When accomplished STEM teachers

establish and maintain norms for students to participate equitably in whole class discussions,

they may do one or more of the following:

Create and maintain a classroom culture of growth and learning from others (T27) $lacktriangle$ Δ
Explicitly establish, refer to, and/or maintain norms that support whole class discussion (T31)
Model valued norms and/or provide opportunities for students to practice them (T38) Δ
Explicitly name, describe, and provide documentation about valued norms (T51) Δ
Justify the importance of whole class discussions as a powerful STEM learning strategy (T56)
Provide language support structures (e.g., sentence stems, word lists, etc.) (T66) ❖ △ *
Avoid standing in a place of authority (e.g., the front of the room) or standing at all (T26)
Swiftly and effectively redirect behavior violating valued norms (T34) Δ
Assign competence to students in authentic ways (T68) $f \Delta$ *
Pause classroom work to name instances in which valued norms are being upheld appropriately (T71) Δ^*
Pause discussions to name instances in which valued norms are being upheld appropriately (T72)
Invite and expect all students to ask questions about each others' ideas (T78) $lacktriangle$ Δ *
Manage and direct the discussion only when appropriate, and always toward clear learning goals (T90)
Position students (instead of themselves) as the authorities on and evaluators of developing ideas (T91) \bullet Δ *
Work to facilitate students taking up and building on each others' ideas (T131)
Engage students in whole class discussion intentionally with respect to particular learning goals (T151) •
Track student contributions (T18)
Provide individual feedback to students on the ways they participate (or not) in whole class discussions (T64)
Provide whole-group feedback on the quality, nature, and/or structure of a discussion (T67)
Record and share observational evidence of student interactions, productivity, thinking, and learning (T75) Δ
Create and protect space for collaborative reflection on emerging ideas and understandings (T124) Δ

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

Answering others' questions thoughtfully and completely (S9) Δ
Being willing to put ideas on the table regardless of whether they are correct or fleshed-out (S62) \bullet Δ *
Clarifying and building on their and other students' ideas (S23)*
Holding each other accountable to asking questions of one another (S48)
Naming and offering suggestions to address status issues (S15) ❖
Participating actively and equitably in whole class discussions (S34) •
Using language support structures (e.g., sentence stems, word lists, etc.) to start and participate in small group
conversation (S40) Δ^*
Using non-judgemental language (i.e. focusing on ideas, not people sharing them) (S41) Δ^*
Using scientific and mathematical language (S42) ❖ Δ *

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ALWAYS		STRATEGICALLY	
ALWAYS More Straightforward: Avoid standing in a place of authority (e.g., the front of the room) or standing at all (T26)	More traightforward: — Avoid anding in a lace of authority e.g., the front of ne room) or anding at all 226) More Challenging: — Create and maintain a classroom culture of growth and learning from others (T27) ❖ Δ — Position students (instead of themselves) as the authorities on and evaluators of More Straightforward: — Provide language su sentence stems, word lis — Explicitly name, desidocumentation about valued norms opportunities for student (T38) Δ — Track student contri — Pause classroom words — Pause classroom words — Pause classroom words — Provide language su sentence stems, word lis — Explicitly name, desidocumentation about valued norms opportunities for student (T38) Δ — Track student contri — Pause classroom words — Pause classroom words — Provide language su sentence stems, word lis — Explicitly name, desidocumentation about valued norms opportunities for student (T38) Δ — Pause classroom words — Provide language su sentence stems, word lis — Explicitly name, desidocumentation about valued norms opportunities for student (T38) Δ — Pause classroom words — Pause classroom words — Pause classroom words — Provide language su sentence stems, word lis — Explicitly name, desidocumentation about valued norms opportunities for student (T38) Δ — Pause classroom words — Provide language su sentence stems, word lis — Explicitly name, desidocumentation about valued norms opportunities for students (T38) Δ — Pause classroom words — Pause classroom words	More Straightforward: Provide language support structures (e.g., sentence stems, word lists, etc.) (T66) ❖ Δ* Explicitly name, describe, and provide documentation about valued norms (T51) Δ Model valued norms and/or provide opportunities for students to practice them (T38) Δ Track student contributions (T18) Pause classroom work to name instances in	understandings (T124) ∆ Assign competence to students in authentic ways (T68) ♣ ∆ * Invite and expect all students to ask questions about each others' ideas (T78) ♣ ∆ * Work to facilitate students taking up and building on each others' ideas (T131) Engage students in whole class discussion intentionally with respect to particular
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