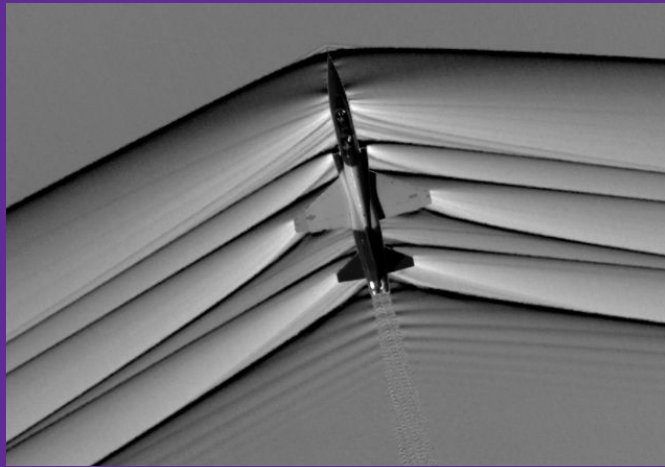


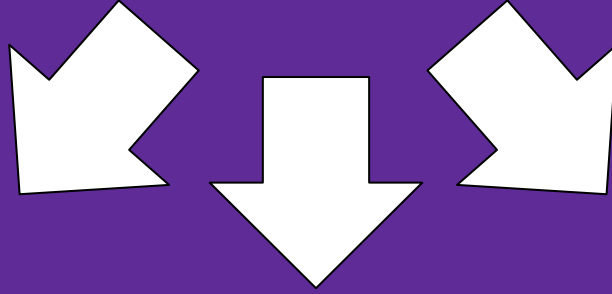
Planes, Rockets, and Beyond: Aerospace Engineering

UW Science Explorers -- 17 Nov 2020

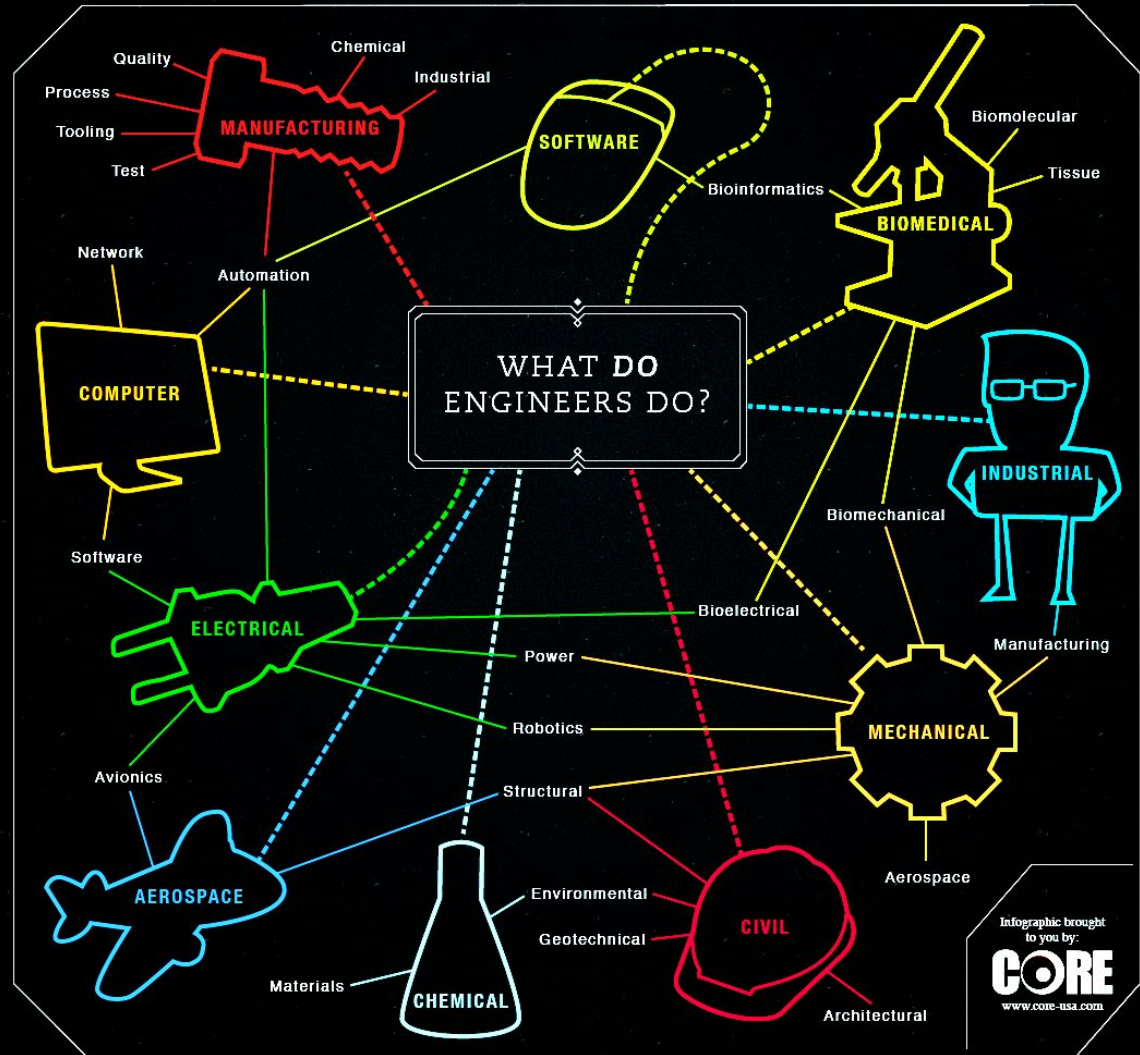


Engineers are
PROBLEM
SOLVERS

SCIENCE + MATH



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WHY AEROSPACE?

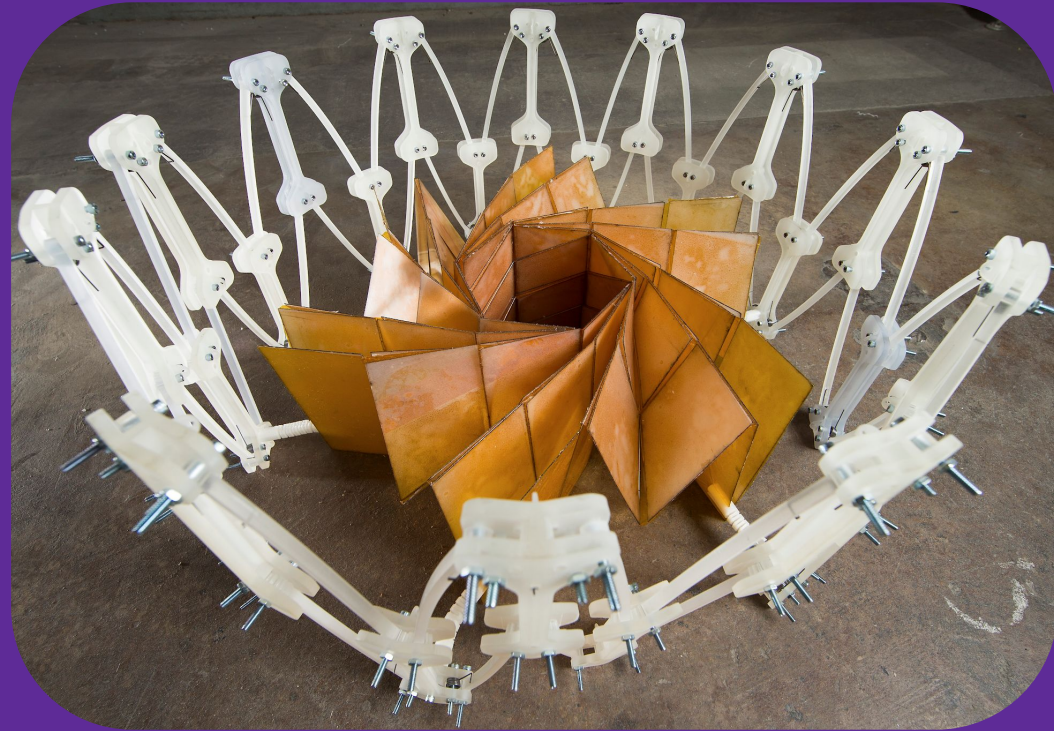


Types of Aerospace Engineering Problems

**Fluids:
How does air
flow over a
wing?**



**Structures:
How do we build
lighter, stronger
machines?**



Controls:
How can we get
spacecraft to land
without our help?



**Propulsion:
What makes things
go faster?**

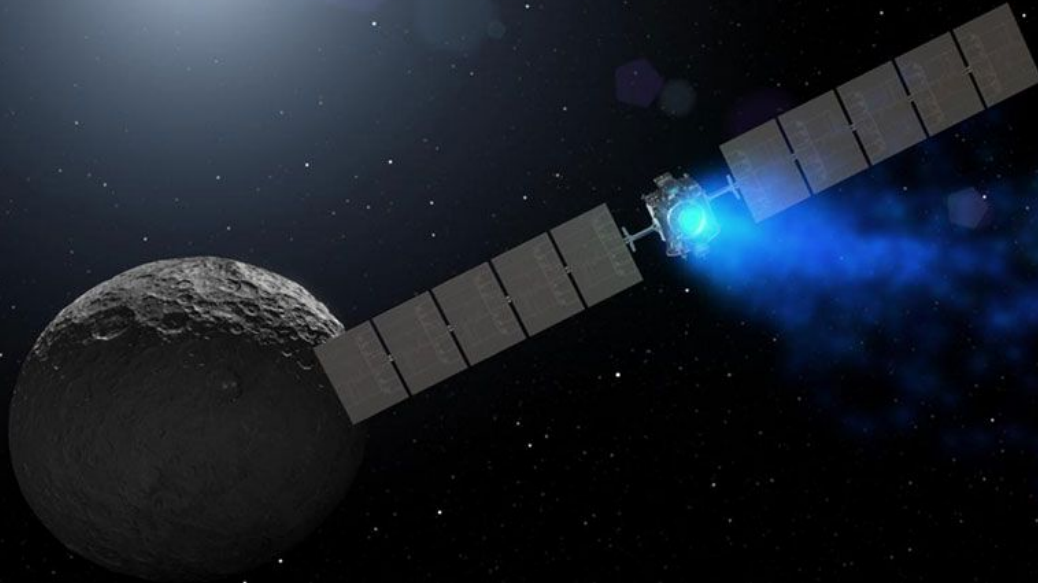


Applications

<https://science.nasa.gov/science-news/sciencecasts/nasas-sounding-rockets>

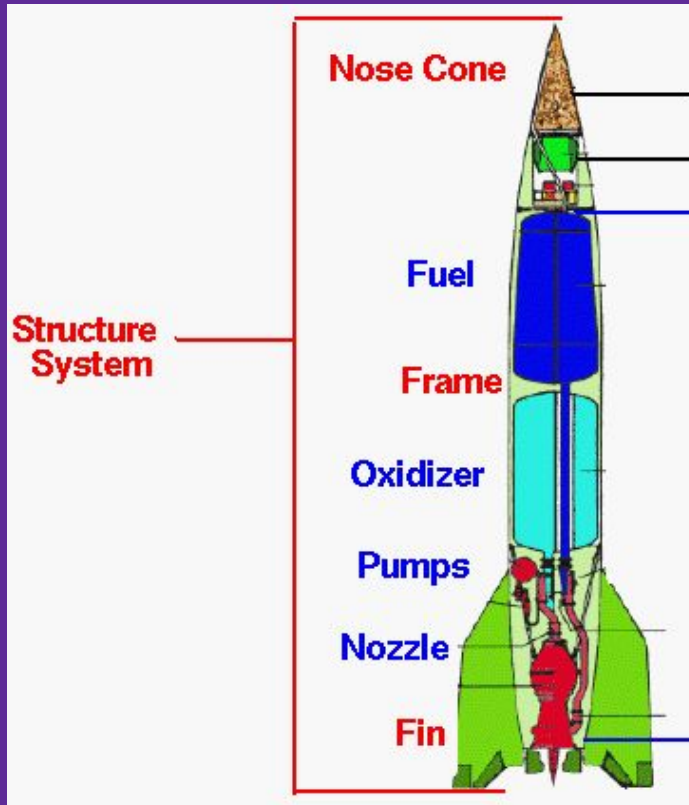


Questions?



Illustration

Activity: Build your own rocket



1

Cut out the pieces of your rocket, either from the worksheet or a $5 \frac{1}{8}$ " x $1 \frac{3}{8}$ " rectangle and some fins.

2

Wrap the rectangle piece around a pencil to form a long, skinny tube.

3

Tape the 2 fin pieces on the tube and bend the fins so they stick out from the tube.

4

Twist the tip of the tube to form a nose cone.

5

Give your rocket a cool name!

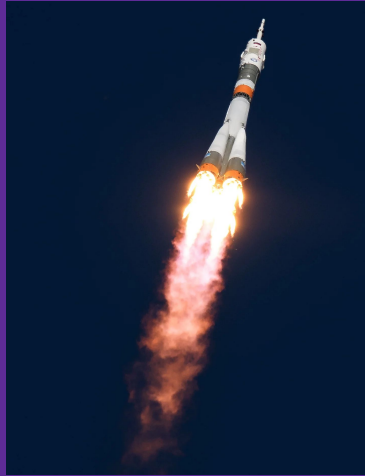
6

Launch your rocket with the straw!

Test Engineering: Design Improvements

Center of mass:
how can you change
where the rocket is
balanced?

Trajectory:
how can you change
the path your rocket
takes through the air?



Initial velocity:
how can you change
how much energy
your rocket has?

Forces:
how can you change
the drag or
acceleration of your
rocket?