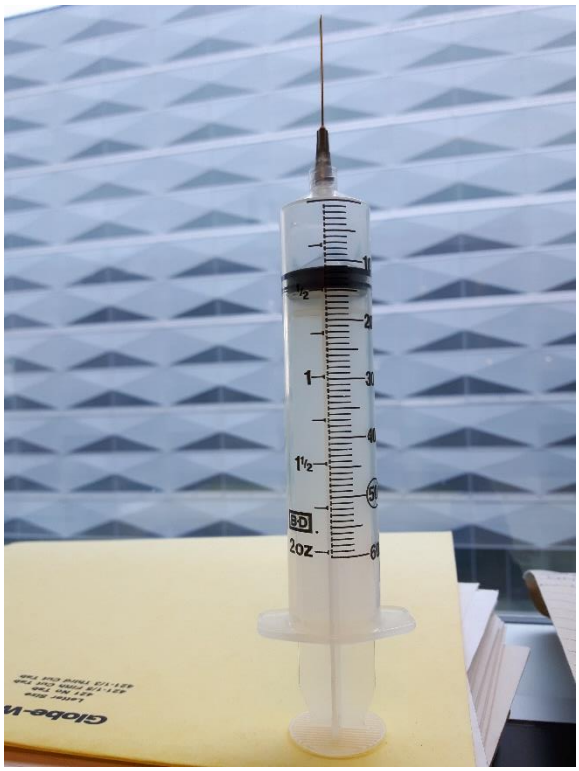
Hands-on Fluids Challenge

Objectives: Using a combination of theory and experiments, develop and test a mathematical model that can predict (a) how high a jet of fluid will shoot up through the needle as a function of the speed of displacement of the piston of the syringe, and (b) the magnitude of the force that must be applied to the piston.



Materials & Methods: A syringe with removable needle will be available to you, but no other information about the syringe and the needle will be given. It is entirely up to you to imagine experiments that will advance your objectives.

Deliverable: In no more than 6 pages including graphs (there will be a penalty for exceeding this limit), give a succinct report of your activities (what you did, why you did it, what results did you get, what do these results mean). Do this in groups of two (2). Due online at the end of term (before the last lecture).

Rewards: Aside from fun, doing this well will allow you to recover potentially all marks lost in the midterm (that is, your new midterm grade could become 100%).