

WHAT MAKES THEM FLY?

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SO WHAT MAKES AN AIRPLANE FLY?

- LIFT
- THRUST
- DRAG
- WEIGHT

ALL OF THESE FALL UNDER "FLUID DYNAMICS"

SO WHAT IS LIFT?

- A MECHANICAL FORCE THAT OPPOSES THE WEIGHT OF AN AIRCRAFT
- GENERATED FROM EVERY PART OF AN AIRCRAFT
 - ALTHOUGH MOSTLY FROM THE WING
- OCCURS WHEN FLOWS OF MOVING GAS, GETS REDIRECTED BY SOLID OBJECTS (EX: AN AIRPLANE)
- AIR IS A GAS, AND ITS MOLECULES ARE FREE TO MOVE ANYWHERE THEREFORE SOLID SURFACES ARE CAPABLE OF DEFLECTING THE FLOW.

WHAT IS THRUST?

- ALSO A MECHANICAL FORCE THAT MOVES THE AIRCRAFT BY OVERCOMING THE DRAG
- INDUCED FROM THE REACTION OF ACCELERATING A MASS OF GAS (AKA PROPULSION)
 - REQUIRES ENERGY TO ACCELERATE GAS
 - USUALLY CREATED FROM WITHIN AN ENGINE OF AN AIRCRAFT BY USE OF "COMBUSTION" (E.G. COMBUSTION CHAMBER)
 - IN OTHER CASES A PROPELLER

DRAG

- THE RESISTING FORCE ACTED UPON AN AIRCRAFT CAUSED BY AIR FLOW
- ALSO A MECHANICAL FORCE
- WILL ALWAYS ACT IN THE DIRECTION OPPOSITE OF THE AIRCRAFT
- OVERCOME BY "THRUST", IN ORDER TO MOVE FORWARD

WEIGHT

- THE ATTRACTION BETWEEN THE EARTH AND THE PLANE, CAUSED BY GRAVITATIONAL FORCE
- DEPENDS ON THE MASS OF THE PLANE
- UNLIKE MECHANICAL FORCES (LIFT, ETC.)
 - IS NOT AFFECTED BY CONTACT WITH AIR
- NEEDS TO BE OVERCOME BY LIFT

THANKS FOR LISTENING

I HOPE YOU ENJOYED THIS PRESENTATION.