Exercise walk-through

Plate Tectonics ▪ 4.1

eXercise

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

Method — 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).

Method — Hazards

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

Method — Effect on life

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

Method — A worked identification

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

Practice 2.1 ▪ 3 marks

Name the three types of plate boundary.

Solution 2.1

Worked steps

Divergent, convergent, transform B1 B1 B1.

Practice 2.2 ▪ 1 mark

Which boundary forms new crust?

Solution 2.2

Method: The three boundaries

Worked steps

Divergent B1.

Practice 2.3 ▪ 1 mark

Which boundary mainly causes earthquakes as plates slide past?

Solution 2.3

Method: The three boundaries

Worked steps

Transform B1.

Exam-style 3.1 ▪ 1 mark

Volcanoes and mountain ranges most often form at

A divergent boundaries

B convergent boundaries

C transform boundaries

D the plate centers

Solution 3.1

A divergent boundaries

B convergent boundaries ✓

C transform boundaries

D the plate centers

Worked steps

B — convergent boundaries.

Exam-style 3.2 ▪ 1 mark

A region has a chain of volcanoes and a deep ocean trench.
(a) Name the boundary type.
(b) Explain how it forms these features.

Solution 3.2

Method: A worked identification

Worked steps

(a) Convergent B1. (b) One plate subducts beneath the other, forming a deep trench; the descending plate melts, feeding volcanoes above M1 A1.

Exam-style 3.3 ▪ 2 marks

Explain one benefit and one hazard of living near a plate boundary.

Solution 3.3

Worked steps

Benefit: fertile volcanic soil (or geothermal energy); hazard: earthquakes/volcanic eruptions M1 A1.