

**TABLE 2:** Discourse moves scaffolding student sensemaking (adapted from *Ambitious Science Teaching* by Windschitl, Thompson, and Braaten 2018).

Purpose	Discourse moves	Sample teacher enactment
Asking questions	<ul style="list-style-type: none"> <li>• Pose hypothetical questions</li> <li>• Press students to expand on their ideas</li> </ul>	<p><i>What is the world going to look like in the future?</i></p> <p>Student shares that plates move because of hot magma; teacher says: <i>Why would that mean the plates will move?</i></p> <p><i>What’s going on with the magma? How is it moving? Why would magma come up [response to student answer]? What does temperature have to do with upward motion [response to student answer]?</i></p>
Values ideas	<ul style="list-style-type: none"> <li>• Give credit and ownership to the students</li> <li>• Intentionally select students for large-group sharing based on small-group responses</li> </ul>	<p>After circulating around to each table set, teacher says: <i>This group is struggling with something that everyone else is struggling with, too—would you care to share your idea for Question 6?</i></p>
Connecting back	<ul style="list-style-type: none"> <li>• Draw on students’ past experiences</li> </ul>	<p>Forces/hurricane/buoyant force to explain plate tectonics</p> <p>Drawing connection between weather unit (convection) and magma motion</p> <p>Teacher says: <i>I see you really learned a lot with the hurricanes [past unit]; tell me more about how you see hurricanes relating to magma movement.</i></p>
Ideas before vocabulary	<ul style="list-style-type: none"> <li>• Utilize words established in previous units</li> <li>• Focuses on understanding before vocabulary</li> </ul>	<p><i>Can someone summarize the story of the East coast?</i></p> <p>Student tries to figure out the correct word (<i>mantle</i>), and teacher says: <i>The liquid part of the Earth’s insides, right?</i></p>
Utilizes tools/simulations	<ul style="list-style-type: none"> <li>• Return to the tools or simulations to explore student’s ideas and collect data/evidence</li> </ul>	<p><i>How can we make that in Tectonic Explorer?</i></p> <p><i>Go to the tool and see if you can find evidence for [the claim].</i></p>
Reinforces nature of science	<ul style="list-style-type: none"> <li>• Have explicit discussions about data, models, and evidence, etc.</li> </ul>	<p><i>What are the things we know? If you know it, it’s because we have . . . [students in unison say “Evidence!”]. So if you say something like “We know,” then we need to follow it up with some evidence.</i></p> <p><i>What do we know? How do we know it?</i></p> <p><i>We need data. When I say data, what do I mean?</i></p>
Sets talk expectations	<ul style="list-style-type: none"> <li>• Pose questions to drive student talk</li> <li>• Expect evidence as part of the answer</li> <li>• Set expectations for students to hear others and be heard</li> </ul>	<p><i>Two minutes at your table. Share around —you should make a point to hear from everyone at the table.</i></p> <p><i>Explain more.</i></p>