TEACHER GUIDE / ADULT ONLY

# Fossil Butte Field Camp

Grade 4 | 4-ESS1-1 | PILOT 1.2

## Use this tomorrow

Students arrange rock layers, read fossil clues and explain a landscape change. The shared exit uses a new cliff.

Target: 10-15 minutes of practice, plus 3-5 minutes for the exit question. Student timing is untested.

Open the game | Student packet | Shared exit question

https://polemountainlearning.com/fossil-butte-field-camp

Practice: student pages 1-3. Exit: page 4 or the separate one-page exit.

### 1. Practice

Use the hosted game or student pages 1-3. Keep first answers. Give a matching hint from Teacher Guide page 2, then allow one retry. Record first tries and results after feedback separately.

### 2. Give the shared exit question

Use student page 4, the separate exit sheet or the screen exit. Keep practice and keys out of sight. Do not coach the exit. Collect answers before showing keys.

### 3. Record and choose a teaching step

Practice has 4 parts; the independent exit has 3. Score with Teacher Guide page 2. Use the teaching suggestions on Teacher Guide page 3; these scores are not proficiency labels.

### Codes and receipts

Screen receipts show answers, not an exit score. Record the code, both practice counts and all exit responses before closing. For paper-only practice, assign P01, P02 or your own class codes. A code identifies work; it does not retrieve a saved record.

Teacher Guide page 2: keys and practice hints. Teacher Guide page 3: full routines, scoring details and science limits. Keep this guide with the teacher.

Built and reviewed with AI tools; no human classroom trial of this revision yet.

# Keys, hints and feedback

Student packet pages 1-3 practice | Shared exit page 4 | Routines on Guide page 3

## Practice keys and explanations

**1. Top T; middle S; bottom R.**

From top to bottom: T, S, R. Older layers are below younger layers. Use the age labels, not the fossil type.

**2. A: Water animals; B: No fossils shown; C: Land plants.**

C has plant roots in soil. A has fish fossils. B has no fossils shown; that alone does not tell us its past environment.

**3a. Claim C. 3b. B and D only.**

The older bottom layer has plant roots in soil: land. The younger top layer has fish fossils: water. Together, these clues support a change from land to water. The empty middle layer is a real observation, but it does not show the direction of change.

## Exit key - collect work first

A: Menu 1 C (F); Menu 2 B (clam fossils). Both menus are required for 1 point. B: choice B, water to land. C: A and E only; both observations are required for 1 point. Older clam fossils show water animals; younger roots in soil show land plants. Layer E has no fossils shown, but this alone does not show the change or prove that no life was present.

## Numbered hints - practice only

**1**

Find the card marked Oldest. Which place belongs to it?

**2**

Match each fossil picture to Table 1. An empty layer has no fossils shown.

**3a**

Start with the older bottom layer. Was it land or water? Then look at the top layer.

**3b**

Find the land clue and the water clue. Compare the ages of their layers.

## Teacher tally

Correct first tries: ____ / 4

Hints given: ____

Correct after feedback: ____ / 4

Independent exit: ____ / 3

# Run a first classroom pilot

Grade 4 | 4-ESS1-1 | Fossil Butte Field Camp | PILOT 1.2

## Teach and practice

Target: 10-15 minutes for practice, plus 3-5 minutes for the exit question. Student timing is untested. Paper practice is on student pages 1-3; the exit is page 4 or the standalone sheet.

## One hint and one retry

Have students keep their first answers. Give the matching numbered hint from Teacher Guide page 2, then allow one retry in the separate space. Whole-class option: collect first tries, give missed-part hints aloud, allow one silent retry, then discuss. The screen clears missed responses and keeps correct ones locked. Keep first tries and after-feedback tallies separate.

## Independent exit and scoring

Keep practice and the Teacher Guide out of sight during the exit. Do not coach it. Collect work before showing keys. Score practice as 4 parts: one layer stack, one three-row grid, a claim and its evidence. Give 1 point per part, with all grid rows correct or the exact two evidence choices required. Score exit A, B and C separately, 1 point each. A needs both menus correct; C needs exactly two correct choices. No partial credit in the game. Keep supported practice separate from the independent exit. The stack is a warm-up, not independent evidence of explaining landscape change. Counts from v1.2 are not directly comparable to v1.1 because the item formats and number of practice parts changed. 0-1 of 3: revisit the fossil guide and read a model from bottom to top. 2 of 3: discuss the missed part, then check a fresh cliff sketched by the teacher. 3 of 3: ask the student to explain the change using two fossil clues and their order. These guide teaching, not proficiency labels. The parts use the same model; score separately and read together.

## Codes and receipts

For paper-only practice, assign a class code such as P01, P02. For online practice followed by paper, copy the game code onto the exit page. Codes identify work; they do not open a saved record. For a class of screen exits, have students copy their name, code, both practice counts and every exit response onto a paper slip before closing: A Menu 1 and Menu 2 words, B choice letter, and both C choice letters. Collect slips and score with Teacher Guide page 2. The paper-exit button also gives a code. Go back changes exit format while preserving entered answers. Mark the unscored screen receipt against Teacher Guide page 2. Record it before closing; leaving or reloading after starting asks first. Nothing can be retrieved later.

## Access and models

Share the hosted game link through Classroom for phones or managed Chromebooks; raw HTML attachments may not run. Fossil Butte National Monument in Wyoming preserves fossils from an ancient lake. These classroom cliffs are invented teaching models, not reconstructions of the monument's layers. Freshwater fossils alone do not distinguish a lake from a river. No fossils shown does not mean no life. The models use flat layers that have not been overturned; the exit omits age arrows and the older-below reminder.

## Review status

Built and reviewed with AI tools; no human classroom trial yet. Student timing, physical printing and screen-reader use are untested. Read-aloud is off. This is original practice, not an official WY-TOPP assessment or calibrated proficiency measure.

## Sources

**Wyoming 2026+ science blueprint**
https://resources.edu.wyoming.gov/wp-content/uploads/2025/05/2026-Science-Summative-Assessment-Blueprint.pdf

**NGSS 4-ESS1-1 and assessment boundary**
https://www.nextgenscience.org/pe/4-ess1-1-earths-place-universe

**NPS Fossil Butte fossils**
https://www.nps.gov/fobu/learn/nature/fossils.htm