Assignment 4: Why Does a Curling Rock Curl?

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ECE 3760 A01

January 24, 2025

Why do you think a curling rock's trajectory will curve or curl?

This question is debated upon as the reason behind this is not quite known. The expected behaviour would be to curl opposite to the direction of rotation, but the rock curls in the same direction as the rotation. Researchers from a swedish university believe it is due to the rock's rotation and the ice's pebbled surface. The leading edge of the rock, the left side if clockwise, right side if counterclockwise, creates scratches on the pebbles with an angle towards the direction of the rotatiopn, and as rock rotates, it will curl with the scratches. [1] [2]

I think this is a very good theory as the proof behind it is quite strong. The tests conducted by the researchers show that the rock does indeed follow the scratches on the ice. To emphasize this result, scratches were made by the researchers, and when the rock is thrown straight, it deviated towards the direction of the scratches

Why does sweeping extend the distance the rock will travel?

Sweeping helps reduce the friction between the rock and the ice, which allows the rock to travel further. The heat generated by the friction between the broom and the ice melts the ice, creating a thin layer of water. This water acts as a lubricant, reducing the friction between the rock and the ice. As a result, the rock can travel further with less resistance.[3]

What is the weight of a curling rock?

The weight of a curling rock according to Curling Canada falls in the range of 17.46 kg to 19.96 kg (38.5 lbs to 44 lbs).[4]

[1] https://phys.org/news/2013-05-mechanism-stone-revealed.html
[2] https://www.youtube.com/watch?v=7CUojMQgDpM
[3] https://ssec.si.edu/stemvisions-blog/why-does-curling-stone-curl
[4] https://www.curling.ca/about-curling/getting-started-in-curling/rules-of-curling-for-general-play/