

## Transcript for Video Clip 7.2

Teacher/video ID:	Wilde, 7.2_mspcp_gr.3.forces_wilde_L5_c9
Content area:	Forces
STeLLA strategy:	Select content representations and models matched to the learning goal and engage students in their use (SCSL strategy D).
Context:	In this lesson on forces and motion, the teacher uses the hand-strip model to help students visualize why a heavy object might have more frictional force than a lighter object.

### Video Clip 2

Time Code	Speaker	Discussion
0:00:02	T	Yesterday we talked about this kind of being friction, right?
0:00:06	SS	Mm-hm.
0:00:07	SN/T	Wow. / Where the car goes over it, and it slows down because of the bumps.
0:00:14	T	But do you think two things rubbing together ... do you think each one of them causes friction? Thank you, [inaudible].
0:00:20	SN	No.
0:00:21	SN	[Inaudible]
0:00:22	SN	Yes.
0:00:24	T	I'm hearing one yes and one no, and I'm not hearing anybody else?
0:00:27	SS	Yes.
0:00:28	T	Oh, OK.
0:00:29	SS	No.
0:00:30	T	So, would I maybe have two of these?
0:00:38	T	Would that be the case, or would it just be one?
0:00:40	SN/SN	One. / Two
0:00:41	SN	Two.
0:00:42	SS/SN	Two. / Four.
0:00:43	T	Show on fingers how many you think. Would it be one or two? Only one or two. T-three is not an option.
0:00:49	SN	Darn it.
0:00:51	SN	Six. I'm thinking six.
0:00:54	T	I'm not sure how m— OK, Giselle, you're thinking two. I'm seeing a majority of you are saying two.
0:00:59	T	I need ... Vicky, come on up. And Aubrey, come on up.
0:01:05	SN	No!
0:01:06	T/S	I need you, Vicky, to hold this just like this. / She already ...

0:01:08	S	Ms. Wilde, she just did it a minute ago.
0:01:10	T	Yeah, but I'm watching her pay attention.
0:01:11	S	I ... I was paying attention!
0:01:13	T	I've had to ask you to be quiet on more than one occasion already today.
0:01:17	T	OK. You may leave the room and come back when you're ready. Right now, please.
0:01:28	T	Aubrey, I need you to hold this above here. So we have ... if you can't see, feel free to move so you can.
0:01:35	T	We have our science-y friction right here. Let's put them together a little bit. If I pull this way, is it gonna be easy?
0:01:46	SN/SN	Yes. / No.
0:01:48	T	Kind of, right?
0:01:49	SN/T	No. / What if the object is really heavy? Is it gonna go up or down?
0:01:55	SS	Down.
0:01:56	T	Giselle?
0:01:57	SN/T	Down. / Down. Why?
0:01:58	S	Because of gravity. Because it's heavier.
0:02:00	T	Ah, gravity's gonna pull something heavy down?
0:02:02	S	And since it's heavier anyway, it's gonna go down because of the weight.
0:02:06	T	Here, I'm gonna have one of you stand on each side of me. So keep hanging on to your paper.
0:02:11	T	So are you saying this would be a heavy object?
0:02:15	T/S	If it was all the way down? How you can make it. / If it, like, like, if it was, like, like, like [inaudible]?
0:02:21	T	So is it heavier like this or like this?
0:02:25	S	Down. Because paper ... it's, yeah, it's a little light, but it has a little more paper, so it's putting a little more weight to it.
0:02:33	S	S- and then you're adding a little more weight, and a little more weight by the lighter, by also light paper with m- with more paper that's also making it heavier.
0:02:43	S	So when you put it together, it's gonna be heaviest together.
0:02:47	T	OK. So when it's together, this is as heavy as it can possibly get. Is that what you're saying? When I have it just like this?
0:02:53	S	Well, just with two pieces?
0:02:55	T	Yeah.
0:02:56	S	Well, not exactly.
0:02:57	T	So if I ... let's say this is me, and this is the floor. Let's say I'm superheavy, and so I'm pushing down on the floor. Is this about as heavy as it can get?
0:03:08	S/T	Um. / Let's say I lose some weight, and then I'm like this.

0:03:12	S	That's not as heavy as it was.
0:03:14	T	That's not as heavy, so is there more or less friction?
0:03:17	S/SN	Wait. When it's up like that? / More friction.
0:03:18	T	When it's up, is there more or less friction?
0:03:20	SN	Less.
0:03:21	T	Less. When it's down, is there more or less friction?
0:03:23	S	There's more. More.
0:03:25	SS	More.
0:03:26	T	It's actually a lot harder for me to move it like this than it is like this.