

4.1 Plate Tectonics

Name: _____ Class: _____ Date: _____

Total: 11 marks

Objective

Build the skills to answer exam questions on **plate tectonics**.

You must be able to:

- describe **plate boundaries** 板块边界 (divergent, convergent, transform)
- link boundaries to earthquakes, volcanoes, and mountains
- explain the effect on ecosystems and hazards

1 Worked examples

Study these first. Each one shows the method for a question type used later —follow the steps and you can do the Practice and Exam-style questions yourself.

■ The three boundaries

Earth's **plates** move over the mantle. Where they meet:

- **Divergent** —plates move **apart**; new crust forms (mid-ocean ridges).
- **Convergent** —plates move **together**; one may subduct, forming volcanoes, mountains, and deep trenches.
- **Transform** —plates **slide** past each other; earthquakes (e.g. San Andreas Fault).

■ Hazards

Boundaries are where **earthquakes** and **volcanoes** concentrate. Convergent zones build **mountains** and cause explosive volcanoes; transform faults cause earthquakes.

■ Effect on life

Volcanic soil is fertile; new islands create habitats; but hazards (eruptions, quakes, tsunamis) also disrupt ecosystems and human settlements.

■ A worked identification

Two plates colliding, with a chain of volcanoes and a deep ocean trench, is a **convergent** boundary.

2 Practice

Now apply the methods above.

2.1 Name the three types of plate boundary. [3]

2.2 Which boundary forms new crust? [1]

2.3 Which boundary mainly causes earthquakes as plates slide past? [1]

3 Exam-style questions

3.1 Volcanoes and mountain ranges most often form at [1]

- **A** divergent boundaries
- **B** convergent boundaries
- **C** transform boundaries
- **D** the plate centers

3.2 A region has a chain of volcanoes and a deep ocean trench.

(a) Name the boundary type. [1]

(b) Explain how it forms these features. [2]

3.3 Explain one benefit and one hazard of living near a plate boundary. [2]

4 Go further

You are now ready for the real exam questions on this subtopic:

- work through the **4.1 Plate Tectonics** lesson on the **Learn** page;
- read the **Plate Tectonics** section of the AP Environmental Science handout on the **Know** page.

Solutions

2.1 Divergent, convergent, transform.

2.2 Divergent.

2.3 Transform.

3.1 B —convergent boundaries.

3.2 (a) Convergent. (b) One plate subducts beneath the other, forming a deep trench; the descending plate melts, feeding volcanoes above.

3.3 Benefit: fertile volcanic soil (or geothermal energy); hazard: earthquakes/volcanic eruptions.