

When accomplished STEM teachers **support students articulating, justifying, evaluating, and revising models, arguments, and ideas,** they may do one or more of the following:

<input type="checkbox"/> Model what a “good” justification, evaluation, or revision of a model, argument, or idea looks/sounds like (T39) ⚡
<input type="checkbox"/> Explicitly encourage and/or incentivize flexible thinking and open-mindedness (T48)
<input type="checkbox"/> Justify the importance of creating, articulating, justifying, evaluating, and revising models, arguments, and ideas as a powerful STEM learning strategy (T53)
<input type="checkbox"/> Provide language support structures (e.g., sentence stems, word lists, etc.) (T66) ⚡ Δ*
<input type="checkbox"/> Provide consistent, diverse opportunities for students to provide, justify, confirm, or revise conclusions (T117)
<input type="checkbox"/> Avoid explaining or evaluating models, arguments, and ideas for students (T23) Δ*
<input type="checkbox"/> Avoid providing, justifying, or confirming conclusions for students (T25) Δ
<input type="checkbox"/> Demonstrate and reinforce the use of shared knowledge and terms (e.g., ground a discussion in shared knowledge and terms) (T44)
<input type="checkbox"/> Make clear that all student ideas are "fair game" for examination and discussion (T58) ⚡ Δ*
<input type="checkbox"/> Invite and expect all students to share developing and incomplete ideas (T80) ⚡*
<input type="checkbox"/> Position students (instead of themselves) as the authorities on and evaluators of developing ideas (T91) ⚡ Δ*
<input type="checkbox"/> Provide scientific or mathematical expertise, background, or vocabulary only when no other student can do so (T81) Δ
<input type="checkbox"/> Create and protect space for incorrect or incomplete ideas to be examined and discussed (T106)*
<input type="checkbox"/> Create and protect space for students to articulate, justify, evaluate, and revise their ideas (T107) ⚡ Δ*
<input type="checkbox"/> Create and protect space for students to construct and/or reconstruct their own understandings (T108) Δ
<input type="checkbox"/> Ensure all students have multiple opportunities to share, critique, and revise ideas (T111) ⚡*
<input type="checkbox"/> Provide consistent, diverse opportunities for students to consider the reasonableness of their explanations (T114)
<input type="checkbox"/> Support students articulating what they understand and/or showing what they can do (T128)
<input type="checkbox"/> Provide digital, written and/or oral feedback after public sharing (T17) Δ
<input type="checkbox"/> Provide individual feedback to students on the ways they articulate their thinking and press on the thinking of others (T62) Δ
<input type="checkbox"/> Ask students to synthesize ideas (T105)

In these classrooms we expect to see a diverse range of students...

<input type="checkbox"/> Actively evaluating the reasonableness of their conclusions and the conclusions of others (S18) ⚡*
<input type="checkbox"/> Articulating if they agree or disagree with a presented/shared claim (S20)
<input type="checkbox"/> Clarifying and building on their and other students' ideas (S23)*
<input type="checkbox"/> Comparing and contrasting ideas (S24)
<input type="checkbox"/> Defending and justifying their answers with little or no prompting from the teacher (S26) ⚡*
<input type="checkbox"/> Restating others' ideas in their own words (S57)
<input type="checkbox"/> Using language support structures (e.g., sentence stems, word lists, etc.) to start and participate in small group conversation (S40) Δ*
<input type="checkbox"/> Using non-judgemental language (i.e. focusing on ideas, not people sharing them) (S41) Δ*

ADDENDUM: Overview of Stances

Facilitative Stance	<p>Begin your conversation by asking questions.</p> <p>Communicate a positive presupposition that the teacher brings experiences and skills to teaching. Recall Kyle noting Raven's ability to build trusting relationships with her students?</p> <p>Build a sense of autonomy, that the teacher has strengths that are effective.</p> <p>Build a trusting relationship where the teacher feels safe taking risks, sharing her concerns and desire to learn.</p>
Collaborative Stance	<p>Switch to the Collaborative Stance when working with you will help the teacher improve practice. Suggest looking at resources together, or reviewing a video together.</p>
Instructive Stance	<p>When you sense a teacher will be open to suggestions, take the Instructive Stance. Suggest a strategy or provide a menu of options. Ask if the teacher might be interested in trying something new with his or her students.</p>

ADDENDUM: Mediation Language helps hypothesize what might happen, analyze what works, compare plans with outcomes, imagine possibilities.

Some possible mediational questions include:

- What is another way you might...?
- What do you think would happen if...?
- How was...different from/similar to...?
- What sort of impact do you think...?
- What criteria do you use to...?
- How did you decide...?
- How did you come to the conclusion that...?
- When have you done something link...before?

