

## Friction in formula one

Formula one cars use spoilers (inverted aerofoils) to increase the effective weight of the cars. In fact a formula one car designers often boast that a car travelling at full speed could drive on an upside down track. This additional, aerodynamic, weight increases the normal reaction force and thus increases friction. Surely this is counter-productive?

- Explain how increasing friction between tires and tracks will make it possible for cars to make faster turns. You will need to consider ideas from previous lectures on circular motion and Newton's law of motion.
- Gather useful data: coefficients of friction, 'lift' forces etc.
- Analyse a turn in a formula one racetrack: what speeds do drivers negotiate the turn at? How close is this to the safety margin?