

# Rock-Layer Reconstruction

Classroom-ready printable pack · Grades 5–8

**Pack contents**

Two identical strata, fossil, fault, intrusion, and erosion sets with cross-section mats. Two student sets are included.

**Teacher directions**

1. Give each partner a cross-section mat and one identical geology set.
2. The Describer chooses a challenge card and arranges layers from bottom to top before adding any fault, intrusion, fold/tilt, fossil, or erosion surface.
3. The Describer explains relative positions and cross-cutting relationships. The Builder recreates the section.
4. Compare with the reference. State relative age only; do not assign numerical ages without evidence.

**Before class**

- Print at 100% on US Letter paper. Use cardstock or laminate for reuse.
- Cut on the thick solid borders. Keep Set A and Set B separate.
- Give challenge/model cards only to the Describer.
- Use a folder, book, or tabletop barrier so partners cannot see each other's work.

**Accessibility and accommodations**

Start with four undisturbed layers and the superposition strip. Add faults or intrusions later. Layers use different edge patterns and labels, not color alone.

## Storage-envelope labels

**Rock-Layer Reconstruction**

Set A — Describer

Count pieces before storing.

**Rock-Layer Reconstruction**

Set B — Builder

Count pieces before storing.

**Rock-Layer Reconstruction**

Challenge / model cards

Count pieces before storing.

**Rock-Layer Reconstruction**

Teacher reference

Count pieces before storing.

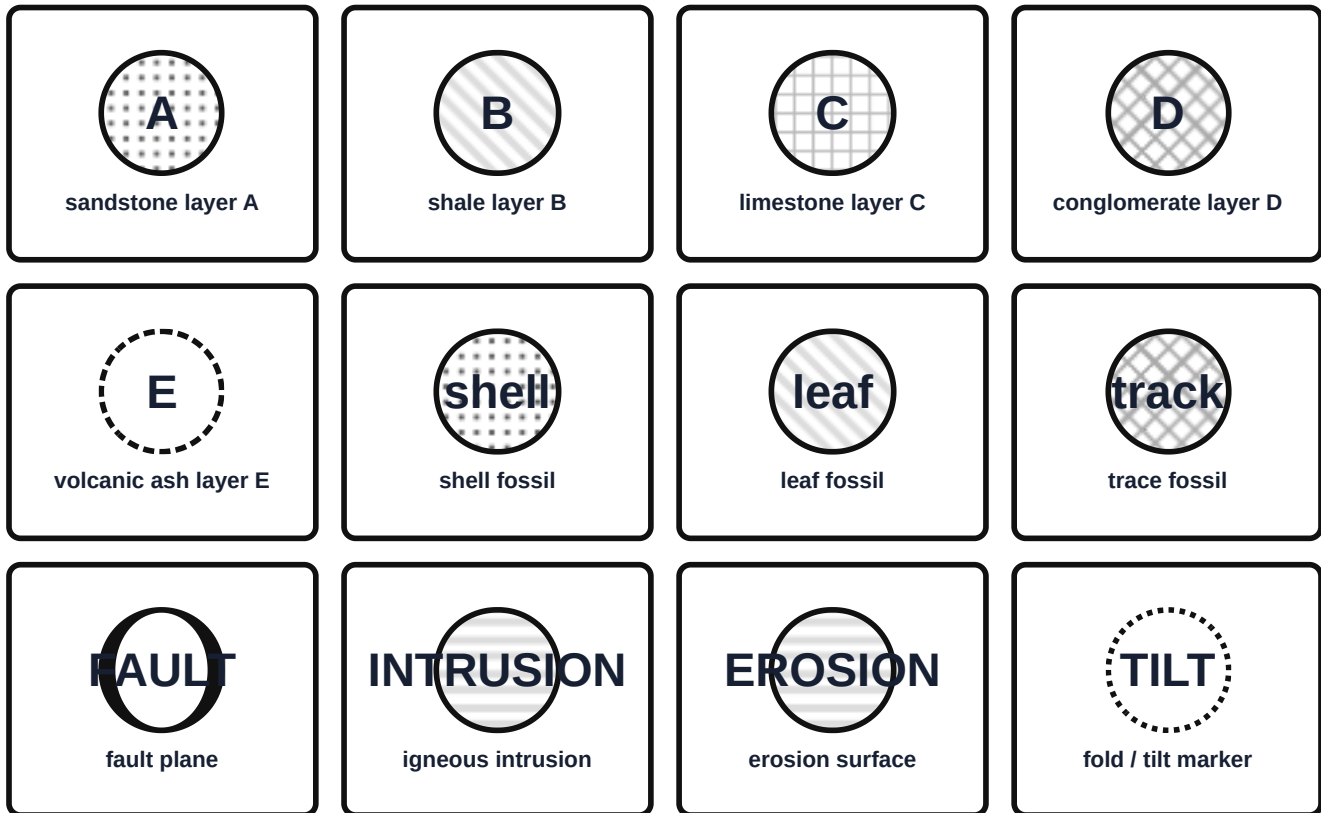
## Student language supports

**Position:** above · below · beside · between · near · far · left · right · clockwise**Clarify:** “Please repeat...” · “Is \_\_\_ beside \_\_\_?” · “What should I place next?”**Compare:** same · different · rotate · move · replace · sequence

## Movable pieces

**Set A**

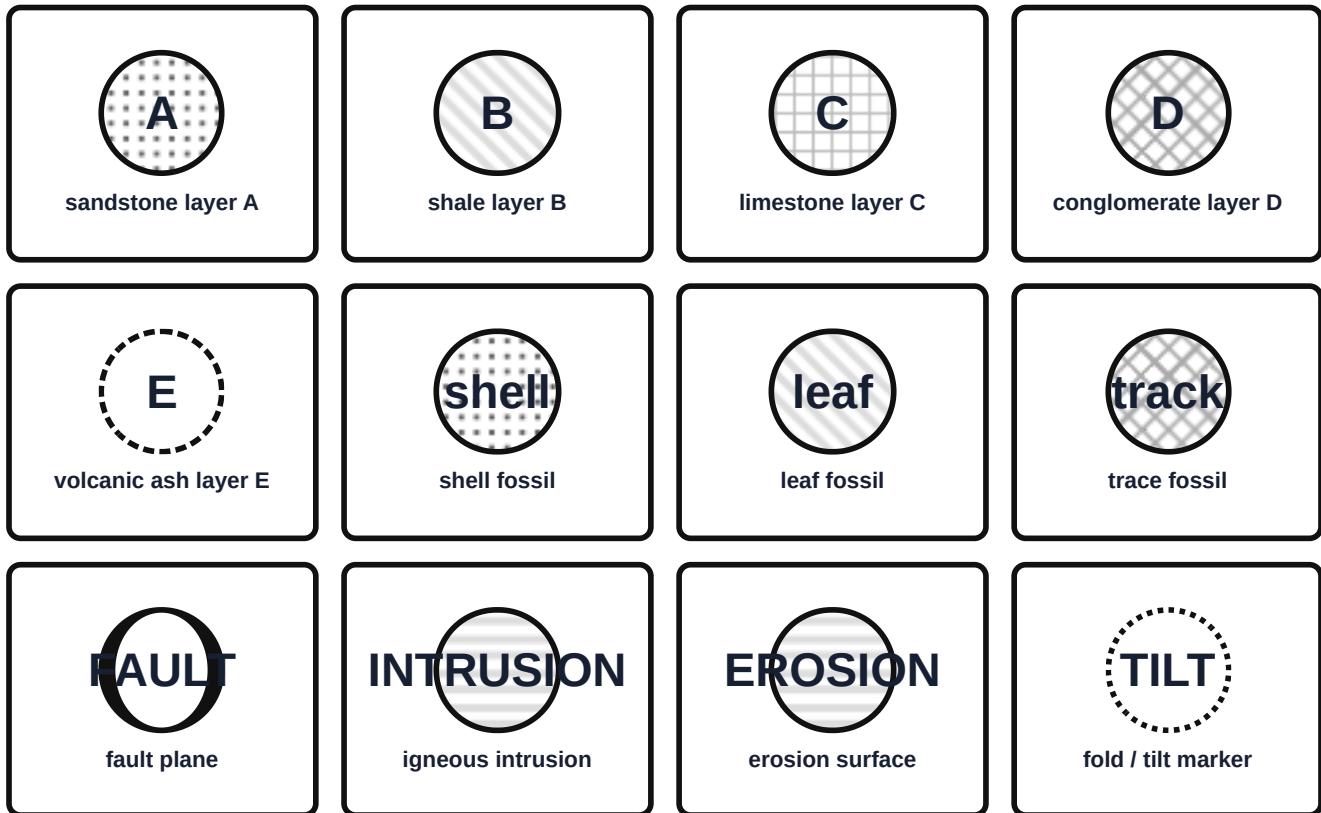
Cut on the solid borders. This set is identical to the partner set.



## Movable pieces

**Set B**

Cut on the solid borders. This set is identical to the partner set.



# Geologic cross-section

Cut the page in half. Both partner mats are identical.

Set A — Geologic cross-section

surface at top • oldest area usually at bottom • left/right correlation zones

top / far

center

bottom / near

Set B — Geologic cross-section

surface at top • oldest area usually at bottom • left/right correlation zones

top / far

center

bottom / near

## Describer-only challenge cards

Keep these cards hidden from the Builder.

### Challenge 1: Undisturbed sequence

**Place A at bottom, then B, C, and D.**

A is oldest; D is youngest.

### Challenge 2: Fossil correlation

**Put the same shell fossil in matching layer B on both sides.**

matching fossils can support correlation

### Challenge 3: Fault after deposition

**Stack A–D, then place a fault cutting all four.**

fault is younger than A–D

### Challenge 4: Intrusion after layers

**Stack A–C, then add an intrusion cutting them.**

intrusion is younger than A–C

### Challenge 5: Erosion and new layer

**Stack A–C, add an erosion surface, then D.**

missing time lies below D

### Challenge 6: Tilted layers

**Arrange A–D in order, then rotate the whole sequence.**

tilting happened after deposition

# Rock-Layer Reconstruction reference

## Geology reference

**Superposition:** in an undisturbed sedimentary sequence, the lowest layer is oldest and the highest is youngest. **Original horizontality:** sedimentary layers are generally deposited horizontally; tilting/folding occurred later. **Cross-cutting:** a fault or igneous intrusion is younger than the rocks it cuts. **Unconformity:** an erosional/nondepositional surface represents missing time.

Faults can move layers up, down, or sideways. Fossils help correlate layers, but a card alone does not establish an absolute age. These are simplified cross-sections, not scale models.

Principles checked against U.S. Geological Survey educational resources on strata and relative time.

## Quality check after a round

- Can each student identify pieces by shape or label without relying on color?
- Do both models match in pieces, order, orientation, and relative position?
- Which direction was most precise? Which should be revised?