

Farm Engineers of the Americas

Mission: Farmers across the Americas faced four very different problems. Test each farming technology in each place, run four seasons, and discover which ancient engineering solution fits each environment, and why.

Big question: How did the peoples of the Americas change their environments to grow food?

★ Warm-up: Problem → solution

Name a solution.

Water runs off a hill too fast ✓ **Build steps or walls to slow it.**

Soil is worn out ✓ **Rest it or plant crops that add nutrients.**

Key vocabulary

Terrace	A flat step cut into a hillside for farming.
Erosion	Soil being worn or washed away.
Irrigation	Bringing water to crops through canals or ditches.
Milpa	A field of corn, beans, and squash planted together.

1 Box 1

The Andes

In the simulator: Get an excellent harvest on the Andes slopes.

Why did terraces work on the Andes slopes?

- ☐ They stop soil from washing downhill and create flat land ☐ They bring water from the lake
☐ They add nutrients to the soil

✓ **They stop soil from washing downhill and create flat land**

2 Box 2

Solve every environment

In the simulator: Get an excellent harvest in all four places.

What did you notice?

3 Box 3

Record your results

Record the best technology for each place.

Place	Best technology
Andes slopes	
Lake Texcoco	
Yucatán rainforest	
Desert coast	

4 Box 4

Failed tests

Why did chinampas FAIL on the Andes slopes?

- ☐ Chinampas need shallow water, and mountains have none ☐ Mountains are too cold for corn
☐ Chinampas are too expensive

✓ **Chinampas need shallow water, and mountains have none**

5 Box 5

Engineering report

Write an engineering report comparing two civilizations.

Civilization 1: problem and solution

Look for: Names a civilization; Names the technology; at least 14 words

Civilization 2: problem and solution

Look for: Names a civilization; Names the technology; at least 14 words

Big idea

Look for: States the big idea; at least 10 words

6 Box 6

Legend: modern connection Legend only

Farmers today still use terraces and irrigation. Describe where one of these technologies is used now and why.

Look for: at least 20 words

Exit ticket: answer the big question in your own words

How did the peoples of the Americas change their environments to grow food?

Look for: Early American civilizations engineered solutions to their geography: Inca terraces on mountains, Aztec chinampas in a lake, Maya milpa farming in the rainforest, and irrigation canals in coastal deserts. The right technology depends on the environment's specific problem.

Completion codes

Students see a code like **ABC-I3** when they finish. The first part must match below. The letter is the level (E = Explorer, I = Investigator, L = Legend), and the number at the end is how many stars they earned.

Level	Code starts with
 Explorer	169-E
 Investigator	3FR-I

 Watch for these misconceptions

- "The Maya, Aztec, and Inca lived at the same time and place." They were centuries and thousands of miles apart.
- "The Maya disappeared." Millions of Maya people live in Mexico and Central America today.
- "The Spanish won only because of weapons." Disease and alliances with other Native groups mattered most.