountains.
- **Destructive forces wear Earth's surface down.** Weathering, erosion, earthquakes and glaciers slowly break apart mountains and reshape landscapes.

- Expect at least one question that gives you an example and asks which kind of force it is. Building up = constructive. Wearing down = destructive.

Section 1 — Earth as a system

A **system** is a group of interconnected components that work together as a whole. Earth is a system made of five smaller systems, called spheres, that constantly interact. Matter and energy move between them all the time.

- **Atmosphere** — the thin layer of gases that surrounds Earth. Allows for varied climate and long-term weather conditions.
- **Lithosphere** — the solid, rocky outer layer that forms Earth's rigid outer shell, **excluding the oceans**. Mountains, valleys and continents.
- **Hydrosphere** — all of the waters on Earth's surface, lakes and oceans included. A significant factor in shaping weather and climate.
- **Biosphere** — the part of the planet where living things are found, from the upper atmosphere to the bottom of the oceans.
- **Cryosphere** — all frozen water on Earth: glaciers, ice caps and permafrost. Affects global climate and sea level.
- The trap to watch for: the lithosphere does **not** include the oceans, and the spheres overlap — a bird over a lake is in the biosphere and the atmosphere at once.

Section 1 — The five branches

- **Geology** — the forces that shaped Earth. How rocks and minerals form, what causes earthquakes, volcanic formations. Some geologists specialise in soil science, others in rivers and lakes.
- **Oceanography** — the ocean: chemical composition, marine ecosystems, physical properties such as waves and currents, and marine life.
- **Meteorology** — conditions in the atmosphere. Weather patterns, and radar and satellites for making accurate predictions.
- **Astronomy** — objects beyond Earth: the solar system, stars and galaxies. Uses telescopes and satellites.
- **Environmental science** — Earth's environments and natural resources, how human activities affect them, and ways to reduce the negative impacts.

Section 2 — Lab safety, rule by rule

Safety questions are easy marks if you have read the handout once. They are grouped into six headings, and questions tend to follow those groups.

- **General** — follow your teacher's instructions; read all directions before starting; never rush; keep your workspace clean; use materials only as directed; no food, drinks or gum.
- **Personal** — safety goggles for chemicals, heat and flying particles; gloves and aprons for skin and clothing; long hair tied back; loose clothing and jewellery secured.
- **Equipment** — handle glassware carefully; follow directions for sharp objects, heat and chemicals; never touch, taste or smell a substance unless instructed, and use **wafting** when you are told to smell one.
- **Chemicals** — read labels first; never mix unless directed; **never return unused chemicals to their original containers**; report spills to your teacher immediately.
- **Emergencies** — know where the fire extinguisher, eyewash station and first aid kit are; report injuries, spills or breakages right away; stay calm and follow instructions.
- **After** — clean your workspace, return materials, dispose of waste as instructed, and wash your hands thoroughly with soap and water.

Section 2 — The six safety symbols

- Take care when handling **sharp objects**.
- Follow instructions to avoid injury when **physical activity** is required.
- **Wash hands** thoroughly with soap and water.
- **Properly dispose** of materials in the proper bins.
- Handle **animals** with caution and respect.
- Handle **plants** only as directed by the teacher.

Terms to know — Part II

Every term that can appear in the matching section, alphabetised.

Astronomy
The branch that studies objects beyond Earth — the solar system, stars, and galaxies.

Atmosphere
The thin layer of gases that surrounds Earth and allows for varied climate.

Biosphere
The part of the planet where living things are found, from the upper atmosphere to the bottom of the oceans.

Constructive force
A process that builds Earth's surface up, such as lava cooling into new land.

Cryosphere
All of Earth's frozen water, including glaciers, ice caps, and permafrost.

Destructive force
A process that wears Earth's surface down, such as a glacier grinding through a valley.

Earth science
The study of the Earth and its place in the universe — its structure, its history, and how forces change its surface.

Emergency equipment
Fire extinguishers, eyewash stations and first aid kits — know where all three are before you start.

Environmental science
The branch concerned with natural resources and the damage people do to them.

Geology
The branch that studies the forces that shaped Earth — rocks, minerals, earthquakes, and volcanoes.

Hydrosphere
All of the water on Earth's surface, including lakes and oceans.

Lithosphere
The solid, rocky outer layer of Earth — mountains, valleys, and continents — not including the oceans.

Meteorology

The branch that studies conditions in the atmosphere and uses radar and satellites to predict weather.

Oceanography

The branch that studies the ocean, from its chemical composition to its currents and marine life.

Safety goggles

Protect your eyes from chemicals, heat, and flying particles.

Spheres

The smaller systems that make up Earth: atmosphere, lithosphere, hydrosphere, biosphere and cryosphere. Matter and energy move constantly between them.

System

A group of interconnected components that work together as a whole.

Wafting

The safe way to move a smell toward your nose when a teacher tells you to.

The paragraph — 10 pts

PROMPT — PRACTICE TEST

Name Earth's five systems, and then explain — using one clear example — how two of them interact with each other. Write one paragraph: an introduction, at least three supporting details, and a conclusion.

PROMPT — PRACTICE TEST B

Pick one of Earth's five systems. Explain what it is, name a branch of Earth science that studies it, and describe one way it affects a different system. One paragraph: introduction, at least three supporting details, conclusion.

A full-credit paragraph does all six of these:

1. Names all five systems: atmosphere, lithosphere, hydrosphere, biosphere, and cryosphere.
2. Opens with a sentence that states what the paragraph is about.
3. Gives at least three supporting details, not just a list of names.
4. Describes one specific interaction between two named systems.
5. Closes with a sentence that wraps the idea up.

6. Spelling, punctuation, and capitalization are correct throughout.

MODEL PARAGRAPH

Earth is one big system made of five smaller systems that constantly affect one another. The atmosphere is the thin layer of gases around the planet, the lithosphere is the solid rocky shell of mountains and continents, the hydrosphere is all the water on the surface, the biosphere is everywhere living things are found, and the cryosphere is all of Earth's frozen water. These systems are not sealed off from each other — matter and energy move between them all the time. For example, when warm air in the atmosphere melts part of a glacier in the cryosphere, the meltwater flows into rivers and oceans and becomes part of the hydrosphere. That is why Earth scientists study the spheres together instead of one at a time: a change in one of them almost always shows up in another.

Bonus — facts worth memorising — 10 extra pts

The bonus is never released in advance. These are the details most likely to be asked, pulled from the same handouts.

1. **handled with caution and respect** — One of the six symbols is specifically “handle animals with caution and respect.”
2. **only as directed by the teacher** — The symbol reads “handle plants only as directed by teacher.”
3. **wafting** — Wafting means fanning the vapour toward your nose rather than putting your face over it.
4. **Geology** — Within geology, some scientists specialise in soil science; others study rivers and lakes.
5. **weather and climate** — The handout calls the hydrosphere a significant factor in shaping weather and climate.
6. **Hydrosphere** — The hydrosphere — all the surface water — is named as a major influence on weather and climate.
7. **satellites** — The handout pairs telescopes with satellites for observing planets and the universe.
8. **Tectonic plate movements that form mountains** — Constructive: volcanic eruptions creating new land, and plate movements forming mountains. The other three are destructive.
9. **disposed of as instructed** — Clean your workspace, return materials, dispose of waste as instructed, and wash your hands.
10. **sea level** — The handout says the cryosphere affects the global climate and sea level.