

PATIENCE LEARNING • FREE 1-DAY CASE

One Great Story

A free single-session case from the world of **The Greenhouse**, the 11-day agricultural-science simulation.

GRADE 7 • SCIENCE (DATA, AVERAGES & SAMPLE SIZE) • ~45 MIN • 1 CLASS PERIOD

Your students must pick one tomato variety for a district buying 500 plants. The crowd-pleaser has marketing, history, and one unforgettable success story behind it. The trial data quietly tells a different tale. Five hundred plants are riding on whether they trust the story or the numbers.

TEACHER QUICK-START

Objective: Students compare varieties using trial averages and disease rates, weigh a single dramatic success story against a 20-plant data set, and make a recommendation grounded in sample size — not marketing.

Standards tie-in: NGSS analyzing and interpreting data (SEP-4) and using mathematics/statistics (SEP-5); CCSS 7.SP.A (using samples to draw inferences). Argue from evidence (SEP-7).

What you need: Just this packet. Print the student pages (works individually or in teams of 3–4). Calculators optional. No prep.

- 1. Set the scene (5 min).** “You’re buying 500 plants. One variety has a famous 50-pound success story. Should that decide it?”
- 2. Read the trial data (8 min).** Teams read the three varieties and the 20-plant trial results.
- 3. Analyze & decide (20 min).** Compare averages and disease rates, then recommend a variety.
- 4. The reveal (8 min).** Walk the answer key. The point: one amazing plant is not a pattern; 20 plants are.
- 5. Reflection (4 min).** Each student answers the reflection question.

The Grower's File

You advise a school district buying **500 tomato plants** for its garden program. You can pick only one variety. Three are finalists. For each, the district ran a fair trial: 20 plants grown side by side, same soil, same water. Here's what came back.

THE TRIAL RESULTS (20 plants each, same conditions)

Variety	Average tomatoes per plant	Plants that got disease (of 20)
A — “Sunburst” (the crowd-pleaser)	12 lbs	6 of 20
B — “Steadyvine” (the boring one)	18 lbs	1 of 20
C — “Redfield”	15 lbs	3 of 20

THE FAMOUS STORY

Everyone's talking about Variety A (“Sunburst”). A grower two towns over posted that **one** of her Sunburst plants produced an incredible **50 lbs** of tomatoes — a photo, a viral post, the works. The seed company puts it on the label. It's the plant everyone *wants* to pick.

Your Call (Decision Sheet)

Team name: _____ Period: _____

Step 1 — Read the trial. Which variety has the highest average yield? _____ Which had the fewest diseased plants? _____

Step 2 — The famous 50 lbs. That number comes from how many plants? _____ The trial average for Sunburst comes from how many plants? _____ Which number should you trust more for buying 500, and why?

Step 3 — Scale it up. If Steadyvine averages 18 lbs and Sunburst averages 12 lbs per plant, across 500 plants that's a difference of about how many pounds? $(18 - 12) \times 500 =$ _____ lbs

Step 4 — Your recommendation. Which variety for the 500 plants? Defend it with the trial data, and explain why the 50-lb story shouldn't decide it:

ANSWER KEY (for the reveal)

Step 1 — The trial:

Highest average yield: **Steadyvine (18 lbs)**. Fewest diseased: **Steadyvine (1 of 20)**. It wins both measures.

Step 2 — Sample size:

The famous 50 lbs is from **1 plant**. The trial average is from **20 plants**. For buying 500, trust the 20-plant average — one amazing plant could be luck, perfect spot, or a great year. Twenty plants show what usually happens.

Step 3 — Scale it up:

$(18 - 12) \times 500 = 6 \times 500 = \mathbf{3,000 \text{ lbs}}$ more from Steadvine across the order. The “boring” choice isn’t a little better — it’s thousands of pounds better.

Step 4 — The judgment:

Steadyvine. Highest average, lowest disease, and about 3,000 lbs more across 500 plants. A strong answer explains that one viral 50-lb plant is an outlier, not a pattern — and that a 20-plant fair trial is the evidence that should drive a 500-plant order.

The big idea:

One unforgettable success story pulled everyone toward Sunburst. But a single amazing plant is not evidence you can plant 500 times. Sample size is the quiet hero: the boring average from 20 beats the thrilling story from 1.

REFLECTION (graded on thinking, not the “right” answer)

“The 50-pound plant was hard to ignore. What in the trial data convinced you to trust the average over the amazing story?”

SCORING THE THINKING

	3 — Strong	2 — Developing	1 — Beginning
Reads the data	Correct yield + disease reads	Some correct	Misreads
Sample-size logic	1 plant vs 20 explained	Mentions it	Trusts the story
Uses the math	Scales the 3,000-lb gap	Attempts it	No computation
Explains clearly	A reader can follow it	Partly clear	Unclear

READY FOR THE FULL SIMULATION?

This was one trial. The Greenhouse is eleven days of growing evidence.

In the full 11-day simulation, students become a grower recommending a single tomato variety for a 500-plant district order. Marketing, history, and a few glowing success stories all push toward the crowd-pleaser while the trial data quietly builds a different case — and day by day students watch the numbers accumulate against the variety they wanted to like. Graded on reasoning, never on the “right” pick.

THE GREENHOUSE · GRADE 7 SCIENCE · \$39 · patiencelearning.com/simulations