Students Working on Roller Coaster Investigation Video Transcript

Teacher: What are you girls interested in?

Student A: I guess we have two graphs up here for the…you have the top speeds and the states.

Teacher: Oh okay, alright. And what is that telling you telling you?

Student A: It's telling you the top speeds and the states.

Teacher: Okay, okay. So the states that they're in. So which states tend to have tall--coasters that go really fast?

Student A: Oh, okay.

Student B: The one in California.

Student A: So the one we have…this is the milder, and this is the stronger I guess.

Teacher: How do you, how do you know that?

Student A: Because this is up to 120, this is down to 23.

Teacher: Okay, all right. And you can actually click on the different sections of that green bar, and it will show you those different coasters.

Student B: Oh, wow.

Student A: Okay. So, the fastest ones…fastest and the states…so the two of ours in North Carolina that's just collected…let's go to this one.

*** Sixth grade students investigate coaters' top speed, length of drop, and number of inversions. ***

Student C: That's pretty fast.

Student D: What about…let's do how much it drops here.

Student C: Yeah.

Teacher (in background): What you all are doing is called exploratory data analysis…

Student D: What?

Student C: 400 feet?

Student D: Seconds.

Student C: Oh. Seconds.

Teacher (in background): And it's when you have a dataset and you just play around with it and take a look at what the data might tell you.

Student D: But wait, why?

Student C: Look, one second. Wait, what?

Student D: No, nine seconds.

Student C: Nine seconds, oh wow, that's, that's…

Teacher (in background): You can use any of the variables you want, you can use more than one variable. What interests you here?

Student D: But why is it 400?

Student C: 400 seconds…which one is 400? Let's see. Let us see.

Student D: 400 seconds, it's still the top speed though, when you click, click on the 400 one.

Student C: Oh we got it, we got it.

Student D: I know. And then, look, the top speed is the 400 one.

Student C: Oh wow. Oh wow.

Student D: This is…

Student C: So that one…

Student D: Wait, does it have a drop, though?

Student C: Oh.

Student D: Let me see.

Student C: Haha.

Student D: It doesn't have one. I wish it has one. Let's see number of inversions. There. So…this one has seven inversions.

Student C: Wait. Wait, what's that?

Student D: So…

Student C: Wait, one…oh no, that's the drop.

Student D: So this is the drop, this is the inversions

Student C: Wait, all of these ones have seven inversions.

Student D: Yeah. And yes or no. No, those don't have inversions, and yes, these do.

*** Seventh grade students investigate length of drop, top speed, and type of material. ***

Teacher: Yeah? Make, make an interesting graph. Recreate an interesting graph that you had created.

Student E: Okay, okay. Alright, watch it.

Student F: We're going to do this so good.

Student E: Well, we stopped excellent editing the graph.

Student F: We're doing this with two people recording us right now.

Teacher: Yeah, it's hard sometimes to

Student E: and then

Teacher: And then scroll this over, then you can get to the top speed. Is that what you're trying to do?

Student E: Ah, yeah.

Teacher: There you go

Student E: That's fancy

Teacher: Fancy, fancy.

Student F: Fancy.

Teacher: Oh, wow! So, what is, what kind of graph is that?

Student F: Looks like a spaceship.

Teacher: Looks like a spaceship?

Student F: Yep.

Student E: Looks like an aurora.

Teacher: Yeah, it does kind of look like an aurora. You know what, that officially is called a scatter…a scatterplot. Alright? You'll learn more about those a little bit later, all right? But they're officially…it's where you're looking at two different variables at the same time. So what does that graph tell you?

Student E: It tells us the top speed and the drop, and…

Student F: Let's see, it's top speed seems to be 120

Student E: Top speed is 120, and the drop is 400 feet. I…

Teacher: Who is that?

Student F: Ohio.

Student E: No, it's in Ohio.

Student F: In Ohio.

Student E: The drop is actually 420.

Student F: Top Thrill…

Student E: Top Thrill Dragster, Cedar Point. I remember, that's the…I'm pretty sure that's the highest roller coaster in the world.

Teacher: Oh wow.

Student F: I wonder what its height is. If it's the highest roller coaster in the world.

Student E: Alright, if we can just grab hold of that teeny little scroll bar.

Teacher: So I'm gonna, I'm gonna throw a…I'm gonna throw a twist into your graph, and see if you guys can make sense of this, okay?

Student E: Yeah.

Teacher: So I want you to grab wood versus steel, so that was, I think it's type. Here we go. Grab type, put it in the middle of your graph. Yep. What did it do?

Student E: That's pretty cool. It told us…it's telling us right now, which parts are wooden and which coasters are steel.

Teacher: Yeah, yeah. I don't think we can…

Student F: What just happened?

Student E: I think I killed it.

Teacher: Yeah, click on that and remove it.

Student E: Okay.

Teacher: There we go. Take a look at that, and see in a little bit if you could tell the class anything that you might notice that's interesting.

Student F: How about…

Student E: A lot of wooden ones are slower and have a shorter drop, and the fastest ones are steel.

*** AP Statistics students explore data to decide an interesting investigative question to further pursue. ***

Student G: How about type versus max height? Or type versus length?

Student H: I don't think there's anything. We can do age versus type, which probably is better.

Student G: This is age group.

Student H: Here, I'll show you.

Student G: Oh, I see, I see. Well then, what would our question be?

***

Student G: Okay, I think, I think we can decide on one, such as, like, the type, wooden versus steel, and let's see…let's see year opened. Wait…

Student H: What about state and year?

Student G: Okay. Alright, type versus year opened. Here's what I'm saying.

Student H: Um…

Student G: Or, or, here, here, here. Let's make another graph, and just say year opened.

Student H: Steel's like, relatively new.

Student G: And we can see that there's…no, see, look. Up to here, there's a bunch more production of both. It's just a lot of roller coasters were made. So, a bunch here were made, as well as here.

Student H: Why are there so many in 2000?

Student G: Why are there so many 2000s?

Student H: Was there like some park that just opened?

Student G: Oh, maybe we don't even have to graph two…two variables. We should do one, like, year opened, and then do like…what could you say from that?

***

Student G: Okay, so type versus the max height.

Student H: I mean, but their…their standard deviations overlap.

Student G: Would it be…because if you were doing the difference, it would be μ_a minus μ_b, so this minus this, then …

Student H: Could that be because of the year, too?

Student G: Oh, are you saying, like, with better technology, you can get longer things?