



Downhill Race

At this exhibit, visitors race wheels of various weights and weight distributions down two identical inclined tracks. Some wheels have weights closer to the center, some have weights closer to the edge, and some have weights that can be adjusted in either direction.

Two women approach the exhibit.

Woman 1: *Let's race.*

She selects a wheel with the weights located at the rim. Woman 2 selects a wheel with an equal number of the same size weights, clustered around the hub of the wheel.

Woman 2: *All right, I'll race you. Yours is going to go faster.*

She releases the wheels and they start to accelerate down the incline.

Woman 2: *You know why? Because the weights along the center, compared to the weights being out there [gestures to rim-weighted wheel], that's going to bring it around faster. I think the—[notices that the hub-weighted wheel is in the lead]. Oh!*

Woman 1: [after glancing at the label] *No, yours is going faster, 'cause your weight's all concentrated around the center.*

The wheels stop at the bottom of the ramp. Woman 2 selects two more wheels, one with weights near the rim and one with weights near the hub. She releases them from the top of the incline.

Woman 2: *Which one's going to beat?*

The wheel with weights near the hub accelerates down the incline more quickly. A man who seems to be part of the group approaches.

Man: [referring to wheel with weights near the rim] *Are those things on the edge slowing it down?*

Woman 2: *Well, I think that it's not that it's slowing it down, it's just that the weight distribution—pretty wicked, huh?*

She picks up two new wheels and examines them—one has weights near the rim; the other has adjustable weights, which are near the hub. *This one should be the same.*

She lets them roll; the wheel with weights near the hub pulls ahead. *No, it's a little faster.*

The wheels reach the bottom of the ramp. The man picks up one wheel and releases it from the top. As it rolls down the incline, he picks up two more. The inside-weighted wheel pulls ahead, and the man tries to spin the slower wheel with his hand to catch up.

Woman 2: [laughing] *No matter what, you can't win.*

Total time: 3 min 6 sec