Transcript for Video Clip 3.2

Teacher/video ID:	Fowler, 3.2_mspcp_gr.2_matter_fowler_L5_c7–c9
Content area:	Properties of matter
STeLLA strategy:	Engage students in analyzing and interpreting data and observations (STL strategy 4). Engage students in constructing explanations and arguments (STL strategy 5).
Context:	In this lesson on properties of matter, students weigh the same quantity of ice and liquid water to determine whether the weight is the same in both states of matter. In clip 1a, students discuss their observations of the ice and liquid water, and in clip 1b, they weigh Lego ice and liquid water molecules and compare the results. In clip 3, students summarize their ideas about what happens to atoms and molecules when matter freezes and melts.

Video Clip 2a

Time Code	Speaker	Discussion
00:00:00	T	So who could raise their hand and tell me what you guys observed?
00:00:05	T	Kara, what'd you guys observe?
00:00:07	SN	Um … that the ice and the water—
00:00:09	T	Oh, look at her. We don't have friends being respectful. We have friends that are talking, that are playing around.
00:00:15	T	Much better. OK. Now go for it.
00:00:18	S	That the ice and the water are the same weight.
00:00:24	T	OK, and how do you know that?
00:00:26	S	'Cause the scale is balanced across the same way. And it's balanced.
00:00:31	T	How did … So it's balanced. They're even, right? I know it took a little finagling. These balances are a little different.
00:00:38	T	You kind of have to make sure they're kind of hanging out, and there were five on either side.
00:00:42	T	Guys. So we found out that they weigh …
00:00:45	SN	[Inaudible]
00:00:47	SN	They were the same.
00:00:48	T	So how … And let's write your little chart. So we did step 3.
00:01:00	T	And so if you look at your little data table, what's this word?
00:01:04	SN	Liquid water.
00:01:05	T	Liquid water. What's that one?
00:01:06	SS	Solid water.
00:01:07	T	Solid water. What's another word for solid water?
00:01:11	SN	H_2O.
00:01:13	T	Well, that's water. What's solid water called?

00:01:14	S	Um … snow.
00:01:16	SN/T	Ice. / Ice. So write it right here—ice.
00:01:20	T	Now we kind of understand it. So we said that liquid water …
00:01:24	SN	It takes off.
00:01:25	T	Hmm. My one group [is] having a lot of trouble focusing. Then we could say our liquid water and our solid water … do they weigh the same or different?
00:01:35	SS	Different.
00:01:36	SS	Same.
00:01:39	T	They weigh the same. Good to know. So just write "same."

Video Clip 2b

Time Code	Speaker	Discussion
00:01:43	T	And now that you got your results, look at everybody else's in the room, 'cause we need to make sure that we're all getting kind of the same results.
00:01:52	SN	Yeah.
00:01:53	E	[Inaudible]
00:01:57	T	And what do our results tell us? Who could raise their hand and tell me?
00:01:59	E	[Inaudible]
00:02:03	T	Jilissa.
00:02:08	SN	They weigh the same?
00:02:04	T	They weigh the same. How do you know?
00:02:06	S	Because it looks like this side is [inaudible]. Even if you turn them around, it's the same.
00:02:13	T	Ooh, did you guys hear what she said?
00:02:15	SS	No.
00:02:16	T	She was talking really quiet. She said that both sides are the same, and even when you take the water molecules and you scatter them around,
00:02:22	T	and the other side … you have them packed closer together, they still weigh the same. You guys agree?
00:02:27	SS	Yes.
00:02:28	T	All right. So in your data table, where it says "Lego water molecules." Oh, and Lego water molecules. So one is water [and] one is ice. They weigh the …
00:02:38	SS	Same.
00:02:39	T	Same or different?
00:02:40	SN	Same.
00:02:41	T	Same. So you can write "same" right there.
00:02:43	S	Yep.

Video Clip 2c

Time Code	Speaker	Discussion
00:02:44	T	So when we go from solid to liquid, liquid to solid, are we changing the atoms and molecules? Are we creating them? Are we destroying them? Or is nothing changing?
00:02:55	T	So raise your hand if you want to share your idea. You should have lots of ideas in your head.
00:03:01	SN	Nobody has any?
00:03:02	T	Draven, I saw you with your hand up. Can you tell me?
00:03:05	SN	Uh …
00:03:06	T/S	What do you think? / I forgot.
00:03:07	T	You forgot?
00:03:08	SN	It doesn't work.
00:03:09	T	Well, this back table has oodles of ideas.
00:03:12	SN/T	Wait, the back table— / Do you guys want to share your back ta— your ideas?
00:03:16	SN	Mm-hm.
00:03:19	T	So Ashlynn's going to share her ideas. So Ashlynn, is matter or atoms and molecules … Are they created, destroyed, or do they remain the same when you change from liquid to solid?
00:03:29	SN	Same.
00:03:30	SN	I think the same.
00:03:32	T	OK. Can you tell us why you think that?
00:03:34	S	Because the Legos in the ice and the water were the same.
00:03:40	T	What was the same about them?
00:03:42	S	They were balanced.
00:03:44	T	So that tells me what about them?
00:03:46	S	They have the same weight.
00:03:47	T	They have the same weight. So what do you think would happen if molecules or atoms were destroyed or created then during that process?
00:03:54	T	What would our balance look like?
00:03:56	S/T	Um … / You can show us. [Inaudible] look like?
00:03:59	S	Oh. Like this.
00:04:03	T	So Ashlynn thinks that if we created or destroyed molecules, they wouldn't stay balanced any longer. They'd have different weights.
00:04:11	T	And that because our ice and our water had the same weight, that the number of molecules and atoms in each one must have stayed the same.
00:04:21	T	So that's her idea. Doesn't have to be everybody's. But she was just sharing it, [and] I was just repeating it 'cause she talks so quietly.

00:04:29	T	So what you're going to do on number 5 is you're just going to tell me what you think and why.
00:04:36	T	So you can tell me, "I think atoms are created because …," "I think atoms are destroyed because …," [or] "I think the number of atoms stays the same because …."