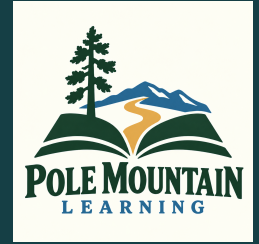


QUESTIONING AND STUDENT THINKING



**3 volunteers answered correctly.
6 of 18 cards showed a sign error.**

TEACHER / first visit
What did you get?

LEARNER / V03
I got -2 too.

TEACHER / a more focused probe
How does your first line represent the original expression? Show what -2 multiplies here.

Fictional Grade 10 case / two visits, different response groups. A focused probe reveals what needs teaching.

Hear beyond three volunteer answers

For coaches and mentors supporting secondary teachers. Includes five tools, a student response card, a math case and a short history example. Use with the included Shared Coaching Core.



AGREE

Choose the idea



OBSERVE

Hear the response



TRY

Probe or teach



RETURN

Revisit reasoning

Choose the exchange you want to understand

For coaches and mentors supporting secondary teachers. Choose one content idea, capture what a question reveals, check a tentative interpretation and decide whether another probe or teaching is needed. A question stem alone does not establish the thinking it brought out.

Need	Focus tool
Plan the idea, questions and possible replies	Q01 Question planning record
Capture up to three actual exchanges	Q02 Question and response log
Trace and check one learner interpretation	Q03 Interpretation and follow-up probe
Inspect the change and whose thinking surfaced	Q04 Return check
Invite a learner explanation or uncertainty	Q05 Student thinking response card / two per sheet

Use the shared coaching records

C01 Working agreement sets purpose, audience and storage. Use C02 Coaching conversation, C03 Week planner, C04 Teacher feedback and coach reflection, and C05 Optional coaching summary across sections. The included Shared Coaching Core supplies these five forms in separate PDF and Word files.

Find the practical route and examples

Small first cycle: page 3. Planning and observation: pages 4-5. Math case: pages 6-9. History example: page 10. Teacher introduction and team protocol: page 11. Completed Q01-Q05: pages 12-16. Blank and editable tools are separate files.

Original Pole Mountain Learning forms and fictional examples reflect the coaching experience of Mike McManamen. This section belongs to the broader toolkit.

TeachingWorks provides related professional background. No affiliation or endorsement by a university, publisher or district is claimed.

Optional further reading: TeachingWorks, High-Leverage Practices.

<https://www.teachingworks.org/high-leverage-practices/>

A small first questioning cycle

Stage	Try this small route
Agree / C01 and Q01	Choose one content idea and the explanation you want to hear. Rehearse two or three possible questions and agree on the note audience.
Observe / Q02	Capture two or three exchanges. Record the actual response, response opportunities and any estimated timing separately from your interpretation.
Try / Q03 and Q05	Check one tentative interpretation with a probe. Let learners explain or record uncertainty on a card; teach when the idea is missing.
Return / Q04 and C02	Inspect the responses with their support conditions. Keep unavailable work separate, choose one next move and use C03 to schedule the next attempt.

Choose a sample you can explain

Select work against the content idea rather than labeling students. Record why each sample was chosen. Three volunteer answers describe those exchanges; they do not describe the class. A response after pair talk includes peer support and is not an independent baseline.

Use the time the response needs

A small cycle can span more than one visit. Thinking time and response modes should fit the task and learner; no universal wait-time target is prescribed. Preserve accommodations and invite a private or written response where appropriate.

Use C01 and school requirements for secure codes, storage and access. The PDF forms are for handwriting; Word header cells and response areas expand when typed. Check pagination before printing. Use the teacher introduction on page 11 to explain the work before a visit.

AGREE

OBSERVE

TRY

RETURN

Plan for an explanation worth hearing

Begin with the content, not a preferred question type. Ask the teacher what the learner should explain, compare or justify. Anticipate alternative replies and use them to rehearse responsive follow-ups, not a fixed script or a tally of higher-order stems.

Question move	Example and what it can reveal
Ask for an answer	What did you get? A correct number may leave the reason for the steps unheard.
Invite an explanation	How does your first line represent the original expression?
Clarify a meaning	Which two numbers are multiplied to make this constant?
Check an interpretation	Show those quantities in the original expression. Does the written work match what you meant?
Probe equality	Why do those changes keep both sides equal?
Compare alternatives	How are these two representations alike, and where do they differ?

A leading prompt
Negative times negative makes positive, so we get +6, right?

A probe that leaves the answer open
Which two numbers are multiplied here? Show them in the expression.

Rehearse when to teach
If the learner cannot explain the sign of that product, another increasingly leading question may not help. Plan an explicit example or explanation. Keep the teaching beside the later response so a prompted answer is not mistaken for independent use.

AGREE

OBSERVE

TRY

RETURN

Capture words and response opportunities

Q02 captures three exchanges. Record exact words or mark a paraphrase. Choose an agreed purpose and audience for notes. A learner may respond orally, in writing or in another planned format; record the opportunity before interpreting silence or an incomplete answer.

Record	Keep this distinction visible
Question and follow-up	Opening, later probe, confirmation, redirection or move on. Keep actual words distinct from a planned script.
Response pattern	Volunteer, partner exchange or individual response. Who was invited, heard or seen, and who was not?
Timing and conditions	Rough wait time with estimated or measured label; materials, response mode and position of the observer. Timing is context, not a teacher score.
Learner evidence	Record the explanation or work. A nod, fluent number or raised hand does not show the content reasoning.
Help	Peer discussion, models, teaching or extra cues. Later reasoning may depend on these.

Check an interpretation before acting

Q03 separates evidence from an observer hypothesis. A wrong sign may show a misconception or a copying slip. Ask the learner to identify the quantities and inspect the work before deciding. If evidence is unavailable, offer another response opportunity; if the idea is missing, teach rather than continuing a chain of hints.

Hear beyond the quickest volunteers
Individual thinking, pair discussion and a private or written explanation can widen the available evidence. Preserve access supports and avoid forcing a public answer. Count invitations and usable responses separately; neither alone proves understanding.

AGREE

OBSERVE

TRY

RETURN

Grade 10 math case and the criterion

All people, dates and records are fictional. Grade 10 teacher Avery Lane and coach Taylor Reed inspect an algebra review task: solve $-2(x - 3) = 10$ and explain. Avery initially asks What did you get? Three volunteers give the correct number but do not explain the full criterion.

The agreed reasoning criterion
Explain how -2 multiplies both terms in $-2(x - 3)$, and why the same operation on both sides keeps the equation equal.

Mathematics	Why it matters
$-2(x - 3) = -2x + 6$	The multiplier applies to x and -3. The product $(-2)(-3)$ is +6.
$-2x + 6 = 10$; $-2x = 4$; $x = -2$	Subtract 6 from both sides and divide both sides by -2 to preserve equality.
$-2x - 6 = 10$ gives $x = -8$	That arithmetic fits the incorrect first line. The sign error occurred when changing the original expression.
Check $x = -2$: $-2(-2 - 3) = 10$	A correct check is useful, but does not replace the requested explanation.

Two visits answer different questions

Nov 17 records three volunteer answers, not the class. On Nov 19 Avery uses one planned probing question, thinking time and pair discussion, then invites every present learner to respond individually. The return cards reveal concerns outside the three original exchanges. There is no matched class baseline or before-and-after improvement rate.

V codes label Nov 17 volunteer exchanges; S codes label Nov 19 cards. They are not linked learner identifiers. Q02 records selected exchanges; Q04 records the full response collection. Q05 offers student sentence starters that can be written, spoken or scribed under the planned response arrangements.

AGREE

OBSERVE

TRY

RETURN

Three correct answers then a wider invitation

V01 / What did you get?

$x = -2$. I expanded and then solved.

V02 / What did you get?

Negative two. I subtracted 6 and divided by -2.

V03 / What did you get?

I got -2 too.

Avery confirms the numbers and moves on. Taylor estimates about two seconds before the first volunteer invitation. These exchanges show three correct answers, with no full explanation of both distribution and equality. The other 21 enrolled learners were not heard here; Nov 17 attendance was not recorded.

Nov 19 / planned probing question

How does your first line represent the original expression? Show what -2 multiplies here, then explain why your later steps keep both sides equal.

Change the response opportunity

Avery gives about 12 seconds of individual thinking before roughly 90 seconds in pairs, then four minutes for individual cards. These are observer estimates for this visit. Oral or scribed responses remain available where planned. Avery collects responses before correcting the sign rule.

Keep peer help visible

The return cards follow pair discussion. Record that support alongside the responses. Everyone present was invited, but missing and incomplete cards still have to be counted.

AGREE

OBSERVE

TRY

RETURN

What the return check surfaced

Collection detail	Count
Enrolled / absent / present	24 / 2 / 22
Present learners invited	22
Cards received / not returned	20 / 2
Complete / incomplete received cards	18 / 2

Among the 18 complete cards	Count
Incorrect negative constant / sign misconception	6
Correct procedure without both required explanations	7
Both required ideas explained / reasoning visible	5

The two absent learners, two incomplete cards and two not-returned cards are distinct. None is scored wrong. The categories describe the 18 complete responses at this visit; they are not teacher ratings or class mastery results.

A confirming probe after collection
S01 wrote $-2x - 6$ and $x = -8$. Avery asks which two numbers make the constant. S01 points to -2 and -3 but says their product is -6 . This supports the sign concern in this exchange.

Avery chooses the next teaching moves

Teach the sign of the product for the misconception responses. Probe the link between quantities and equal operations for procedure-only responses, then teach if needed. Extend reasoning for responses meeting the criterion. Offer collection opportunities for unavailable work. Use C02 for the conversation and C03 to arrange the next check.

The later independent check is planned
Nov 24: $-3(y - 2) = 9$; expected $-3y + 6 = 9$ and $y = -1$. Preserve access supports and record extra help. Collect the new responses before deciding the next teaching step.

AGREE

OBSERVE

TRY

RETURN

Inspect all 18 complete return cards

These are short fictional card excerpts, not a transcript of the whole lesson. Every complete card is represented below. Six show the sign concern, seven give the correct procedure without both explanations, and five explain both required ideas. The task is the same for all.

Code	First line and answer	Learner explanation
S01	$-2x - 6 = 10; x = -8$	The -2 makes the 3 negative.
S02	$-2x - 6 = 10; x = -8$	I put the negative on the 3 too.
S03	$-2x - 6 = 10; x = -8$	I did -2 times 3 and got -6.
S04	$-2x - 6 = 10; x = -8$	I used 3 as positive, so -2 times 3 is -6.
S05	$-2x - 6 = 10; x = -8$	I kept the minus before 3 and multiplied 2 by 3.
S06	$-2x - 6 = 10; x = -8$	A negative outside makes both parts negative: -2x and -6.
S07	$-2x + 6 = 10; x = -2$	I expanded, subtracted 6 and divided by -2.
S08	$-2x + 6 = 10; x = -2$	First distribute. Then minus 6. Last divide by -2 to get x.
S09	$-2x + 6 = 10; x = -2$	I got $-2x + 6$. Take off 6, then do 4 divided by -2.
S10	$-2x + 6 = 10; x = -2$	I did brackets, moved 6 across and divided; $x = -2$.
S11	$-2x + 6 = 10; x = -2$	My steps are $-2x + 6 = 10$, then $-2x = 4$, then $x = -2$.
S12	$-2x + 6 = 10; x = -2$	I followed distribute, subtract, divide and got -2.
S13	$-2x + 6 = 10; x = -2$	I used the usual equation steps and checked -2; both sides were 10.
S14	$-2x + 6 = 10; x = -2$	-2 multiplies x and -3; -2 times -3 is +6. Same steps on both sides keep them equal.
S15	$-2x + 6 = 10; x = -2$	-2 multiplies both terms; two negatives give +6. Both sides get the same subtract and divide steps to stay equal.
S16	$-2x + 6 = 10; x = -2$	-2 times x is -2x; $(-2)(-3)$ is +6. I keep both sides equal by doing the same thing to each.
S17	$-2x + 6 = 10; x = -2$	Distribute -2 to x and -3, giving $-2x + 6$. Subtract 6 and divide by -2 on both sides so they stay equal.
S18	$-2x + 6 = 10; x = -2$	$(-2)(-3)$ is +6 and $(-2)x$ is -2x. Doing each operation to both sides keeps the balance.

S19-S20 cards are incomplete and not judged here; S21-S22 did not return a card; S23-S24 were absent. Those records remain unavailable for this check. Completed Q03 on page 14 follows the confirming exchange with S01; the math card on page 16 preserves the original misconception.

🔄 AGREE

🔍 OBSERVE

↗️ TRY

🔄 RETURN

A second subject with two accounts

This fictional Grade 10 history task uses two invented accounts of a railway opening. They are practice texts, not historical documents. Teacher Morgan Ellis asks learners to compare perspectives.

Invented account	Excerpt
Town council report	Deliveries reached the town market sooner after a railway spur opened.
Market trader letter	My stall rent rose, and I closed the stall. Faster deliveries did not cover the extra cost.

The history criterion
Use both accounts to explain why the reported effects may differ, and identify whose experience remains missing.

Opening question
Did the railway help the town?

Learner H01
Yes. Deliveries were faster.

Focused follow-up
Which account supports your answer, and what does the other account add? Whose experience do we still need?

Later learner response
The council reports faster deliveries, but the trader describes costs that pushed them out. Effects could differ for officials and traders. We do not hear from workers or buyers.

H01 read both accounts and heard the focused probe. Plan a new sourcing question to see how H01 compares perspectives without that prompt.

 AGREE

 OBSERVE

 TRY

 RETURN

Looking at questions together

We will look at what a question brought out and what to do with that thinking. You choose the content concern. This is professional learning, not a teacher rating.

Bring an exchange we can inspect

Bring one task and what a useful explanation would show. Add a question you asked and two or three answers you remember, or a few planned questions. Label remembered words as recollections, not an exact transcript.

Look beyond the right answer

Separate the question, what a learner said or showed, your follow-up and any help. Notice whose thinking was heard. Remove names and identifying details from examples.

Choose a useful next move

Adjust one question or response opportunity, try a probe, or teach the missing idea. Offer a private, written or supported response when needed; do not force a public answer.

Before we start

We will agree in writing who can see notes, where they are stored and what may be shared. Follow required school reporting and privacy rules. Use only the student details needed. Offer planned language and communication supports, including a private response or the option to pass.

Team option for a 30-minute session

5 minutes	In subject pairs, name the content idea and what an explanation should reveal.
10 minutes	Read an exchange or rehearse a planned question. Separate actual evidence, recollections and predicted replies.
10 minutes	Try a follow-up probe and discuss when teaching or another response mode would help.
5 minutes	Each teacher chooses one change and a date to bring an actual response.

For an individual conversation, begin with one observation, one agreed change and the next date. The optional ten-minute debrief keeps the record short. Share a summary only with agreed readers after teacher review; keep individual student work in approved school storage.



Question planning record

Avery Lane | Coach Taylor Reed | Fictional Grade 10 math

Plan one question that makes a specific part of student reasoning visible. Agree on the content and the response opportunity with the teacher.

Content and thinking to hear

Task, class and one idea the learner should explain. State what would count as evidence.

Grade 10 algebra review. Teacher Avery Lane; coach Taylor Reed. Task: solve $-2(x - 3) = 10$ and explain. Criterion: Explain how -2 multiplies both terms in $-2(x - 3)$, and why the same operation on both sides keeps the equation equal.

Opening question

Write the exact question. Does it invite a number, a procedure, an explanation or a comparison?

Opening: How does your first line represent the original expression? Planned probes: What does -2 multiply here? Why do your later steps keep both sides equal? These are options, not a required script.

Possible responses

Anticipate two different interpretations without assuming that learners will give them.

Possible response: $-2x + 6$, because negative times negative gives positive. Possible misconception: $-2x - 6$ because the multiplier is negative. A correct $x = -2$ may come without an explanation.

Follow-up options

Write a probe to clarify meaning, one to test an interpretation and one next teaching move if the idea is missing.

Clarify which quantities the learner multiplied. Ask for the link between the original expression and the first line. If the sign rule is missing, teach it with a suitable example after the response is collected.

Opportunity and access

Plan thinking time, oral or written response options, materials and a way to hear beyond volunteers.

First visit: three volunteers. Return: thinking time, pair discussion and an individual response card for every present learner. Allow planned oral or scribed responses and preserve accommodations.

Evidence to revisit

Choose a few local codes, record why they were selected and arrange a later comparable attempt.

Use Q02 for three exchanges and Q04 for the full collection record. Inspect every received card against the criterion. Record incomplete and not-returned cards separately.



Question and response log

Avery Lane | Coach Taylor Reed | Fictional Grade 10 math

Capture up to three exchanges in one visit. Record what was said or shown before interpreting it. Use secure local codes and mark paraphrases.

Criterion and observation conditions

Task, date, observer position, response mode, rough wait time and who was invited. Label timing as estimated or measured.

Nov 17, 2026. Grade 10 algebra review. Three volunteers answer What did you get? Taylor estimates a pause of about 2 seconds before the first volunteer is invited.

Three observed exchanges

Record code, exact question, response pattern (volunteer, pair or individual), learner words or work, and teacher follow-up. Mark unavailable evidence.

Local code	Exact question or marked paraphrase	Learner words or work	Next probe or help
V01	What did you get? / one volunteer	$x = -2$. I expanded and then solved.	Avery confirms the number and moves on; no reasoning probe is heard.
V02	What did you get? / one volunteer	Negative two. I subtracted 6 and divided by -2.	Avery confirms the number and moves on; no reasoning probe is heard.
V03	What did you get? / one volunteer	I got -2 too.	Avery confirms the number and moves on; no reasoning probe is heard.

Pattern and limits

Describe only these exchanges. Who was not heard, what was missing and what should the teacher and coach revisit?

Three correct answers were heard; none explains both distribution and equality. The other 21 enrolled learners were not heard in these exchanges. Nov 17 attendance was not recorded. Plan a private or written response opportunity beyond volunteers.



Interpretation and follow-up probe

Avery Lane | Coach Taylor Reed | Fictional Grade 10 math

Check a tentative interpretation against the learner response. Choose a probe that could distinguish explanations rather than supplying the answer.

Question and learner evidence

Local code, exact question and the actual response or work excerpt.

Nov 19 card S01: $-2x - 6 = 10$; $x = -8$. Explanation: The -2 makes the 3 negative. This card was written after pair talk.

What it may mean

State a tentative interpretation and one plausible alternative. Keep observer inference separate from the learner words.

Tentative meaning: the learner applies a negative multiplier to the constant without considering that the constant is already -3. Alternative: the written sign could be a transcription slip. The explanation makes the misconception more plausible.

Probe to check the interpretation

Write a question that could clarify which interpretation fits. Do not embed the desired answer in it.

Which two numbers are multiplied to make the constant in your first line? Show them in the original expression. Do not supply +6 in the question.

Learner response after the probe

Record the actual response, response mode and any pause, materials or help.

Avery asks after collecting the cards. S01 points to -2 and -3 but says their product is -6. This confirms the sign concern in this exchange.

Choose the next move

Probe again, invite another response mode, teach an idea or extend reasoning. Explain why; do not treat unavailable evidence as low attainment.

Teach the sign of the product using an appropriate representation or comparison. Then ask the learner to explain the connection rather than echo a rule. The teaching response is planned here, not scored as a new result.

What remains uncertain

Record the limit and what later evidence would help.

The collected card and confirming probe identify a sign concern. Schedule another attempt to see how S01 reasons after teaching.

Return check

Avery Lane | Coach Taylor Reed | Fictional Grade 10 math

Inspect what the questioning change revealed and whose thinking was available. Keep response counts and assistance beside the evidence.

Teacher change and target idea

What question, response routine and follow-up were planned? State the content criterion.

Move beyond three volunteer answers. Ask how the first line represents $-2(x - 3) = 10$, probe the products and equality, and invite each present learner to explain.

Implementation and response conditions

What actually occurred: invitation, thinking time, pair talk, written or oral response, teacher help and access supports?

Nov 19: about 12 seconds of individual thinking before pair talk (observer estimate); about 90 seconds in pairs and four minutes for individual cards. Cards follow peer discussion.

Whose thinking was available

Enrolled, present, invited, heard or received, usable and unavailable. Separate absence, incomplete work and not-returned work.

24 enrolled, 2 absent, 22 present and invited. 20 cards received: 18 complete, 2 incomplete. 2 present learners did not return cards. All 18 complete records were reviewed; no unavailable record is scored wrong.

What surfaced

Use learner words or work. State counts over the usable records and what those counts cannot tell you.

Among 18 complete cards: 6 show the incorrect negative constant, 7 give a correct procedure without both required explanations, and 5 explain both ideas. The counts describe the complete Nov 19 cards.

Teacher response and next action

Probe, teach, extend or collect missing evidence. Name the selected move and the evidence for it. Use C02 for the conversation.

Avery confirms the sign concern with S01, then plans a brief sign-product lesson, a quantity/equality probe for procedure-only responses, and collection opportunities for unavailable work. Use C02 to agree the response.

Next check and support

Task, date, criterion and access supports. Use C03 to schedule it; label a later result planned until collected.

Planned Nov 24 task: $-3(y - 2) = 9$. Expected first line $-3y + 6 = 9$, $y = -1$. Keep access supports and record extra help. Arrange a new response before judging the next teaching step.

Student thinking response card

S01 / MATH

Show your thinking about one question. Use the task, a drawing or your steps.

You can write, draw, say it out loud, or point to your work.

Assignment / what I am working on: Explain the first line in $-2(x - 3) = 10$.

My idea and why I think it

I think $x = -8$ because my first line is $-2x - 6 = 10$. The -2 makes the 3 negative.

Another idea or explanation I considered

My partner got $x = -2$. I disagree because I think the constant should be -6 .

A question or help I need

I am not sure how multiplying two negatives changes the sign.

Original misconception for discussion; this is not an answer key.

CUT OR FOLD HERE

Student thinking response card

H01 / HISTORY

Show your thinking about one question. Use the task, a drawing or your steps.

You can write, draw, say it out loud, or point to your work.

Assignment / what I am working on: Did the railway help the town?

My idea and why I think it

I think the effects differed because the council reports faster deliveries while the trader reports higher costs.

Another idea or explanation I considered

I disagree that everyone benefited. The two accounts describe different experiences.

A question or help I need

I am not sure what workers or buyers experienced; neither account gives their view.

Response after reading both accounts and hearing a follow-up.