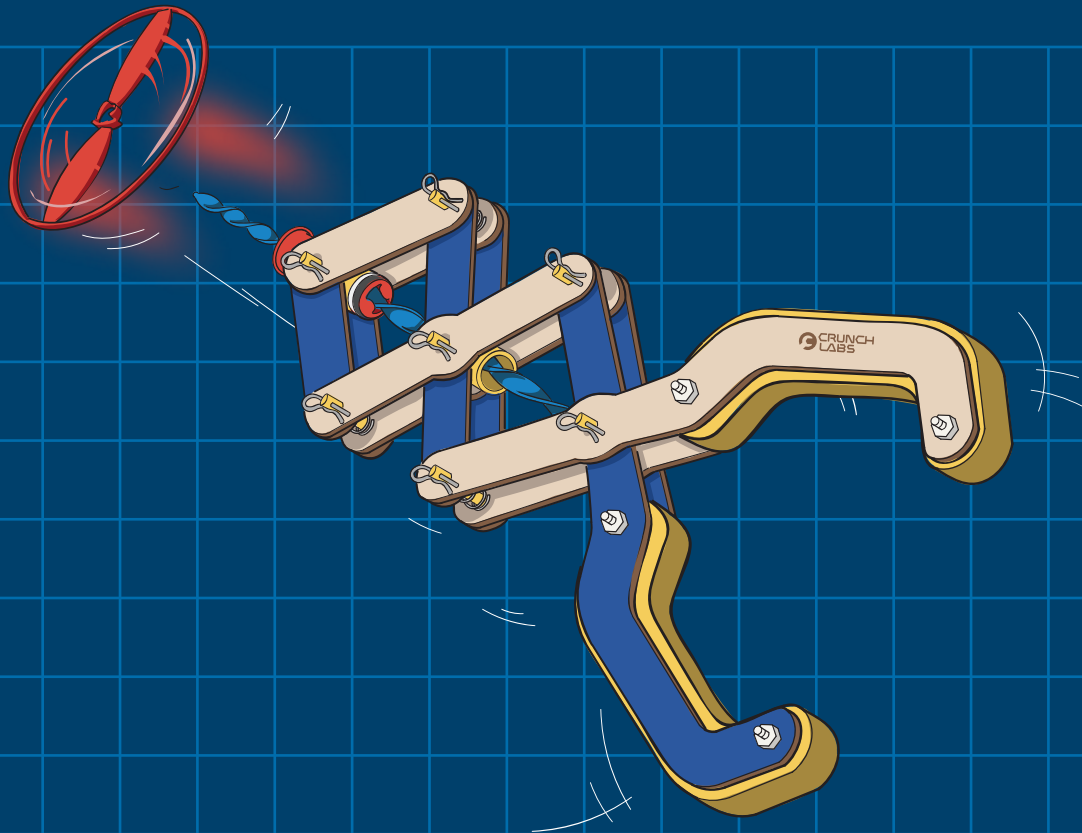




BUILD
BOX



PROPELLER
LAUNCHER



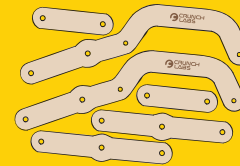
NEW VIDEO UNLOCKED

BUILD ALONG & LEARN WITH MARK ROBER

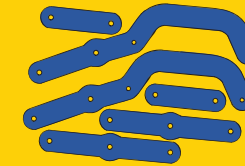


[CRUNCHLABS.COM/PROP](https://crunchlabs.com/prop)

PARTS



wood pieces



blue wood pieces



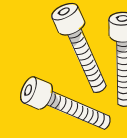
helix



foam spacers



O-rings



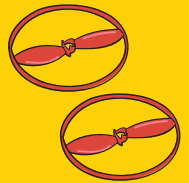
bolts



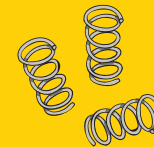
nuts



spinner



propellers



springs



cotter pins



tubes



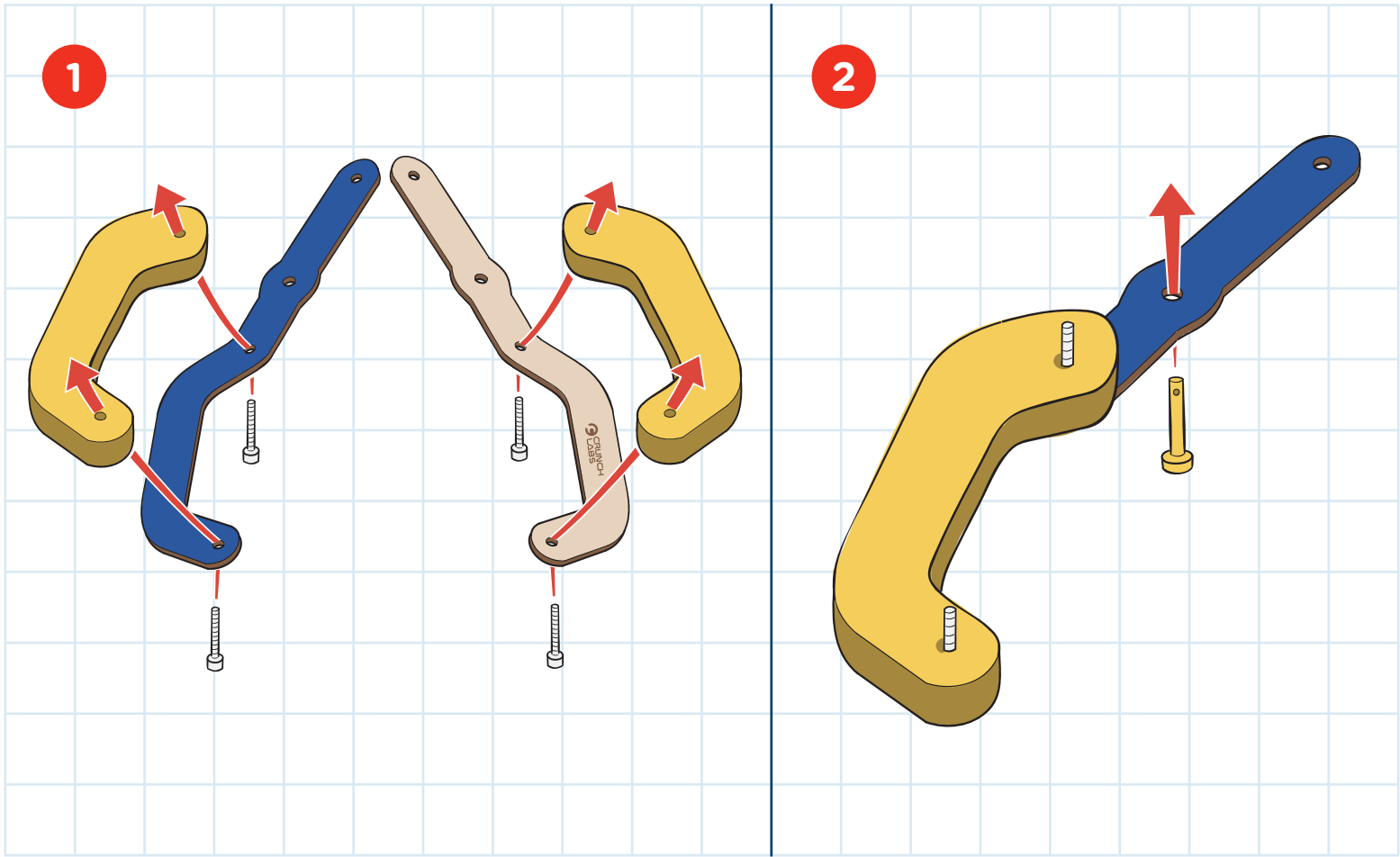
clevis pins



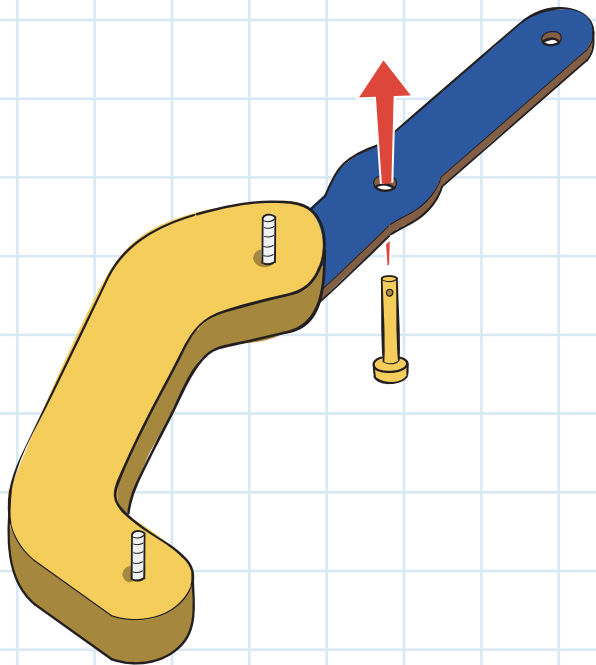
washers

For missing and replacement parts, visit "My Account" at crunchlabs.com and we'll ship them to you for free.

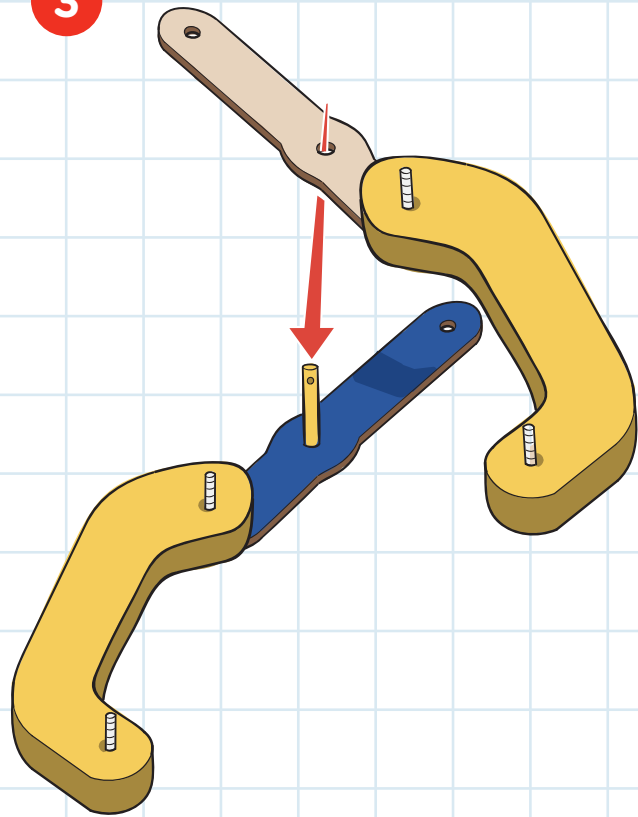
BUILD



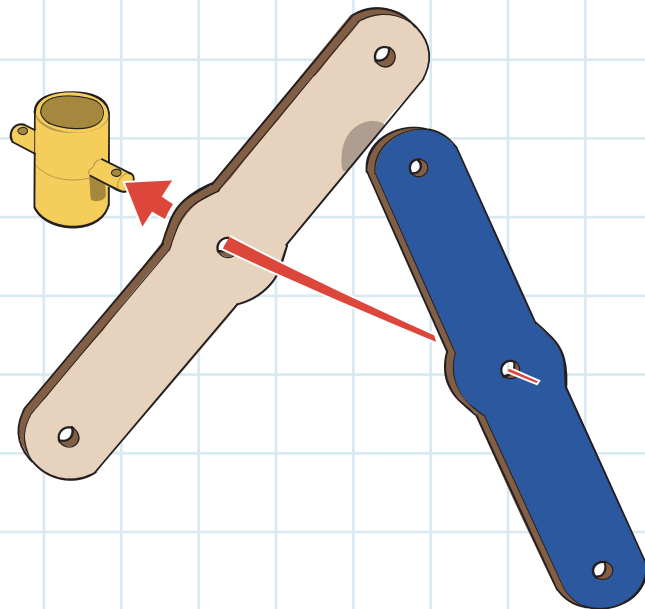
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3



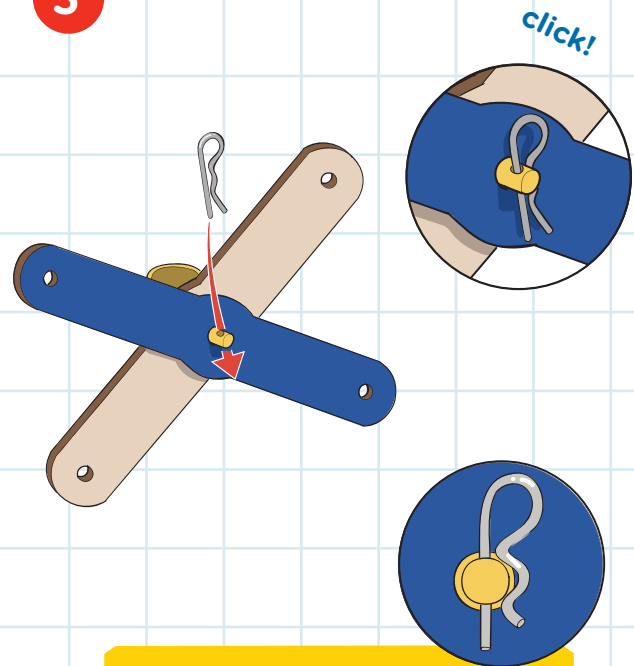
4



BUILD

BUILD

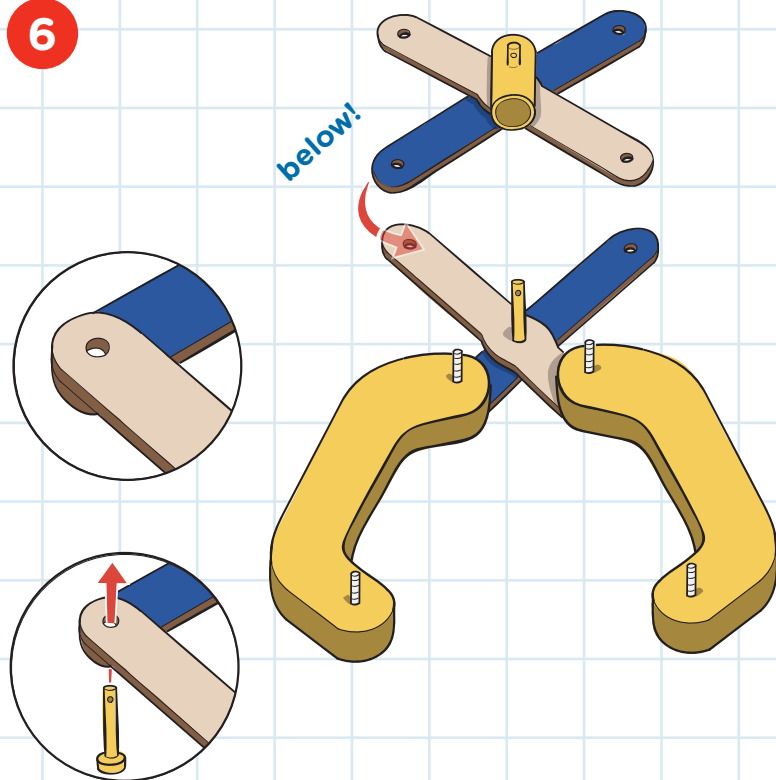
5



PRO TIP! ▲

Make sure you push the **cotter pins** over the hill to snap it in place.

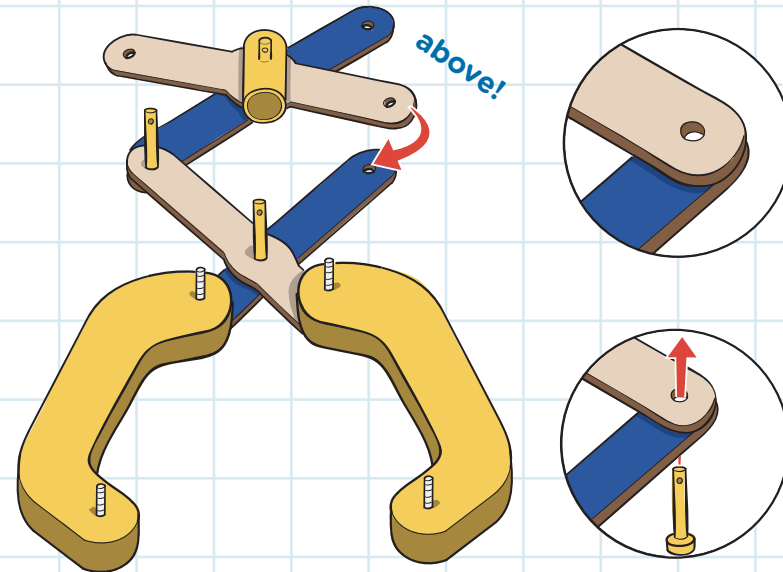
6



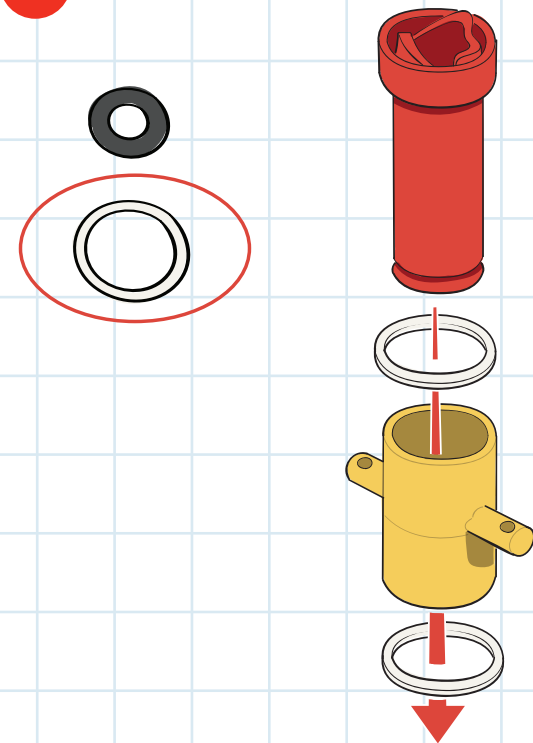
below!

above!

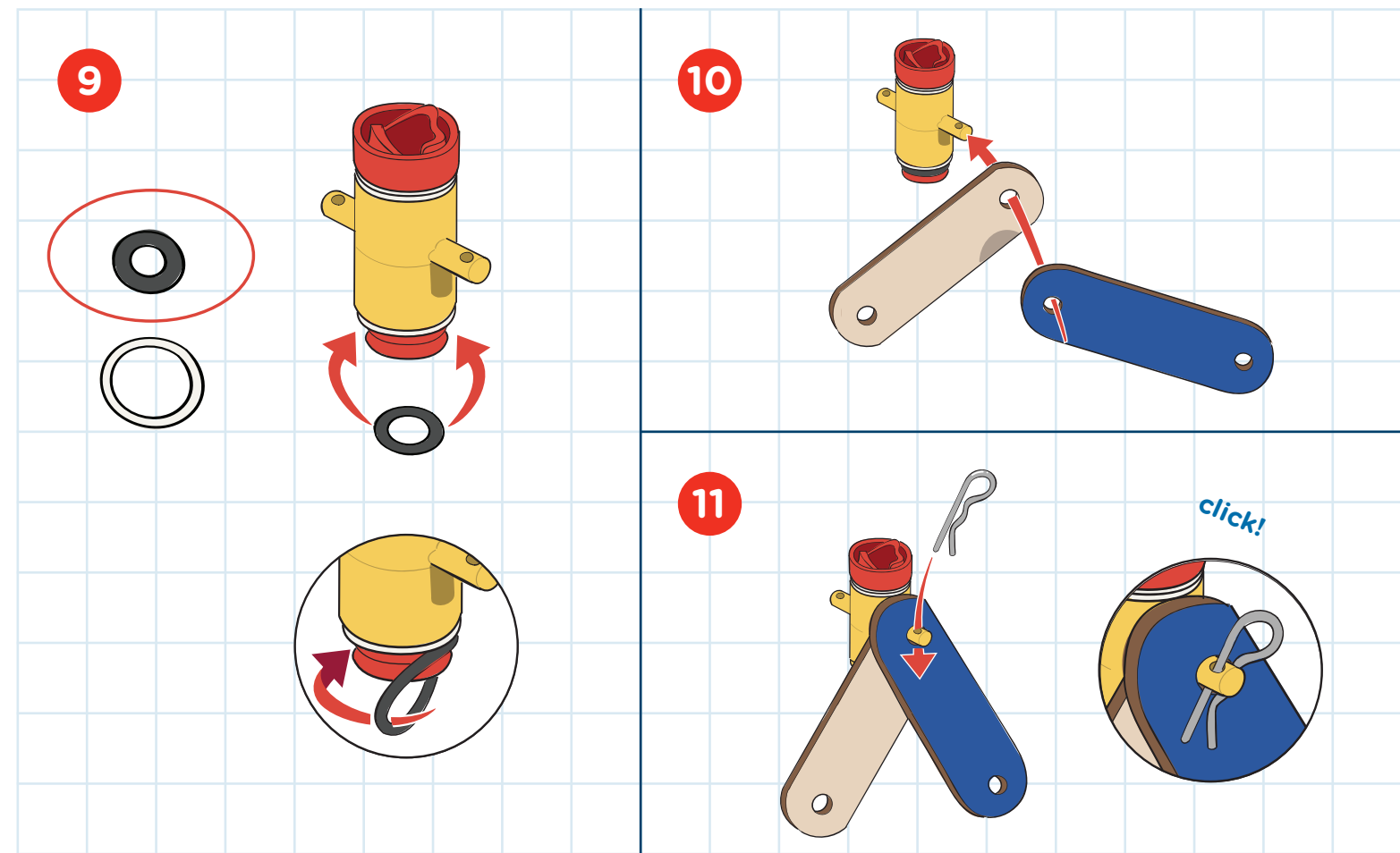
7



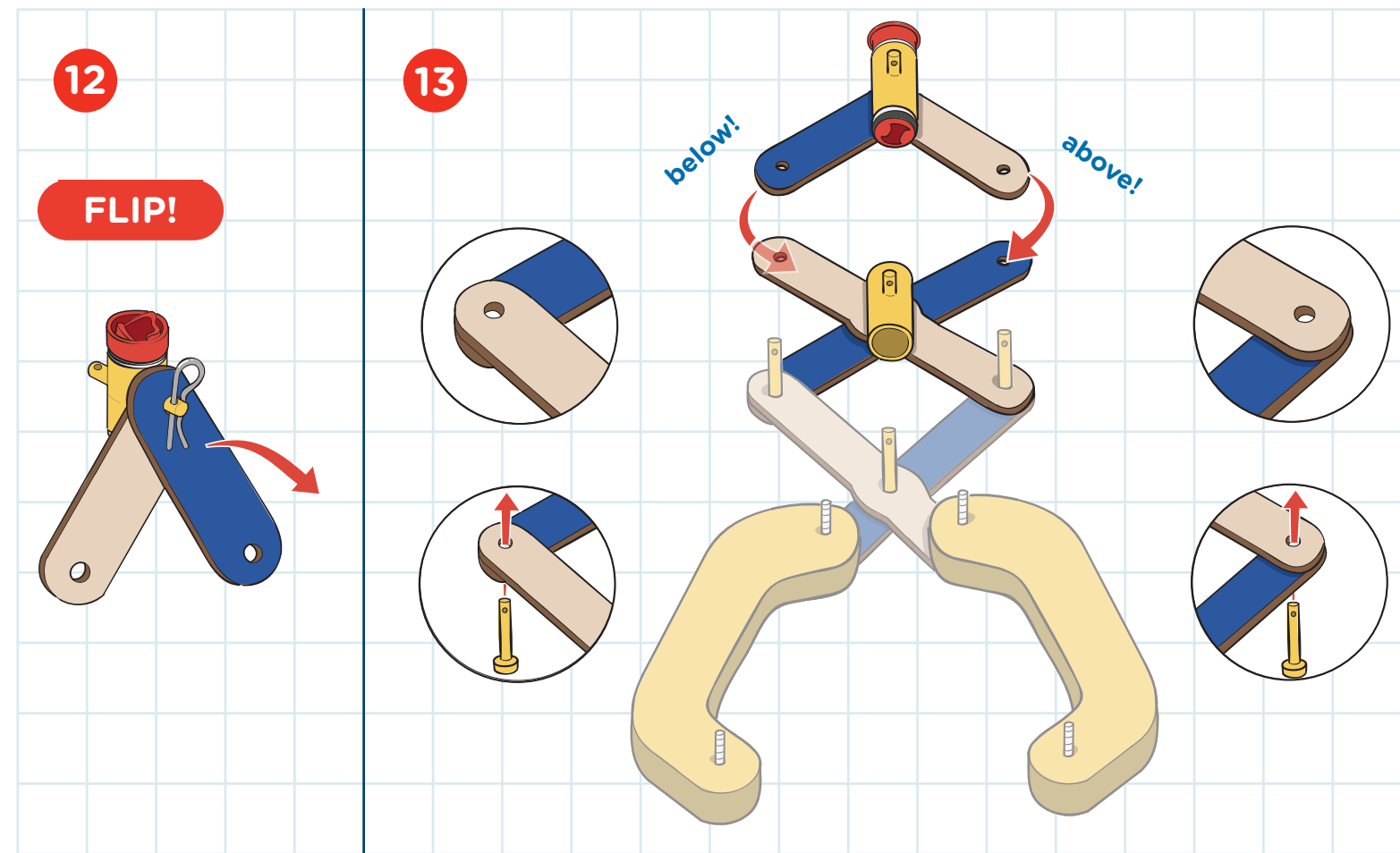
8



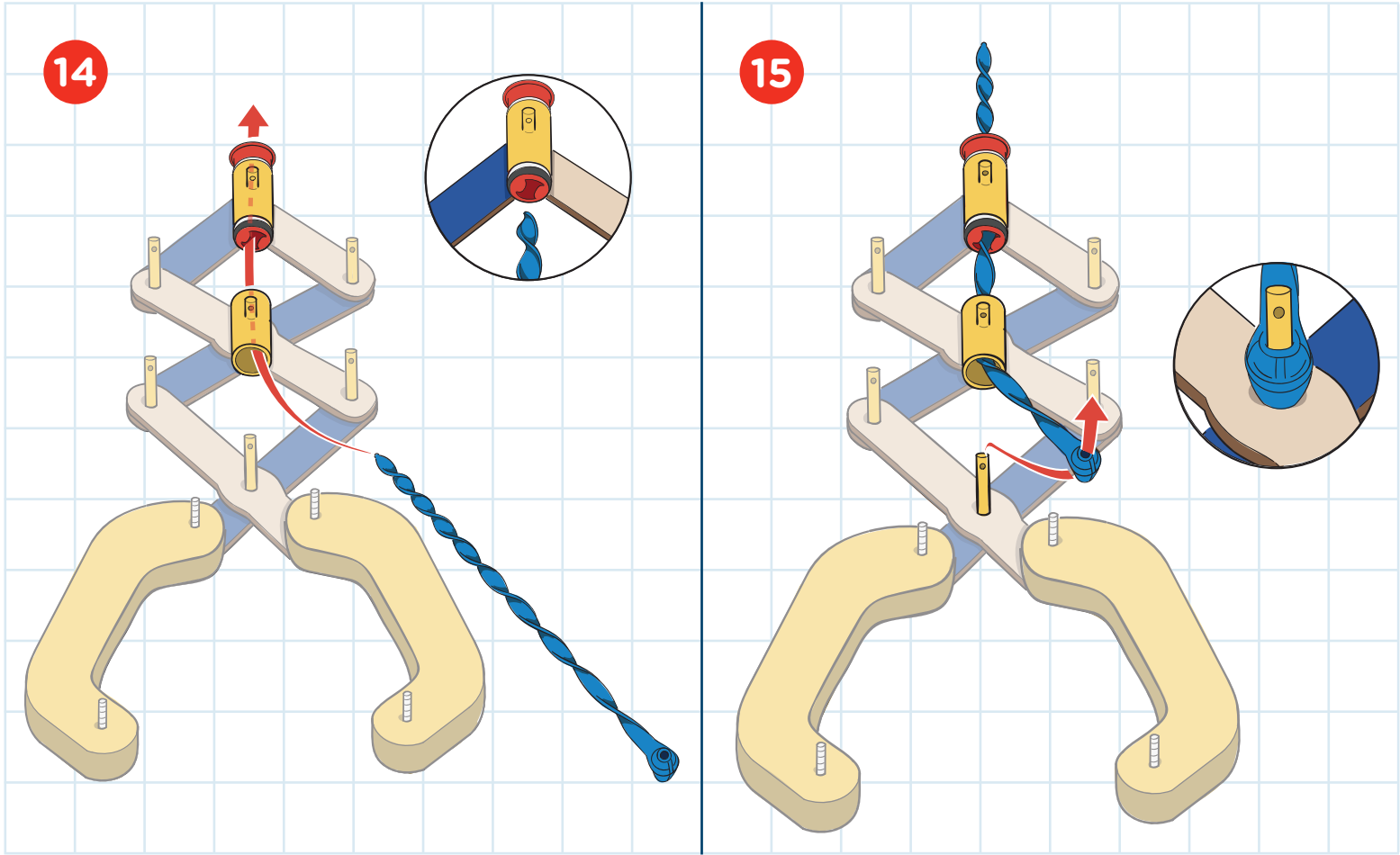
BUILD



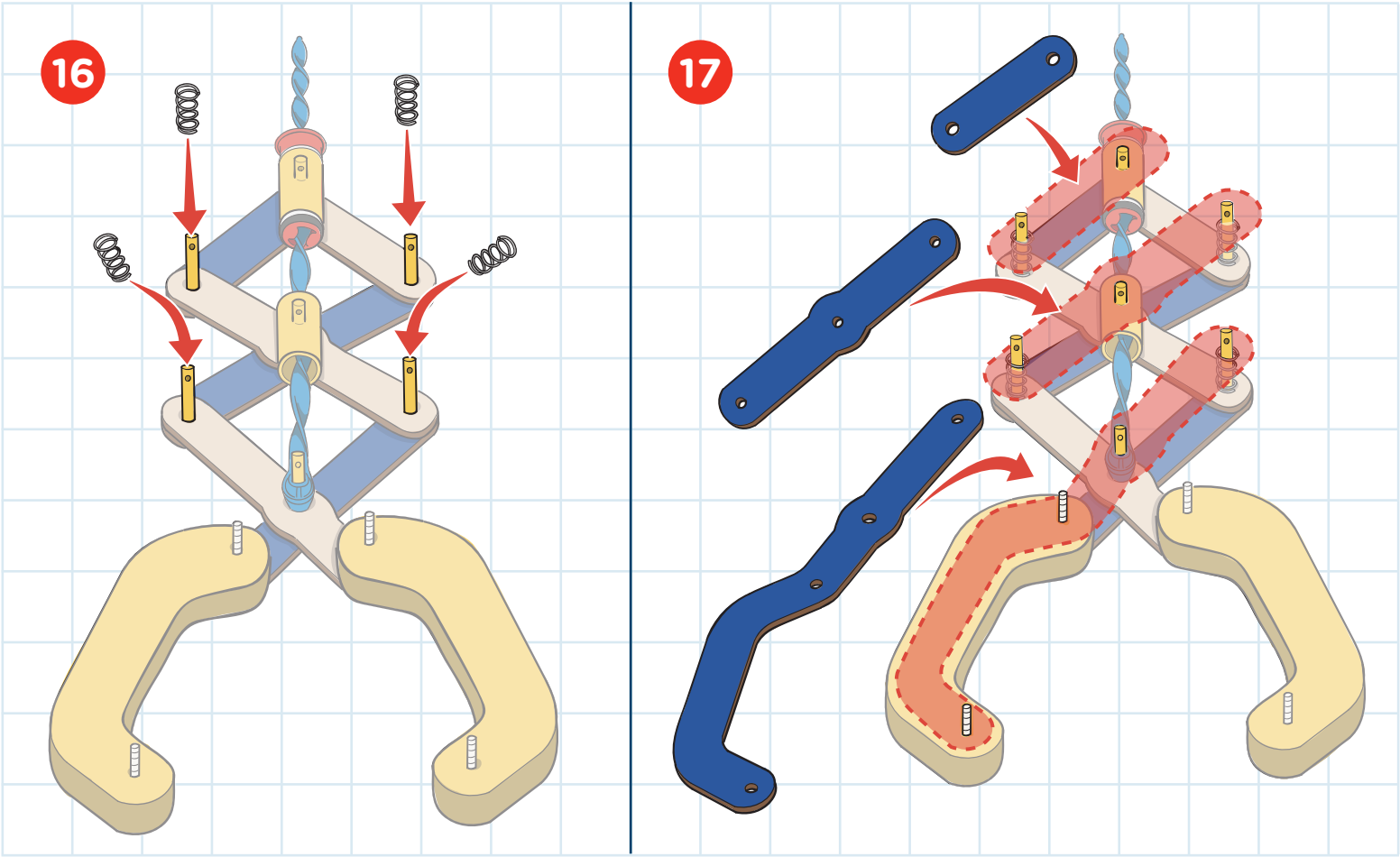
BUILD



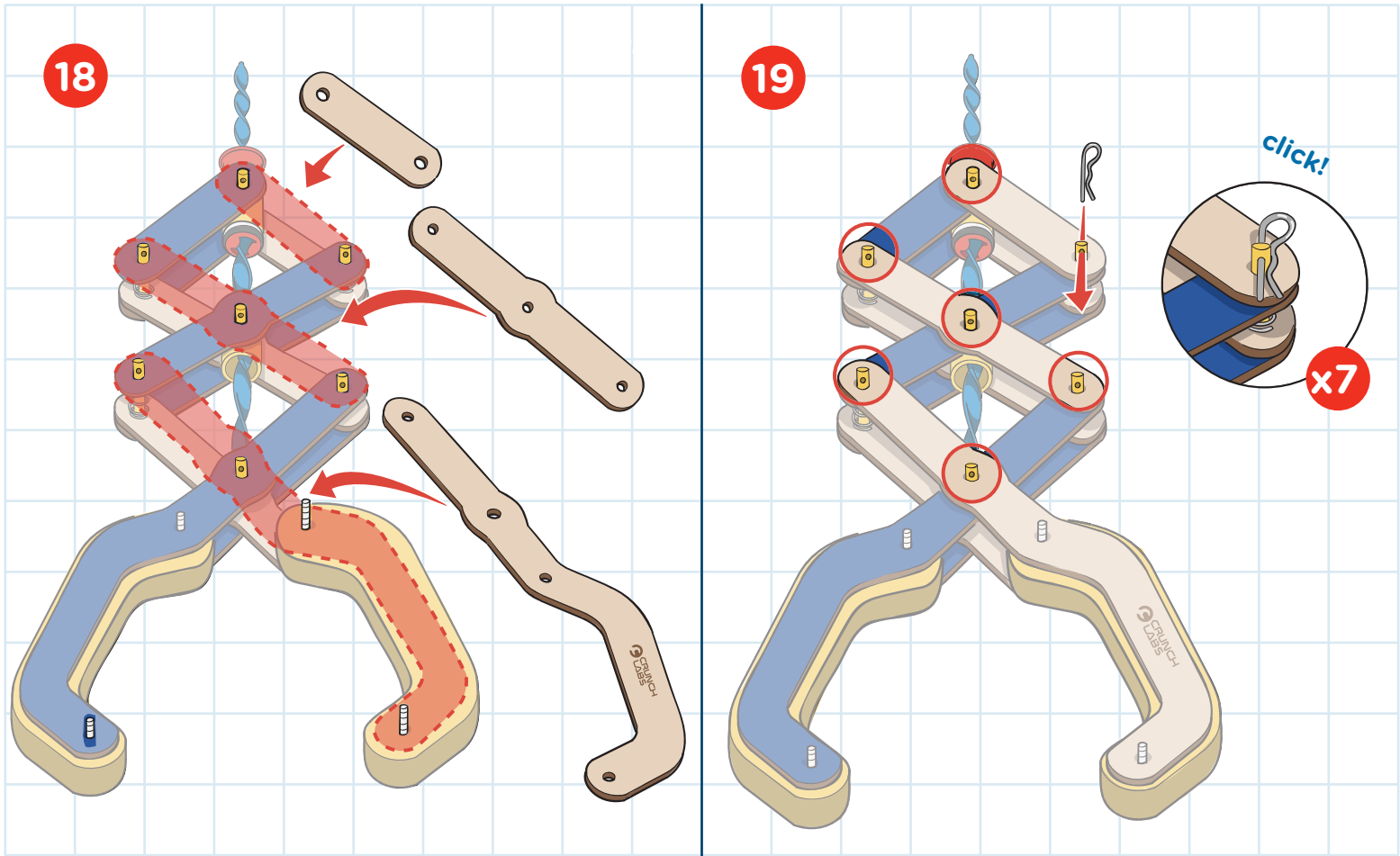
BUILD



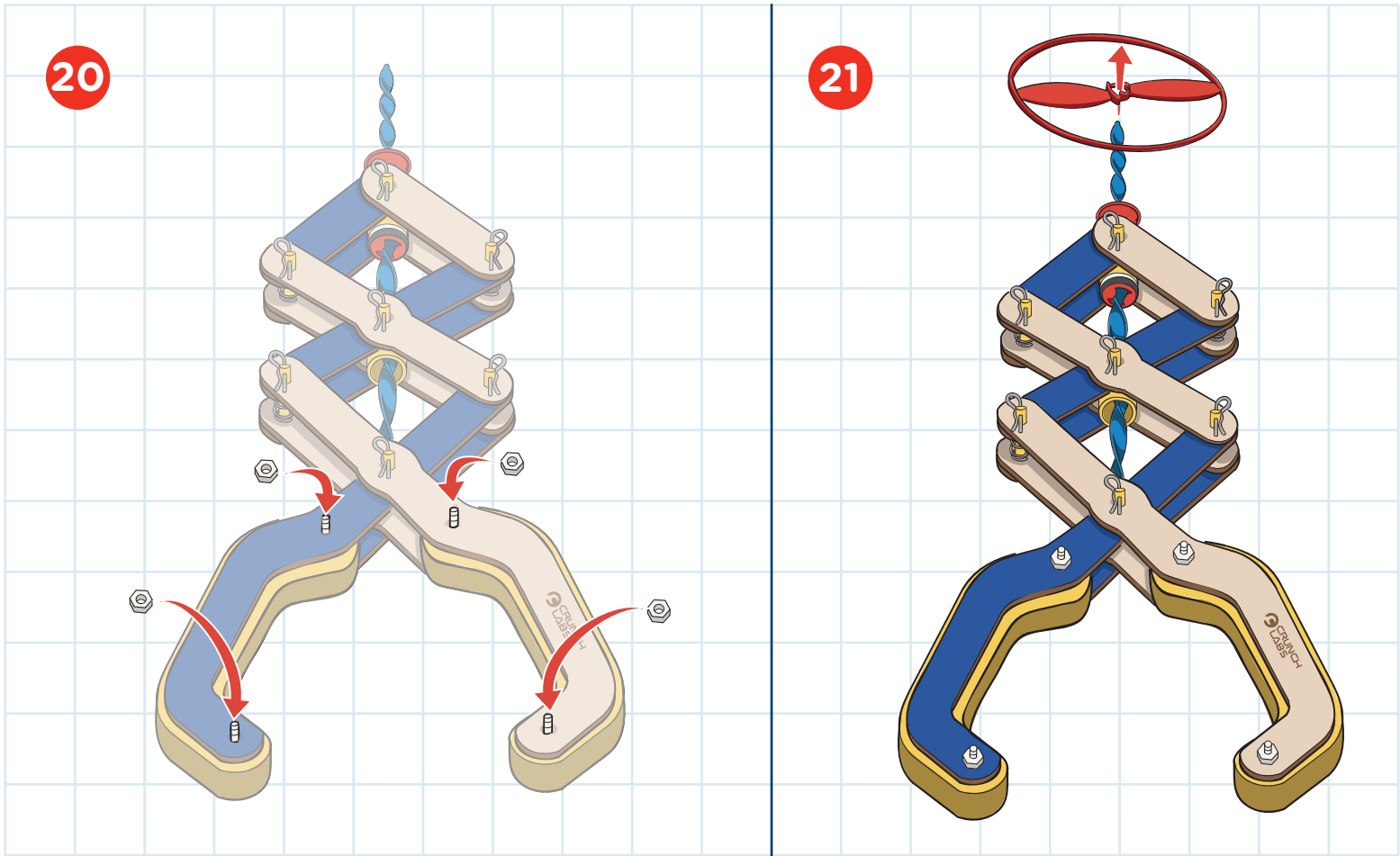
BUILD



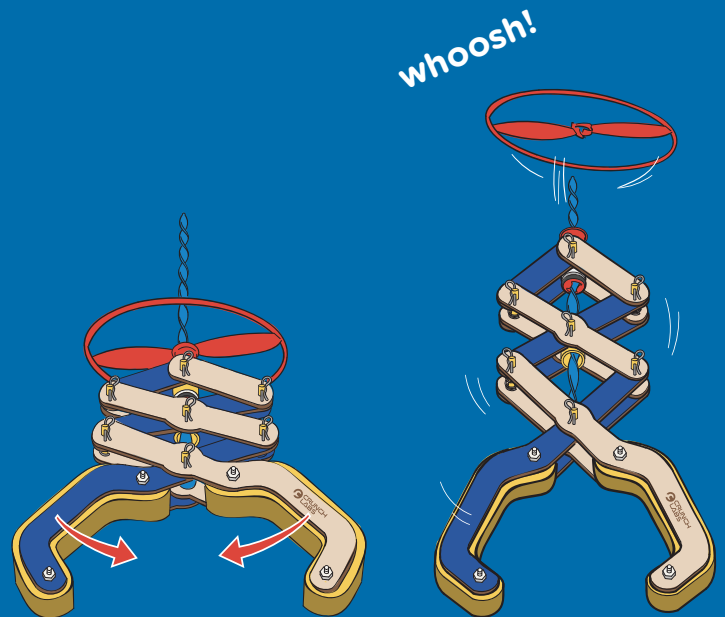
BUILD



BUILD

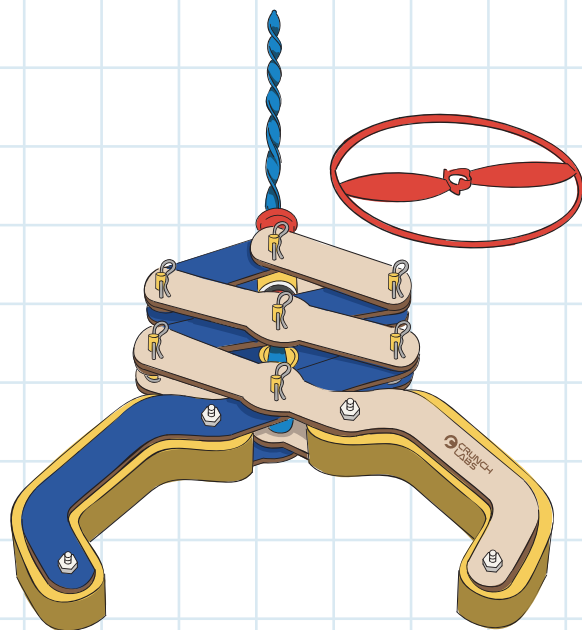


TEST



Having trouble? Watch the video at crunchlabs.com/prop

BUILT!

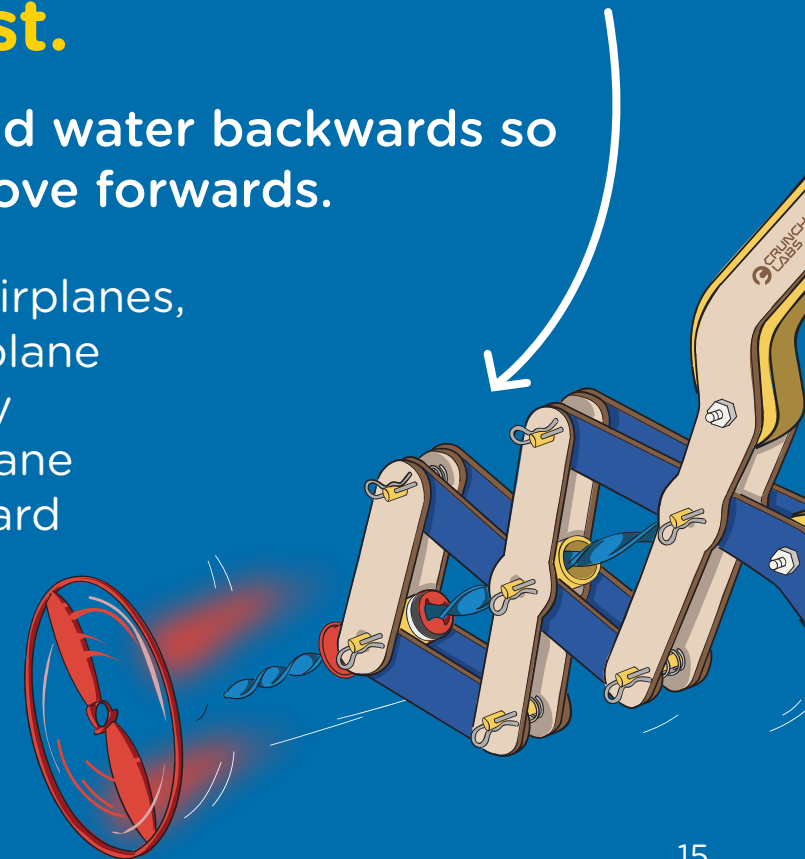


THINK

Propellers are rotating wings that push fluid to generate thrust.

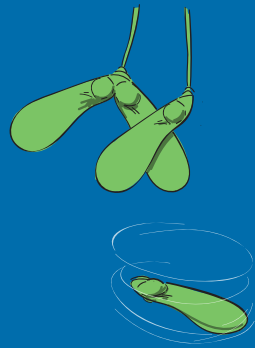
Basically, propellers push air and water backwards so that airplanes and boats can move forwards.

Propellers can be found on boats, airplanes, submarines, and more! Just like airplane wings, propellers generate thrust by passing through a fluid. Unlike airplane wings, which require constant forward movement, propellers can generate thrust while stationary. That's why airplanes have to use runways to take off and land, while helicopters can use pads.



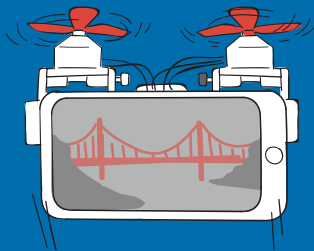
THINK

Propellers can be found in vehicles, toys, and even in nature. Whenever an engineer needs to produce thrust or lift, a propeller is usually the right tool for the job.



NATURAL PROPELLERS

Many types of trees, like sycamore, ash, maple, and elm trees, evolved to produce seeds that work like propellers. These are often called helicopter seeds. When the seed falls, air moves over the blades of the seed and spins it like a propeller, which generates lift and slows its descent.

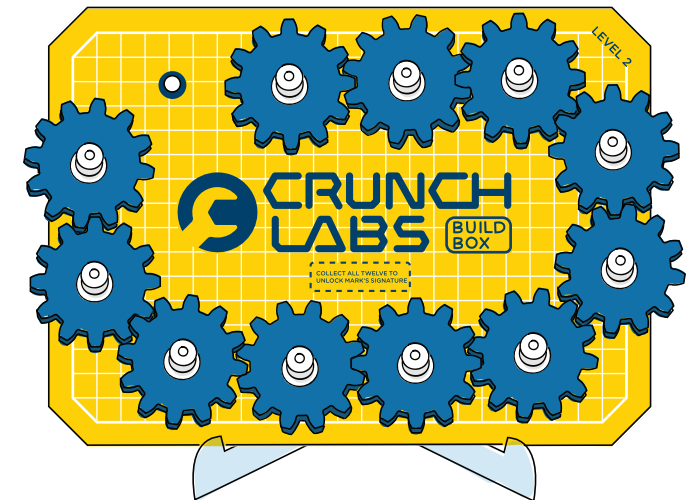
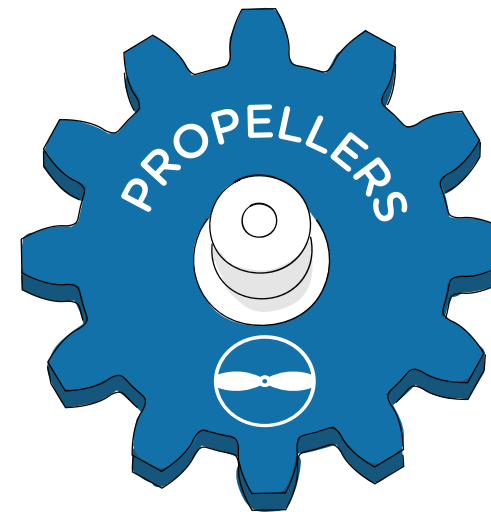


FLYING PHONE SCAM EXPOSED

Mark once exposed a flying phone scam by showing that the thrust generated by the small propellers wasn't enough to lift a phone. He made a real version of the flying phone case using much more powerful motors and propellers.

THINK

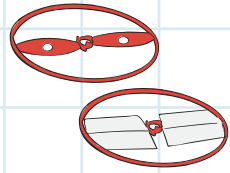
CONGRATULATIONS! You earned a gear badge for propellers



Don't forget to add your gear badge to your gear train!

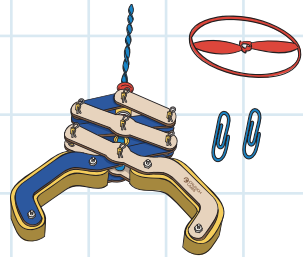
CRUNCH

It's crunch time! Use your engineering superpowers to keep building.



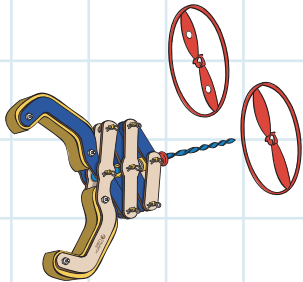
MODIFY YOUR BLADES

Extend the blades with paper or try drilling holes to see how that changes the way the propellers fly.



ADJUST YOUR FLIGHT

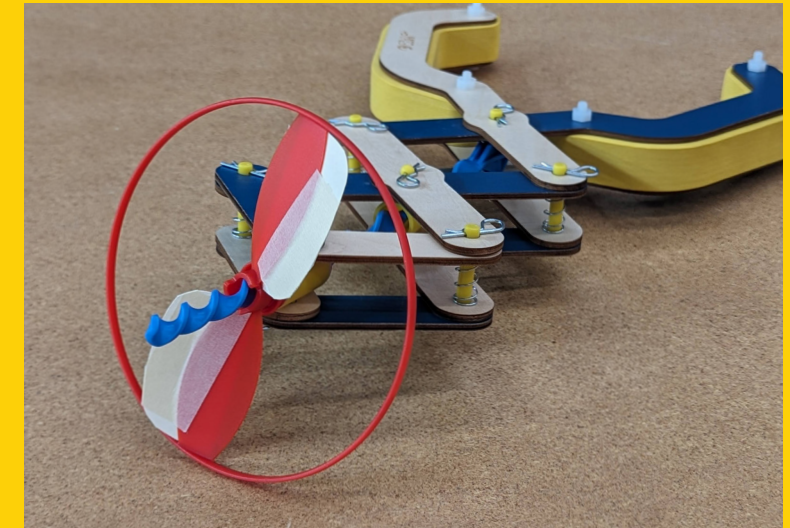
Try adding weight to the propellers with paper clips. What happens if you only add weight to one blade? To both?



LAUNCH MULTIPLE PROPELLERS

Do they affect each other's flights?

SHOW OFF YOUR BUILD



Share your funniest moments & coolest mods!

#crunchlabs @crunchlabs    



WARNING: Do not aim at face or eyes.

SWEEPSTAKES

Each CrunchLabs build box contains the chance to WIN a trip to visit CrunchLabs with Mark Rober! Sadly, you are not a prize winner this time. Check inside your next build box for another chance to win.

Trip includes roundtrip transportation and two (2) night's hotel accommodations for a family of four (4). Approximate value: \$4,500.

NO PURCHASE NECESSARY. Open to legal U.S. residents, 18 years of age or older. Void where prohibited. For complete Official Rules, including promotion end date and information on how to obtain a free game ticket, visit www.crunchlabs.com/win.

This toy is intended for use by children over the age of eight years. These instructions contain important information, do not throw away.