

Lesson 19 — The Kitchen Lab

Science • ages 7–14 • 30 minutes • one screen, the free game, this page

At a Glance

- Game: The Homeschool Climb, The Kitchen Table Laboratory section (free, no login, plays in the browser) — read.globalsovereignuniversity.org/homeschool-climb.html#kitchen-lab. Also on the Homeschool hub: globalsovereignuniversity.org/homeschool.
- Ages & time: Science • ages 7–14 • 30 minutes • one screen, the free game, this page.
- Prep (2 min): read the Teaching Creed once, open the game to the The Kitchen Table Laboratory section, and set out a cup, a spoon, baking soda and vinegar. That's the whole setup.

Why this lesson

Most families avoid science because they think it needs a lab, a degree and expensive kits. It needs none of those. A real experiment is a habit of mind: ask a question, make a testable guess, change one thing, watch closely, and write down what happened. This lesson turns the kitchen table into a laboratory, runs one real experiment, and uses the climb to lock in the words scientists use: hypothesis, variable, control and data.

What the learner will be able to do

- Turn a question into a hypothesis that can be checked.
- Explain why a fair test changes only one thing at a time.
- Name the control in a simple experiment and say why it matters.
- Treat a wrong prediction as a discovery, not a failure.

The 30-Minute Climb

How to read this: the gold box in each step is your lesson, word for word — run it exactly. The notes beneath are optional support. “The room/the group” = your family; “host” = you.

1 • The Hook (3 min)

“Before we touch anything: what will happen when I pour vinegar on baking soda? Everyone make a guess out loud, and say why.” (A guess with a reason is a hypothesis.)

Say it like this: write every guess down before you pour. Then pour, and read the guesses back. The point is that the guess came first.

Watch for / if it stalls: if no one will guess, guess first yourself and guess wrong on purpose. Show that a wrong guess is still useful.

2 • Play Together (12 min)

Climb the Kitchen Table Laboratory section together. Read each teach card aloud, then vote. When a card names a part of an experiment, point to that part in the vinegar test you just ran.

Two rituals make it work: (1) read each teach card aloud before the question appears; (2) everyone votes before anyone clicks, so no one just follows the screen.

Watch for / if it stalls: on the control card, stop. Ask: what would we compare against if we did this again? A cup with baking soda and plain water is the control.

3 · The Talk (8 min)

1. In our vinegar test, what was the one thing we changed? 2. Why does a fair test change only one thing? 3. If an experiment proves your guess wrong, have you failed?

You're not fishing for a right answer — you're listening for depth:

- Q1 — the vinegar was the change. Everything else stayed the same. That is the variable.
- Q2 — change two things and you cannot tell which one caused the result. One change, one answer.
- Q3 — a wrong guess is a discovery. Real scientists update the idea and test again; that is the whole method.

4 · Solo Climb (5 min)

Answer the six questions at your own pace.

Why solo: a scientist works alone at the bench more often than in a crowd. Six solo questions check that the words stuck without anyone to follow.

5 · The Takeaway (2 min)

“Ask a question. Guess. Change one thing. Watch. Write it down.” · Homework: design one fair test at home — warm water versus cold for dissolving sugar, or two paper airplanes that differ in only one way. Write the hypothesis first.

The badge moment: finishing all five steps earns the Bronze ring of this lesson's badge, The Experimenter. Mark it on the Passport now; the homework is how Silver and Gold are earned during the week.

The Teaching Creed

You are not the expert; the game is. Your job is to vote last, read aloud well, and ask “why?” one more time than feels natural. Celebrate wrong answers loudly — in here, wrong is where the lesson lives.

GENO — the GSU tutor you can actually TALK to, free, 24/7, understands 70+ languages (32 fully optimized) — can explain any answer a second way.

Adapt It & Measure It

Differentiation

- Younger (7–9): skip the words at first. Ask “What do you think will happen?” and “Was your guess right?” Add the scientist's words after the fun.
- One child: the parent becomes the lab partner who keeps changing two things at once; the child catches the mistake.
- Large co-op: teams each design a fair test with the same kitchen items and report their one change and their control.
- Reluctant teen: start with a myth they can test, such as whether a phone charges faster in airplane mode. Real stakes make the method matter.

Evidence of learning (no exam)

Look for three things — Tried (designed and ran one fair test at home), Noticed (can name the variable and the control in their own test), Changed (wrote the hypothesis before doing the experiment). Those three words are the whole rubric, and they map onto the badge tiers below.

Gamify It — The Campus Climb

Every GSU lesson is one badge on the Climber's Passport, each earned at four depths — the GSU standard Bronze → Silver → Gold → Platinum.

LESSON 19 BADGE — The Experimenter · Bronze — The Climb: finished the 30-minute lesson, all five steps. · Silver — The Try: designed and ran one fair test at home, with the hypothesis written first. · Gold — The Proof: reached Gold on the Kitchen Table Laboratory climb and explained their own test's control. · Platinum — The Teacher: ran this lesson as host for someone else. The harvest of a teacher is teachers.

The book behind this lesson: The Kitchen Table Laboratory, by Dr. Gene A Constant — Chapter 3 (The Question Habit), Chapter 4 (The Method Itself) and Chapter 6 (The Honest Lab Report).

"Every person on Earth is born with an American spirit: an untamed yearning for a better tomorrow." — Dr. Gene A. Constant

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