

Transcript for Video Clip 6.7

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Content area:	Energy transfer
STeLLA strategy:	Select activities that are matched to the learning goal (SCSL strategy C).
Context:	In this lesson on energy transfer, students use diagrams to analyze the relative amounts of potential and kinetic energy a marble has as it rolls down a ramp. They record their ideas on their diagrams and share them with their classmates as the teacher projects some completed diagrams.

Video Clip 7a

Time Code	Speaker	Discussion
0:00:01.3	T	So we're going to look at this. I have a page for everybody. It looks just like this.
0:00:05.8	T	And it's a bunch of ramps. And essentially, this is Mumford going down the hill, OK?
0:00:16.4	T	Now when Mumford goes down the hill here ... First of all, I've left Leroy out of it entirely, and these ... these meters in here for the first part of this, you just don't have to worry about it.
0:00:27.9	T	All we're going to do is we're going to come in here, and we're going to think about two things.
0:00:33.8	T	We want to think about where the marble is. For example, on this first one, I see that the marble, Mumford—however you want to think about it. I see that he is ... it is way up here.
0:00:51.8	T	In fact, of all of these graphics, of all of these diagrams, that one is the highest. All right? So that's worth noting.
0:01:08.5	T	My experience also tells me that it's not moving. Right? It's just sitting right at the top there, just like that last graphic we had, and just like when you set up your models.
0:01:22.5	T	So I'm just going to put this in, just like this, not moving. This is what a scientist would do. He would annotate his notes here to—
0:01:32.0	T	Here's what's going to happen. I'm going to pass these out ... Actually, these young ladies are going to give everybody one of these, first and last name.
0:01:37.8	T	Oh, I'm going to make sure you understand today. Hang on.
0:01:40.5	SN	Yes, sir.
0:01:41.3	T	Take your paper. Tristan, work with your teammates. What I want you to do is basically just come in here like we did on this first one. Write me some notes ...
0:01:53.4	S	Yes.
0:01:54.4	T	about where the marble is and what you think's happening. See how I said ...

Video Clip 7b

Time Code	Speaker	Discussion
0:02:02.3	T	See how she did.
0:02:06.6	T	Highest, not moving. That's genius! Oh, we did that one together.
0:02:12.6	T	All right. And then she says "moving." She wrote an arrow in here. She didn't write anything. I see that the arrow's not as high. I get that.
0:02:22.5	T	Moving, arrow's even shorter, meaning it's not as high. And then less energy. What do you mean by "energy"? What kind of energy?
0:02:32.1	SN	It has less motion energy. Or kinetic energy, because it ... 'cause it's ... it's all the way down the hill ... the hill already, and it's slowing down.
0:02:44.9	T	OK. You know, my experience ... When we ... Caitlyn, when we did Mumford, didn't it just roll right on?
0:02:54.6	T	When we put Leroy in the way, crash!
0:02:58.2	T	OK? Let's think about this one. Let's think about putting in some descriptors here, but that's not bad at all. Have a seat, you guys. You're good.
0:03:05.4	T	I need a young man that I can—
0:03:08.4	SN	Mr. Knight, Mr. Knight.
0:03:11.4	T	Let's see here. Aidan, I haven't heard from you here today.
0:03:22.7	T	Let's see how he did.
0:03:28.0	T	Not moving, long arrow. Am I assuming that that means high? That's what we wrote the first time?
0:03:33.5	SN	Mm-hm.
0:03:34.2	T	Moving builds up energy. Hmm. You know ... you know. You saw it. You knew from your own schema when you go down a hill on a bike, you just kind of tip over the side and then whoosh, right?
0:03:49.4	SN	Yeah.
0:03:49.6	T	So that's all fine and good, but if we can think about what's happening, Ryland, with the energy. It says "building up energy."
0:03:55.8	T	I see it's way up here, not as high as that. Now it's down here. "Moving energy increases." What's "increase" mean?
0:04:06.6	SN	Like, kind of moving, kind of?
0:04:12.4	T	Well, you said its moving energy increases. I need you guys back in your seats. Let's go. You can't see when I'm standing here, that's all.
0:04:20.2	SN	[Inaudible]
0:04:24.2	T	Abigail?
0:04:26.1	SN	I think by "energy increases," he means that it increases from the last picture we looked at, because the farther down it goes, the more speed it builds up.
0:04:37.8	T	OK. Look, he wrote "no energy here"; it's at the bottom. I'm sensing a problem here, and we're going to rectify it right now.

0:04:47.1	T	This is what we did.
0:04:51.1	T	You had your ramp. That's the steep ramp. You had your hill and you had your marble, and you guys are saying that you get all this ... it's not moving.
0:05:04.0	T	And then it is ... and that it is, and then it's not? But look.
0:05:07.2	SN	No, it is.
0:05:13.6	T	It just keeps on going. It's not going to go on forever. But it doesn't stop at the bottom of that hill. In fact, I think just the opposite's true.
0:05:23.7	T	Looks to me like of all its speed, it might be where ... I don't know, let's look at one more.
0:05:31.2	T	This is ... let's see here. Who have I not picked on. Caitlyn Smith, let's see how you're doing.
0:05:38.0	SN	Aw.
0:05:38.7	T	I know, pal. That looks really nice.
0:05:42.6	T	Thanks, hon.
0:05:47.2	T	Thank you.
0:05:50.9	T	Take a look here, gang. Let's see. So high is not moving. Moving, gaining energy. Increasing energy. What kind of energy, I wonder?
0:06:04.2	SN	Potential.
0:06:05.2	T	Potential energy's over here, where it's not—
0:06:06.2	S	I mean kinetic.
0:06:07.8	T	Motion energy transfers energy, decreasing it. Transferring energy to what, Caitlyn?
0:06:14.8	SN	[Inaudible] to Leroy.
0:06:16.8	T	OK.
0:06:17.0	SN	[Inaudible]
0:06:17.6	T	I understand. Yeah, that's not Leroy. Leroy's not in this model. Hmm.
0:06:23.1	T	All right, tell you what, smiley. Let's look at yours.
0:06:30.5	T	Thank you.
0:06:37.0	T	Farthest from the ground, not moving. We got that part.
0:06:42.2	T	It's starting to move. What's that say?
0:06:51.6	SN	[Inaudible]
0:06:55.4	SN	I don't know. It's what me and my group discussed ...
0:06:59.5	T	I understand. I just don't know what the word is. Something from the ground ...
0:07:08.4	T	moving quickly, getting closer to the ground. Moving fast. It's on the ground.
0:07:12.8	SN	Yeah.
0:07:13.3	T	Right.