Transcript for Video Clip 6.6

Teacher/video ID:	Scott Knight, 6.6_stella_et_knight_L4_c2
Content area:	Energy transfer
STeLLA strategy:	Select activities that are matched to the learning goal (SCSL strategy C).
Context:	The teacher introduces the concept of *potential energy* through a reading. Students share their ideas about potential and kinetic energy by revisiting the activities they completed in the previous lesson.

Video Clip 6a

Time Code	Speaker	Discussion
0:00:01.5	T	The title of our lesson today is "Energy's Changing Costumes." What do you think about that title?
0:00:08.6	T	It's clever, right?
0:00:09.7	SN	Yes.
0:00:09.9	T	Why?
0:00:12.9	T	Why?
0:00:13.8	SN	Because regular energy is going to transform to kinetic energy.
0:00:20.7	T	All right. Not bad. What crafted that author-user right there? It's some nice craft right there. What is it, Jilly?
0:00:28.7	SN	Figurative language.
0:00:29.8	T	Yeah, it's figurative. Energy can't put on a costume. It does figuratively. It's a great image here, though.
0:00:36.7	T	Have you ever worn a costume?
0:00:38.8	SN	Yes.
0:00:39.6	T	Wearing a costume doesn't change who you are. You just look different.
0:00:43.7	T	Oh, the energy could be the same … just wow.
0:00:48.0	T	This is the same with energy. Energy may look different, or you may detect it in several different ways. In fact, you did that when you were energy detectives.
0:00:55.9	T	So, Mason, sometimes a costume that energy wears is an invisibility cloak.
0:01:01.7	SN	Yes.
0:01:02.7	T	Wow, that's cool. Makes everything invisible. You can't see it at all. You can't always detect this form of energy.
0:01:10.6	T	Would it still be there?
0:01:11.7	SN	Yes.
0:01:12.7	T	If an … energy put on, Jacks, an invisibility cloak, and you can't see it, you can't detect it. Do you think it would still be there?
0:01:19.4	SN	Mm-hm. Mm-hm.
0:01:21.4	T	It's a good question. Scientists call this energy …
0:01:25.5	S	Potential energy.

0:01:25.6	T	Potential energy.
0:01:29.3	T	It's in bold type. It must be important. Look, kids, it's on the back wall now.
0:01:33.8	T	Do you see how it's just to the right of motion energy, and then underneath the two, the word *transfer* is there. That's what happened in Leroy and Mumford's crash.
0:01:44.8	T	All right, Mumford had … Look at this. Basically this is answering our question for today. We're just going to see if we can apply it now.
0:01:51.4	T	Mumford had potential energy because he was on top of the hill. That's what's could be.
0:01:58.0	T	Maybe he doesn't go down the hill. Turns around and goes home. But, Brooke, he's at the top of the hill, and it's a steep hill. The energy's there, just waiting.
0:02:08.7	T	Even though you can't see it. There's no motion energy there to be seen. So potential energy, invisibility cloak, I see.
0:02:16.1	T	When Mumford raced down the hill, his potential energy changed to kinetic energy.
0:02:21.9	T	As he moved down the hill, Mumford's energy changed costumes.
0:02:27.4	T	Changed. What science word am I thinking of when I read "changed"? Say it if you know it.
0:02:33.8	SS	Transformed.
0:02:35.3	T	Transform. OK. Hey, listen, real quick …

Video Clip 6b

Time Code	Speaker	Discussion
0:02:42.1	T	Sierra. Come up here to the Smart Board and label potential energy for us.
0:02:48.3	T	And let's see how she did.
0:02:52.5	SN	Right there?
0:02:57.2	T	Why do you think that that's where the potential energy is?
0:03:00.6	S	Because he didn't have … He wasn't moving, so he had no kinetic energy.
0:03:05.7	T	We had no evidence of energy. He's not moving. Kinetic energy happens here.
0:03:11.3	S	Ohhh.
0:03:12.7	T	OK, so we'll tell you what. According to what we just read, that would be accurate. Now I want to label this "potential energy."
0:03:25.8	T	Look at yours. See if yours is accurate, OK?
0:03:32.4	T	What do you think about that?
0:03:35.9	T	That's good. Thanks, hon.
0:03:39.3	T	Does Jack's class … Max, I haven't heard from you here this morning. Here's Leroy down at the bottom of the hill.
0:03:48.4	T	He's standing still. Is there any motion energy there?
0:03:51.4	SN	No.
0:03:51.6	T	Are you sure?
0:03:53.1	S	Uh-huh.
0:03:54.2	T	Absolutely not. What about potential energy?

0:03:57.8	SN	Well, you know, there is potential energy.
0:04:00.1	T	How so?
0:04:01.2	S	Because he's not moving, like, the same as Mumford.
0:04:06.4	T	Mumford could go right down that hill just as soon as he wants to.
0:04:12.8	T	There's no hill for him to go down, that's for sure.
0:04:18.0	T	I know he's on a bike, right? So maybe he could start pedaling. It gets complicated, that's for sure. What do you think, Justin?
0:04:25.2	SN	Well, I think that Leroy on the bottom does have a little bit of motion energy 'cause he's waving his hand to Mumford on the top.
0:04:33.7	T	That's true. That's true.
0:04:37.8	T	His bike and … Leroy and his bike, together, they would make a little system. Together they're not demonstrating energy, I don't think.
0:04:48.4	T	Anyway, hey, take a look at this. I wanted to show you a couple pictures of ramps here, and this might look familiar to you.
0:04:56.0	T	Let's look at this one. These are the two ramps that we worked on the other day.
0:05:02.7	T	Shallow ramp. Remember you guys measured the angle of inclination, 5 degrees, 20-something degrees—
0:05:07.5	SN	Twenty-five.
0:05:08.3	T	Twenty-five?
0:05:08.8	S	Yup.
0:05:09.8	T	Steep. Shallow. Tell me about potential energy in these two pictures. Have an opinion. Have an opinion, Jacks.
0:05:19.7	T	If I … if you can show me that you understand here, we're going to move forward. Tell me about potential energy in these two pictures. Is it there? I mean, you can't see what's invisible.
0:05:32.8	T	But now we have some knowledge because we did the activity; we read the text.
0:05:37.6	T	I'm going to ask you a question over here. Be ready.
0:05:42.9	T	Abigail, tell me about potential energy up here, would you, please?
0:05:46.5	SN	There is potential energy because it does have energy when it's up there, but it just doesn't show it [inaudible].
0:05:54.5	T	Are you … are you talking about this one or this one?
0:05:56.2	S	Both.
0:05:57.2	T	Both? Both have potential energy. I'd agree with that. This could've been a model for Leroy. Bless you. Mumford. This could've been a model for Mumford.
0:06:06.1	T	He's at the top of the hill. There's potential energy there. So is it the same amount of energy? And how would you know?
0:06:15.1	SN	But when they go up the hill …
0:06:16.7	T	Yeah.
0:06:17.1	S	It has more energy than the bottom of the hill.
0:06:18.9	T	Say it.

0:06:20.1	S	When they're on the hill, the … the bot … the bottom one right there would have more energy when it's going down the hill 'cause it's sloped up a bit higher.
0:06:28.4	S	And the higher it is, the more energy it gets when it goes down.
0:06:33.2	T	We rolled both of these marbles right down the ramp. This one went faster. Faster means more …
0:06:39.9	SS	Energy.
0:06:40.6	T	Energy. Where does the energy from an object come from? That's our question today. Where does the … where does the … This is going to roll down here. Where's that energy come from?
0:06:58.3	T	It's the same energy here.
0:07:02.5	T	I think you guys played hockey too hard.
0:07:05.2	SN	Uh-huh. What?
0:07:09.6	T	One hand? Rane?
0:07:14.6	SN	The energy when it's going down the hill comes from the potential energy at the top.
0:07:20.6	SN	Yes.
0:07:20.9	T	What do you think about that? Let me see. Madison, I haven't heard from you this morning.
0:07:23.9	T	She said this is potential energy, and this is potential energy, and that's where objects get their energy. What do you think?
0:07:31.3	SN	Yes.
0:07:32.0	T	Tell me more. Why would you agree or disagree?
0:07:34.8	S	I would agree.
0:07:35.0	T	Because Mr. Knight's all excited. That's why you want to agree?
0:07:37.7	S	No.
0:07:38.4	T	Oh. Well.
0:07:40.3	S	I agree with Rane because potential energy is like where it's not moving really, and the bottom one, it doesn't have any energy. Well, it has potential energy.
0:07:58.7	S	But when it goes down the hill, it'll have kinet … kin … motion energy.
0:08:05.8	T	Great. I wonder what happens … I wonder what happens for potential energy to change to motion energy. Any predictions on that?
0:08:20.9	T	You don't have to have one. Connor, you're answering a lot of my questions this morning. What do you think?
0:08:25.9	SN	I think there would have to be a little bit of other energy, maybe wind or kinetic energy, to get a still ob … to get potential energy to cha … change into kinetic energy.
0:08:42.1	SN	I think a push.
0:08:44.0	T	OK. I heard you say "change."
0:08:48.5	SN	Transform.
0:08:49.2	T	Mmm. OK.