F_a applied Force
(just a catch-all term
for when you try
and push or pull something)

F_T tension
(the force in a string)

- strings can only pull an object – you can't push something with a string

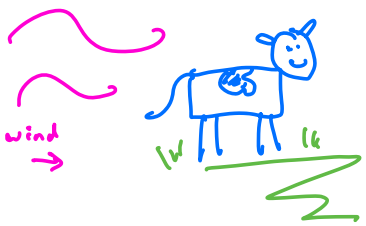
Some Less Common Forces

F_d Drag Force - the name for air resistance.

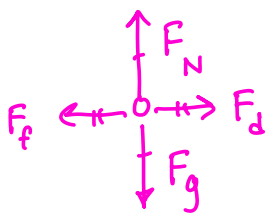
F_L Lift Force - with planes & helicopters, this is the aerodynamics force from the wings that "lifts" the plane off the ground.

F_t Thrust - the force from a plane or rocket engine

Back to the Cow & more examples



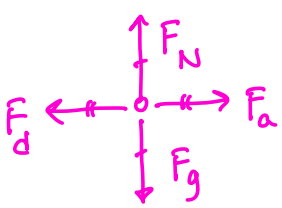
Now imagine there is a wind trying to push the cow to the right. Because it is standing on the ground, the cow doesn't move – because FRICTION will hold it in place.



everything is still balanced!

everything still cancels out!

A car driving to the <u>right</u> @ constant speed.



everything balanced!

all the forces cancel – so constant speed

F_a – the applied force, which comes from the engine & tires

F_d – drag force trying to slow the car down.

If $F_a > F_d$ the car would speed up

If $F_a < F_d$ the car would slow down

When all the forces cancel out, we say the NET FORCE is zero.

F_{net} **Net Force** → what's leftover after adding & subtracting all the forces acting on an object.

$F_{net} = 0$ all the forces cancel out.
all the forces are balanced.

$\therefore$ $F_{net} = 0$ $\leftrightarrow$ constant velocity!
(acceleration = 0)