



Friction

“Friction is a Force that always pushes against an object when it touches another object”

“When 2 things are in contact with each other, there will be friction acting between them”

Friction...

- High friction (lots of friction) – will slow something down
- Low friction (not much friction) – will keep things moving

High friction or Low friction?

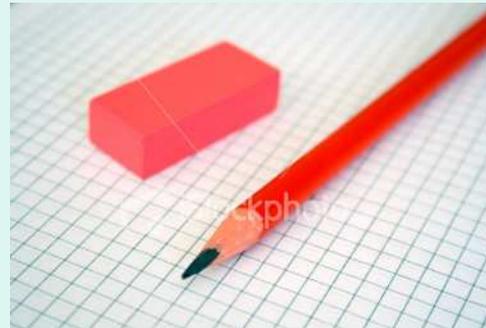


Brakes on a bike

Ski's on the snow



Car tyre



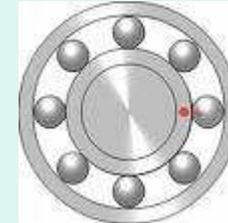
Pencil and rubber



Water on a slide

How can we reduce the friction between 2 objects?

- Reduce the contact area by using rollers/ball-bearings/wheels



- Change the surfaces of the materials that are touching by using lubrication eg. Oil

- Create a cushion of air

Eg. Like a hovercraft or air hockey table



“Fluid” Friction

- This type of friction is what happens with liquids and gases (*In Physics, liquids and gases are both called "fluids". They behave in similar ways.*)
- Fluid friction is also known as "**drag**". On aircraft it's also called "**air resistance**".

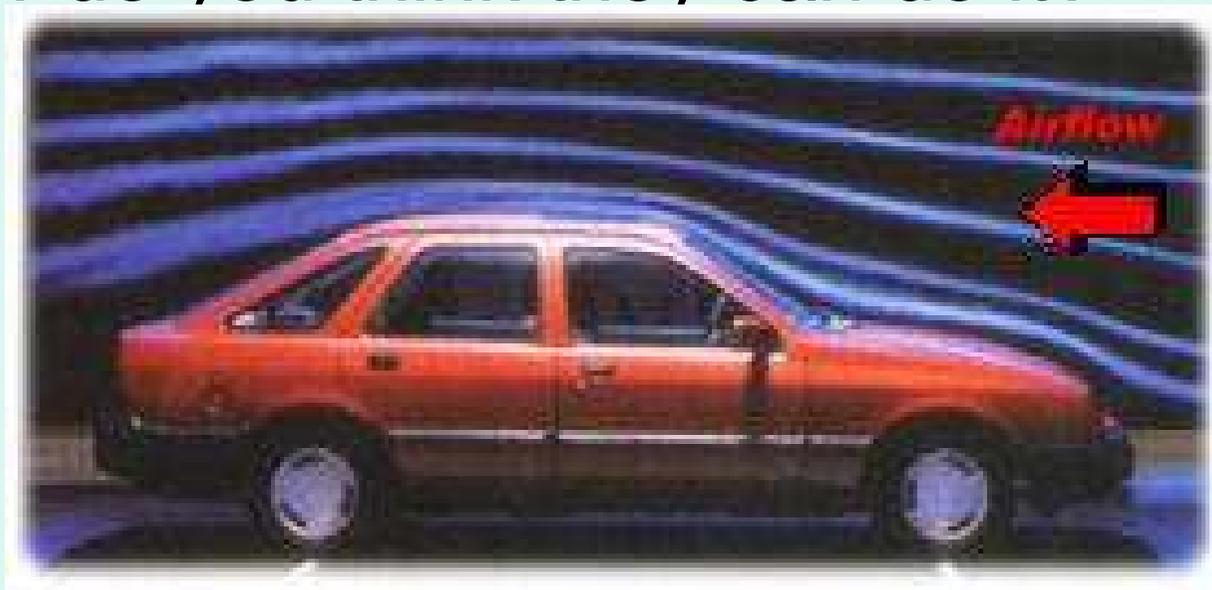
It depends on:-

- how thick the fluid is
(its "viscosity")
- the shape of the object
- the speed of the object





- Aircraft and car designers want drag, so that the vehicle can go fast without having to waste too much fuel.
- How do you think they can do it?



Paper Aeroplane Competition

Aim:

- The winning team is the one who gets their plane to stay in the air the longest and is the fastest.

Materials:

- 1 sheet of blank paper
- 1 paperclip
- Scotch tape

Instructions:

- Use only the materials indicated in the above list; you don't have to use them all.
- The plane may be constructed using all or part of the 21.5 x 28 cm sheet of paper.
- Label each plane with the "engineer's" name.
- Each group is allowed three throws; record the best throw only.
- Begin timing with the throw of the plane and end when the plane hits the floor.
- Settle a tie with a throw-off.

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