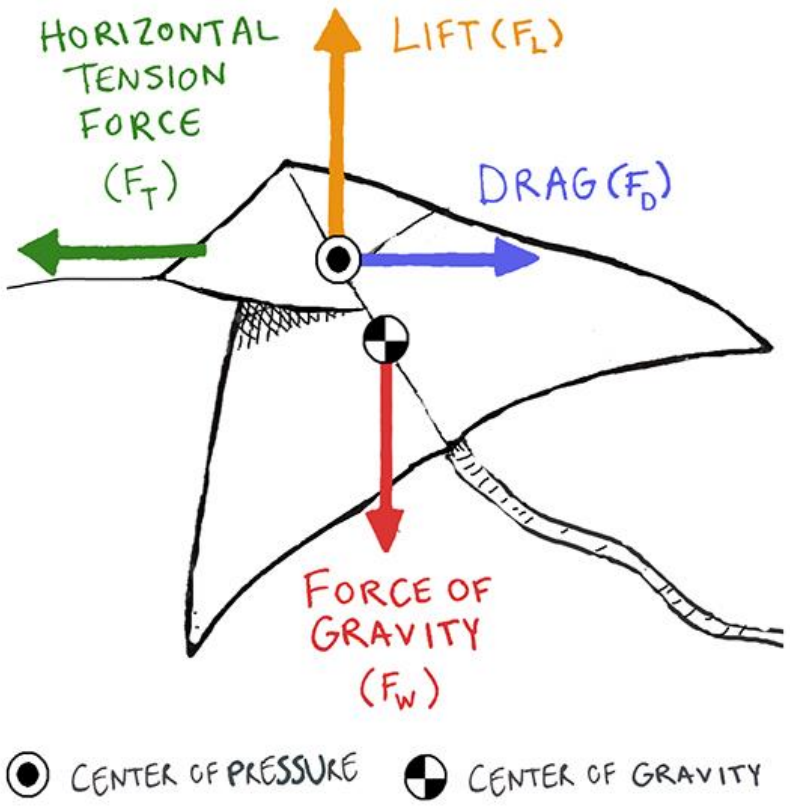
How does a kite fly?

Just like rockets, jets, or birds, all kites experience a combination of forces as they fly. The main forces that determine whether or not a kite is able to fly are **weight, lift, tension, and drag**. Though these fundamental forces act on the kite together at the same time, they do not necessarily act on the same positions on the kite.



- **Weight** (F_W) – the gravitational force of the earth pulling down on the kite
- **Lift** (F_L) – pushes the kite up and is the upward force acting on the kite
- **Tension** (F_T) – the pull originating from the person holding the string
- **Drag** (F_D) – the push of the wind against the kite

The forces of **weight, lift, tension, and drag** determine whether a kite stays aloft or plummets to the ground. When the kite is flying, these forces play tug-of-war with each other on three different axes: They pull or push the kite up or down, side to side, and forwards and backwards. On any given axis, one force might be bigger than the other, and will pull or push the kite in that direction.

These competing forces contribute to a **net force**—that is, a single, mathematically summed force that accelerates the kite, meaning it causes the kite to change its straight speed in a certain direction, or keeps the kite in equilibrium. **Newton's Second Law** tells us that when a net force is present, the acceleration of the kite depends on the *size* of the net force and the *mass* of the kite.

(This information is from Science Friday)