

## Mazur Clip 2 Transcript

ERIC MAZUR: Use the boards. I noticed that many people who are doing Learning Catalytics do not use the boards. Use the boards. Teach one another, OK? Which is why we put them out today.

So here's the first question. I'm sending it to your device. If you don't have the session ID, it's 30465236. I'll put on the next screen, too.

We have a positively-charged rod that is held near a conducting sphere, as shown on this illustration here. And a positively-charged particle is moved from point A to point B. The electrostatic work done on the positively-charged particle during the motion is? Choose an answer.

OK. So we have about 50% right answers. I want to get that higher up because, if you get this wrong, then it's very hard to get the rest, like potential and so on, wrong. So find a neighbor at your table who has a different answer. And then see if you can convince him or her that you're right and he or she is wrong.

And, again, if you need the boards, go to the boards and use the boards. Go ahead.

[SIDE CONVERSATION]

STUDENT: Maybe because-- isn't it moving against-- so it's a positively-charged particle, moving from A to B. So it's moving to a higher potential energy because it's getting closer to the other positively-charged-- that a positive charge is wrong?

STUDENT: So, yeah. So then there's work done on it, right? If you have to-- it's like, if you're moving something from the ground up--

STUDENT: Yeah.

STUDENT: Right? Like you're going to more favorable to less favorable, then you're doing positive work on it.

STUDENT: So that's positive.

STUDENT: I think so. I mean--

STUDENT: I think that's right. Because I feel like if you have negative work, your work doesn't mean anything.

STUDENT: Yeah.

[SIDE CONVERSATION]

STUDENT: So if you're going-- if I was going from B to A [INAUDIBLE]--

[SIDE CONVERSATION]

STUDENT: I mean, like, I mean this was like a potential going like this.

STUDENT: Right.

STUDENT: So then A is moving against that. So then it'd be positively-charged.

[SIDE CONVERSATION]

STUDENT: OK. That makes sense.

STUDENT: So a positive.

STUDENT: Do we need to order anything else? So what did we order?

STUDENT: I ordered [INAUDIBLE].

STUDENT: Yes.

TEACHING ASSISTANT: What are we thinking?

STUDENT: Positive.

STUDENT: It's positive.

STUDENT: Why is that?

STUDENT: We said we need like to put an input of energy for it to go against an electrical field. Or because if we need-- if you're bring a positive charge closer to a positive charge, you need an input energy [INAUDIBLE].

TEACHING ASSISTANT: OK. And everybody agrees?

[SIDE CONVERSATION]

So let's think about this in terms of displacement. So what direction is the displacement?

STUDENT: To the left.

TEACHING ASSISTANT: To the left. Correct. And then in what direction is the electrostatic force acting on the particle?

STUDENT: To the right.

TEACHING ASSISTANT: To the right. So, conceptually speaking, the displacement--

ERIC MAZUR: OK. [INAUDIBLE] and enter what you now believe to be the right answer.

STUDENT: So it's positive.

TEACHING ASSISTANT: Let's see what Eric has to say.