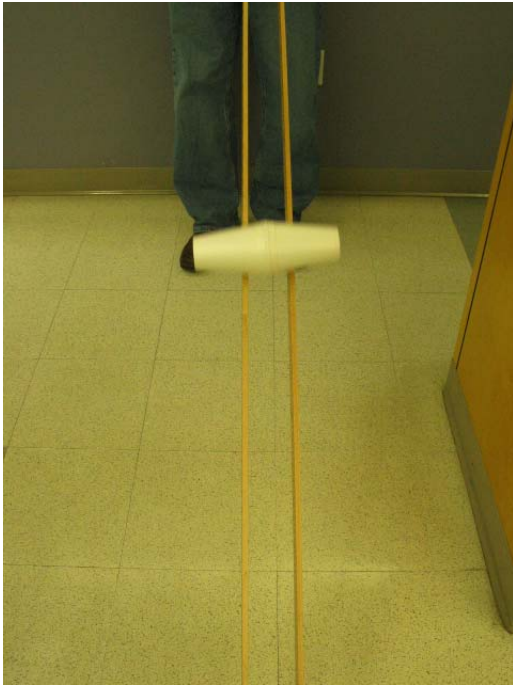


Rolling Cups and Railroad Tracks



Purpose: To demonstrate an application of the fact that the distance a wheel rolls in one revolution is proportional to its diameter.

Location: room 136, N4 (2-meter sticks on shelf U5)

Using two 2-meter sticks as tracks ask students which pair of Styrofoam cups will roll down the tracks without derailing: the pair with their larger diameters to the inside of the tracks (left), or the pair with their larger diameters to the outside of the tracks (right). The latter type of “wheels” is found to be unstable, since any deviation from straight rolling results in further deviation, while the former type is stable, since any deviation from straight rolling results in a correction back toward the center.