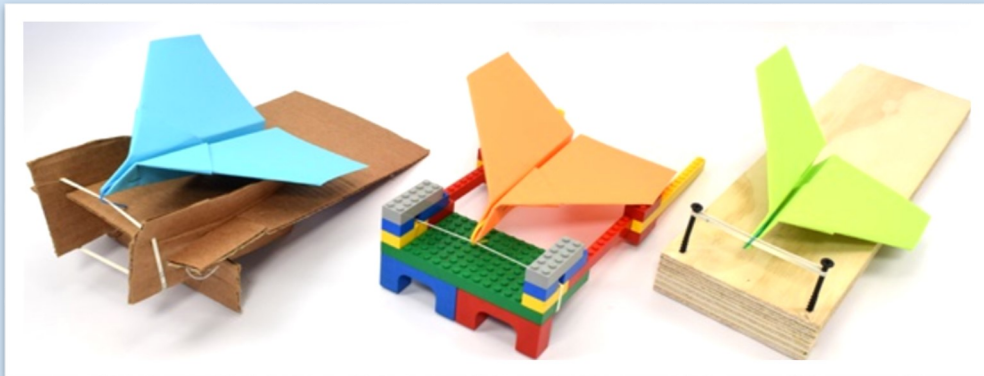


# Engineering and Design: Launching Aircraft

The *engineering design process* is a series of steps that engineers follow to come up with a solution to a problem. Many times the solution involves *designing* a product (like a machine or computer code) that meets certain criteria or accomplishes a certain task.



Catapults in the Navy launch jets into the sky using steam power, transforming potential energy into kinetic. They might not look like a “traditional” catapult though. These catapults launch a plane *forward* across the flight deck, instead of up and over. It’s the plane that takes the kinetic energy from the launcher and transfers it into lift to get the jet airborne.

## Materials

Paper  
Paper clips  
Tape  
Rubber bands  
Tape measures  
Stapler  
Found construction materials

## Engineering Challenge!

Can you build a catapult that can launch a paper plane out and into flight?

Use the engineering steps here to consider these questions:

- What materials do you have to build with?
- How will you create enough tension (potential energy) to launch the plane upon release (kinetic energy)?
- Should the launch deck be angled? By how much?
- How should the plane be attached to the catapult without getting tangled during launch?
- Once you test your first design, can you see any ways to improve it?

\*Pair this with “Submarine Aircraft Carriers” activity for a paper plane instruction model.

