

Identifying Student Thinking Lens Strategies (Answer Key)

STL Strategy	Evident in Video Clip	Evidence from Video Clip
1. Ask questions to elicit student ideas and predictions.	1 2 3 4 ⑤ Not at all Very	<ul style="list-style-type: none"> The teacher repeatedly asks students what they've learned and elicits a variety of ideas (video segments 00:00:02, 00:02:56, and 00:03:34).
2. Ask questions to probe student ideas and predictions.	1 2 ③ 4 5 Not at all Very	<ul style="list-style-type: none"> 00:01:08 (to Arianna): "OK, so you learned that liquids ...?" 00:02:08 (to Draven): "And why do you say no?" 00:02:17 (to Draven): "So some may be hard to melt?" 00:03:14 (to Jeremiah): "Instead of saying everything has molecules, can I say everything is made of molecules?"
3. Ask questions to challenge student thinking.	1 2 3 4 ⑤ Not at all Very	<ul style="list-style-type: none"> 00:01:37: "Could I do this with any solid?" 00:01:54: "Could you take any solid [and] turn it into a liquid?" 00:02:17: "Could you give me an example of a solid that we could not turn into a liquid?" 00:03:51: "What was the big concept we learned?" 00:04:03: "If we change the state that our matter is in, are we changing the number of molecules and atoms?" [Note: This is stated as a yes-no question. A stronger challenge question would have been, "What happens to the numbers of atoms when matter changes state?"] 00:04:53: "If we want to go from a liquid to a solid, what do we do with the heat?" [Note: A little bit of leading here?] 00:05:07: "But how do we do that?" 00:05:48: "Who [can] ... give me an example of a time that we took heat away from something and created a solid?" 00:06:28: "What else did we take away heat from that became a solid?" 00:07:11: "Why didn't the water turn back into a solid?"
4. Engage students in analyzing and interpreting data and observations.	1 2 ③ 4 5 Not at all Very	<ul style="list-style-type: none"> 00:03:36–03:51: The student (Lydia) describes what she learned from mixing vinegar with baking soda and notes that the substances still weighed the same after the experiment. Then the teacher asks Lydia to interpret the data ("What was the big concept we learned?"). 00:05:48; 00:06:28–06:47: The teacher asks students for examples illustrating

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		the big idea that a liquid will change to a solid when heat is removed.
5. Engage students in constructing explanations and arguments.	1 2 3 4 5 Not at all Very	<ul style="list-style-type: none"> 00:03:36–04:38: The teacher helps Lydia construct an evidence-based explanation stating that the number of atoms stays the same during changes in matter.
6. Engage students in using and applying new science ideas in a variety of ways and contexts.	1 2 3 4 5 Not at all Very	<ul style="list-style-type: none"> 00:01:37–02:49: The teacher asks students to apply what they know about phase changes as they consider a new question: “Could I [turn] any solid [into a liquid]?”