

Grade 8 Foundation Starter — Student pages

Five parent-led sessions, approximately 60–90 minutes each with breaks. This is a supplemental starter sequence, not a complete homeschool curriculum or a full day of school. No login, child account, uploads or payment are required to use these starter pages. Print at home; postal delivery is not included.

1. Notice the pattern

Mission: Distinguish observations from inferences; find a constant rate; support a claim with text.

Read: The Garden Ledger

Mara arrived before the garden meeting and found three trays beside the gate. Two were labelled; the third was not. She wrote, "Three trays are beside the gate. One has no label." Jon said the unlabelled tray must belong to their team. Mara shook her head. "That is possible, but the trays are shared. Let us check the sign-out sheet before we move it." The sheet showed that another group had reserved the third tray. Mara left it in place and added a note so the afternoon team would know why.

Build: observation, inference and evidence

An observation reports what can be seen, counted or measured. An inference explains what the observation might mean. Evidence can strengthen or weaken an inference. A theme states an idea about life, rather than naming a topic. "Responsibility" is a topic; "Responsible action includes checking before assuming" is a possible theme.

Math model: Given → Goal → Move → Check

A tray order has a \$4 setup cost and costs \$3 per tray. Given: x trays; y total dollars. Goal: write a rule. Move: $y = 3x + 4$. The rate m is 3 dollars per tray; the start value b is 4 dollars at $x = 0$. Check: for 2 trays, $y = 3(2) + 4 = 10$. A constant rate means equal changes in x produce equal changes in y ; it does not always mean b is zero.

Words and citizenship

Spell: observation, inference, evidence, responsibility. Say each word, cover it, write it, and compare. A shared resource is something more than one person or group uses. Checking ownership and agreements before using it respects other people's work.

Apply and explain

1. Copy one observation and one inference from the passage. Label each.
2. Write a theme sentence and support it with two details from the passage. Explain how each detail supports it.

3. Repair this run-on in two ways: "The tray was unlabelled Jon wanted to move it."
4. For $x = 0, 1, 2, 3$, the y -values are 5, 7, 9, 11. Find m , b and the equation. Check $x = 3$.
5. Use your rule from item 4 to find y when $x = 8$. State the units if x means trays and y means dollars.
6. Why is "the tray belongs to our team" not an observation? What record helped decide?

Exit / reflection

Write an equation for a \$6 setup cost and \$2 per tray. Explain each number. Then give one reason to check a record before acting.

2. Build a rule and a fair test

Mission: Find rate with unequal x-steps; distinguish changed, measured and controlled variables.

Read: A comparison worth trusting

Two teams wanted to compare seed growth. One proposed giving the first group extra water and extra light. The other group would receive less of both. Nia objected: "If growth changes, we will not know whether water or light made the difference." They redesigned the plan so only the daily light exposure differed. They would use the same seed variety, water amount, soil, containers and observation period.

Math model

Given points (1, 8) and (3, 14), the change in y is 6 and the change in x is 2. Rate $m = 6 \div 2 = 3$. Find b using one point: $8 = 3(1) + b$, so $b = 5$. Rule: $y = 3x + 5$. Check the other point: $3(3) + 5 = 14$. Do not divide y by x unless a proportional relationship through the origin is established.

Science model

The independent variable is what a test deliberately changes. The dependent variable is what is measured. Controlled variables are held consistent. A hypothesis is a testable prediction with reasoning. A fair comparison changes one intended factor and uses repeated observations. This lesson uses a written plan only; no heating, chemicals or unsupervised experiment is needed.

Grammar and vocabulary

A because-clause explains a reason. "Because two factors changed" is incomplete alone. "The test was unclear because two factors changed" is complete. Spell and define variable, measure, consistent and hypothesis.

Apply and explain

1. Explain why the first science plan could not isolate the effect of light. Use a detail from the passage.
2. Name the independent variable, a possible dependent variable, and three controlled variables in the revised plan.
3. Write a testable "If...then...because..." hypothesis. Do not present your prediction as a fact.

4. Find the linear rule through (2, 11) and (5, 17). Check both points.

5. Find the rule for $x = 1, 3, 5$ and $y = 8, 14, 20$. Predict y at $x = 7$.

6. Complete this fragment: "Although the teams expected different results..."

Exit / reflection

A table has points (0, 2), (2, 10), (4, 18). Give the rule and explain why the rate is 4 rather than 8.

3. Apply the evidence

Mission: Compare linear costs; separate a data-supported claim from a stronger unsupported claim.

Read: Two supply plans

The group compared two fictional supply plans. Plan A charges \$4 plus \$3 per tray. Plan B charges \$10 plus \$2 per tray. Kai said, “Plan B has the lower price per tray, so it is always cheaper.” Mara asked the group to check small and large orders before deciding. They agreed to compare totals at the same number of trays.

Worked comparison

At 2 trays, Plan A costs $3(2) + 4 = \$10$. Plan B costs $2(2) + 10 = \$14$. At 10 trays, A costs \$34 and B costs \$30. Lower unit cost alone does not decide the total when fixed costs differ. To find equality, solve $3x + 4 = 2x + 10$: subtract $2x$, then subtract 4, giving $x = 6$. Both plans cost \$22.

Science data: fictional practice set

Three seedlings in Condition A have heights 6, 7 and 8 cm; three in Condition B have heights 8, 9 and 10 cm. Mean height = sum of heights $\div$ number of seedlings. A has mean 7 cm and B has mean 9 cm. These invented data show a difference in this small example. They do not prove that one condition will always outperform another. Unequal seed types or water amounts could weaken the comparison.

Write with precision

A claim states your position. Evidence supplies specific data or text. Reasoning explains the connection. Distinguish “in this example” from “always.” Spell comparison, condition, prediction and conclusion.

Apply and explain

1. Refute Kai’s “always cheaper” statement with one numerical counterexample.
2. Calculate both plan costs for 0, 4, 6 and 8 trays. Identify the less expensive plan at each amount.
3. Explain the meaning of 6 and 22 in the equality calculation.

4. New fictional heights are 4, 6, 8 cm in A and 6, 6, 9 cm in B. Calculate both means and their difference.

5. Write a three-sentence claim-evidence-reasoning response comparing those means. Include a limitation.

6. Revise: "The test proves this condition always works better." Make the sentence match the limited evidence.

Exit / reflection

Name one reason the lowest per-unit price may not give the lowest total, and one reason a small experiment should not support an "always" claim.

4. Repair, explain and decide

Mission: Locate mistakes, correct them with reasons, and propose a fair shared-resource process.

Read: The repair meeting

Before buying supplies, each learner explained a calculation to a partner. Eli had written $y = 2x + 10$ for a plan costing \$2 per tray plus \$10 setup. His calculation for five trays was \$12. Instead of hiding the error, he marked where he had skipped multiplication. He corrected the total to \$20 and checked it by adding five groups of \$2 to \$10. The group recorded the correction without changing the original entry.

Repair model

Keep the original attempt visible. Name the error: "I treated five trays as one." Show the corrected move: $2 \times 5 + 10 = 20$. Verify by another representation: $2 + 2 + 2 + 2 + 2 + 10 = 20$. Explain how to prevent the error: label x as number of trays before substituting.

Citizenship: fair participation

A shared group needs a clear proposal, a chance for people to ask questions, a recorded decision, and a way to review problems. A majority vote can choose among proposals, but it does not make every action fair or lawful. Include people affected by the decision and respect access needs. These are discussion principles, not legal advice.

Mirror drill

Explain a solution aloud without looking at the worked example, or write the explanation if speaking is not accessible. The listener asks "What is given?", "What do you need?", "Why that move?" and "How did you check?"

Apply and explain

1. Explain how Eli's correction makes the record more trustworthy. Cite two actions.
2. A learner sees $(2, 9)$, $(4, 15)$ and writes $m = 6$. Diagnose and repair the mistake. Find the full rule.
3. Another learner writes $3(4) + 5 = 17$. Is this correct? Explain rather than changing it automatically.

4. Repair “Because the costs were different.” into a complete sentence with a reason.
5. Draft a four-step process for reserving shared garden trays. Include an access concern and a way to resolve a disagreement.
6. Choose one earlier missed problem. Record original attempt, cause, corrected work and an independent check.

Exit / reflection

Without copying, explain the rule through (0, 3) and (2, 11), then name one fair-process action your group should use.

5. Prove and plan the next step

Mission: Demonstrate the week's skills independently and use errors to choose next learning.

Independent mission

Complete the assessment below before opening the parent key. Use paper and a pencil. You may use a calculator after setting up each math expression. Keep accommodations consistent with your learning plan. Take a break if needed; this is not a timed competition.

New passage: The final order

The class had enough funds for either six trays from Supplier A or a smaller order with spare labels. Lena wanted the largest order immediately. Omar asked whether every tray could be labelled and maintained. The group checked the old log and found that last month two unlabelled trays had gone unused. They bought five trays and labels, recorded their reason, and agreed to review the decision after two weeks.

What counts as proof

A correct number needs a check. A reading claim needs relevant evidence and explanation. A science plan needs a clearly changed factor and a clearly measured result. A citizenship response needs attention to the people affected. Use the key afterward to identify specific repair work; this packet does not issue grades, credit, attendance approval or a diploma.

Apply and explain

1. Write a defensible theme for the final passage and support it with two details and reasoning.
2. Identify one observation from the old log and one inference the group might reasonably draw.
3. Repair: "Lena wanted six trays Omar wanted labels."
4. Write evidence, responsibility, variable and conclusion from memory, then self-check against the lesson vocabulary.

5. Find the rule for (0, 7), (2, 13), (4, 19). Verify using the last point.
6. Find the rule through (1, 6) and (4, 12). Predict y at $x = 8$.
7. Plan A is $y = 4x + 3$ and Plan B is $y = 2x + 11$. Find their common cost and order size. Which costs less at 6 trays?
8. A fictional group tests daily light duration and measures plant height after 14 days. Name IV, DV and two controls.
9. Fictional sample heights are 5, 7, 9 cm and 6, 9, 9 cm. Find both means and state one limit on the conclusion.
10. Propose a fair way to review the tray decision after two weeks. State whose views should be heard and what evidence should be checked.

Exit / reflection

Reflection: What can you now explain without a model? Which specific skill needs repair? Show one revised answer and name your next practice task.