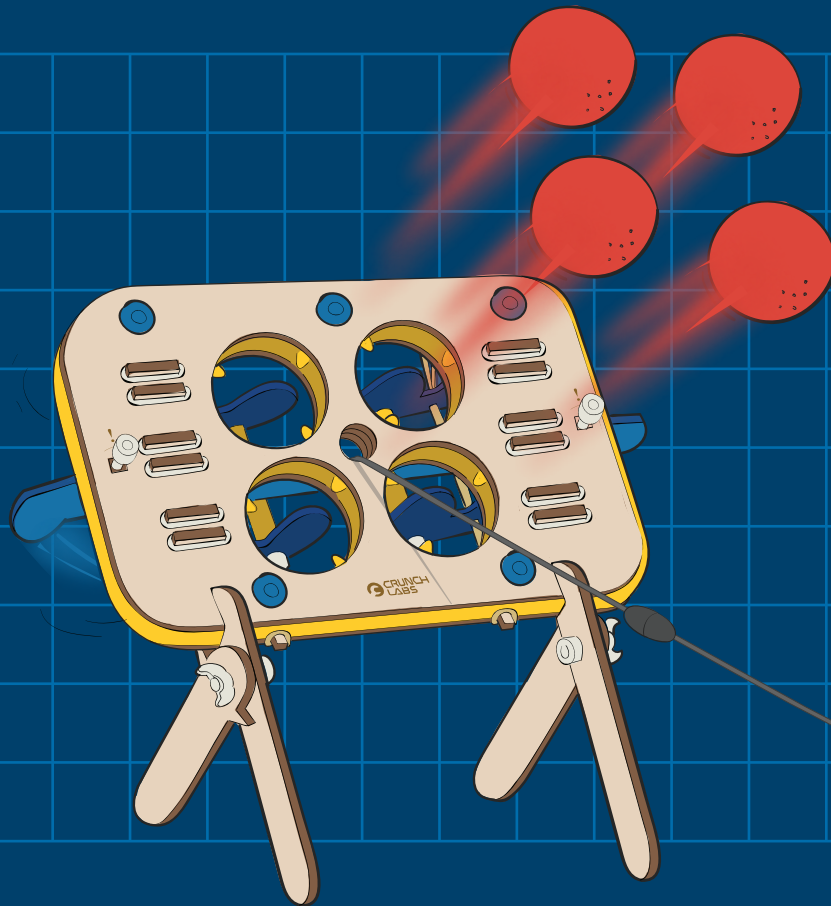




BUILD BOX ► TRIPWIRE



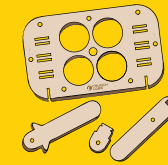
EXCLUSIVE VIDEO

BUILD ALONG & LEARN WITH MARK ROBER

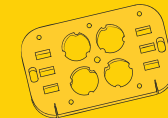


[CRUNCHLABS.COM/TRIP](https://crunchlabs.com/trip)

PARTS



wood pieces



foam spacer



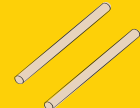
kicker levers



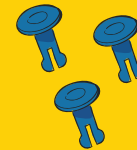
trigger levers



standoffs



dowels



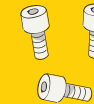
rivets



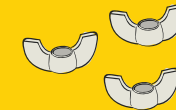
elastic cord



long bolts



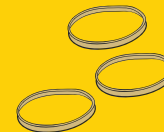
short bolts



wing nuts



captive nuts



rubber bands



large o-rings



small o-rings



cord

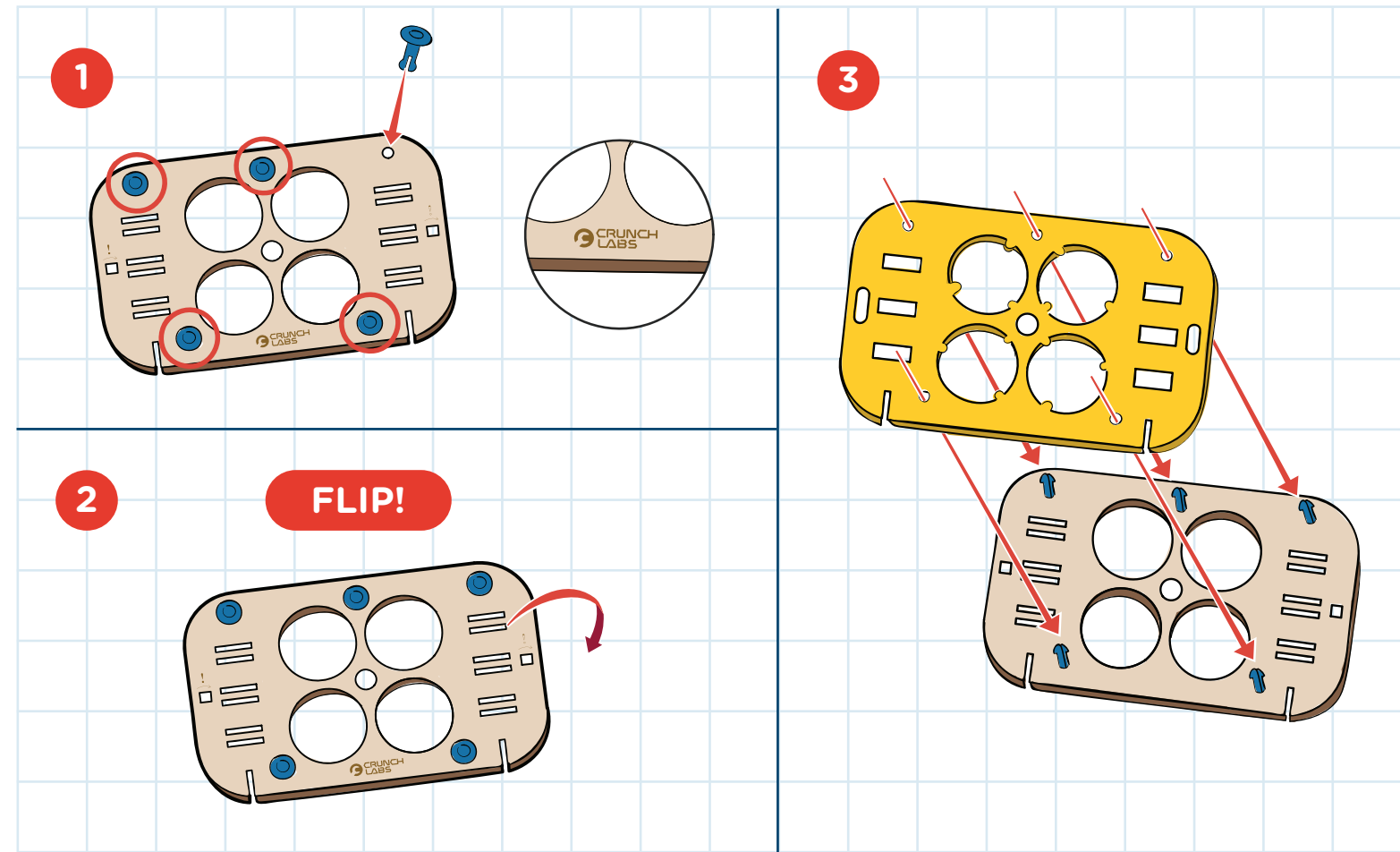


clothespin

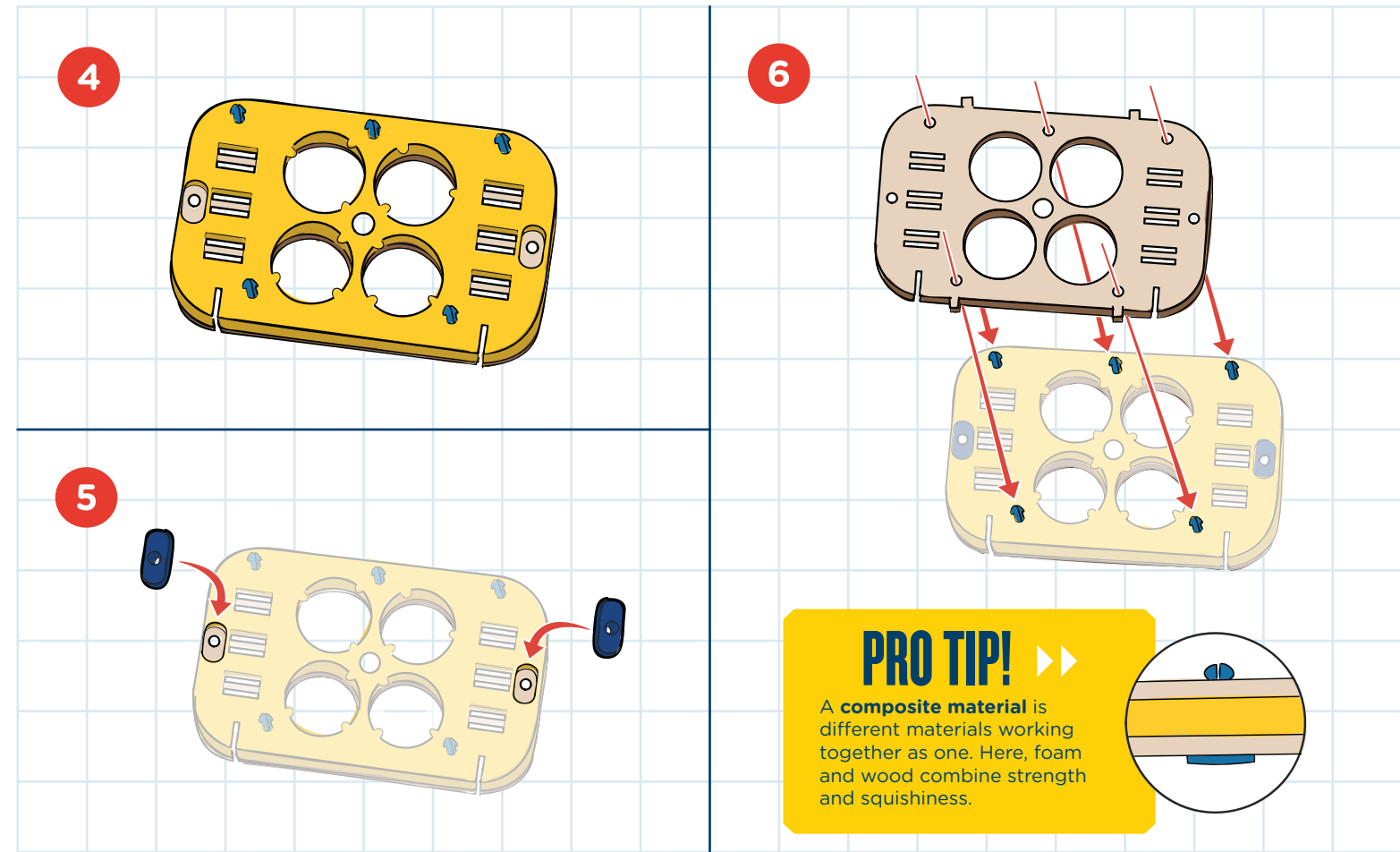


balls

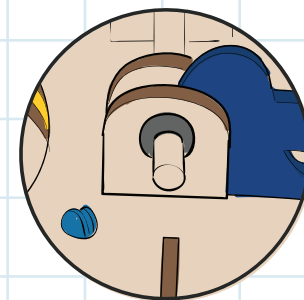
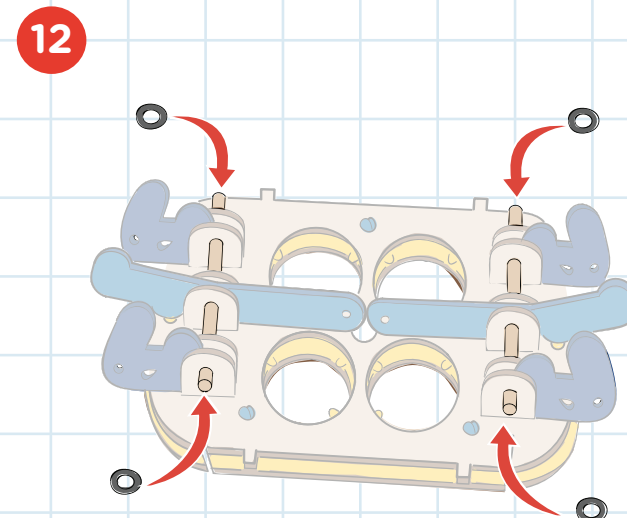
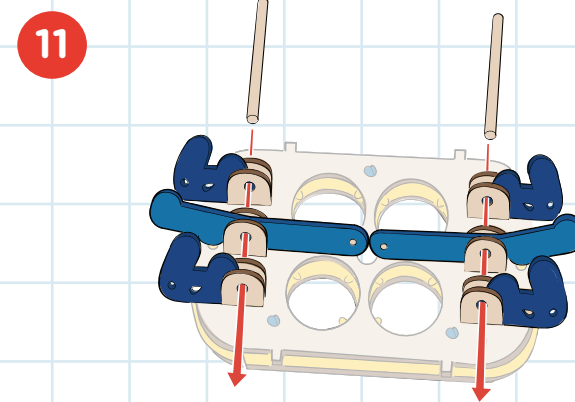
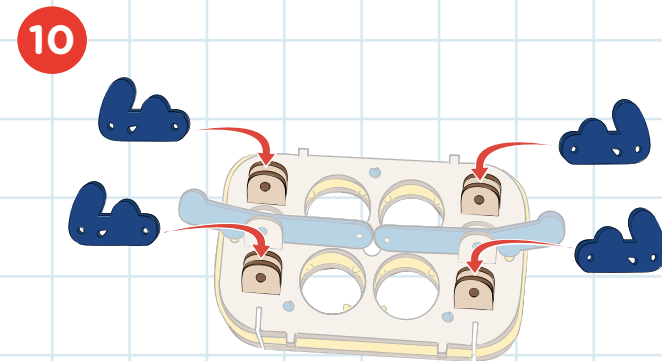
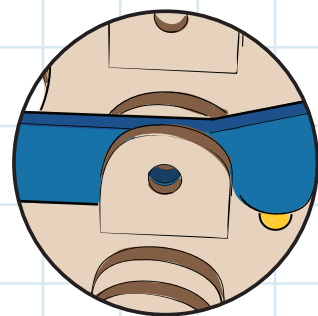
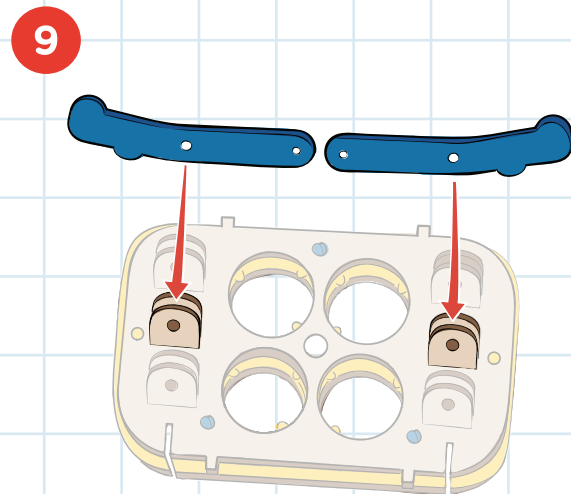
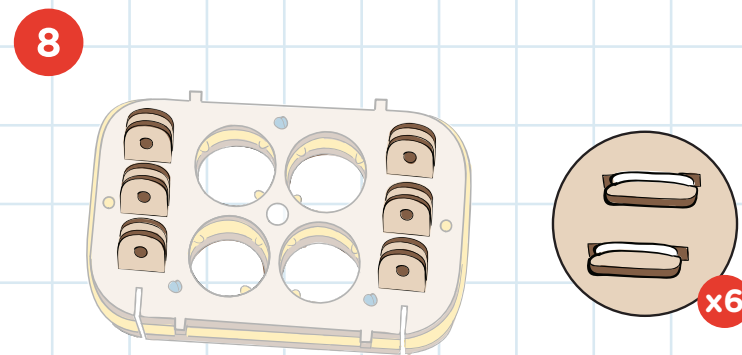
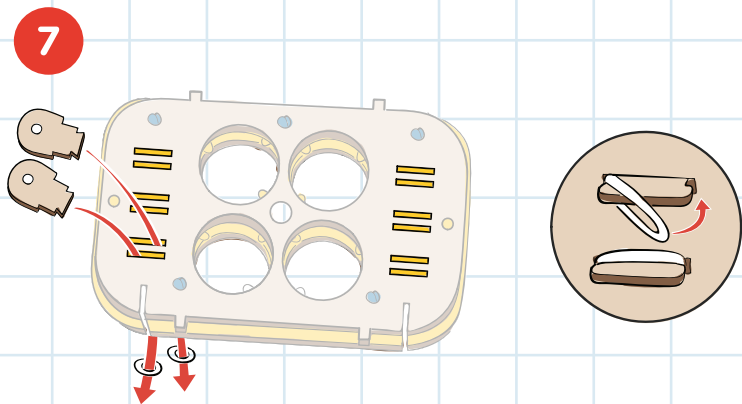
BUILD



BUILD



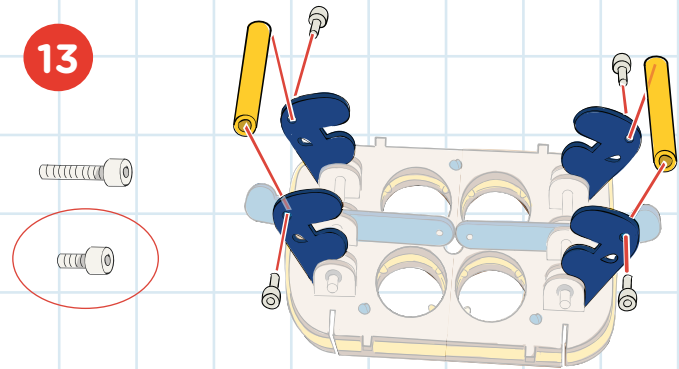
BUILD



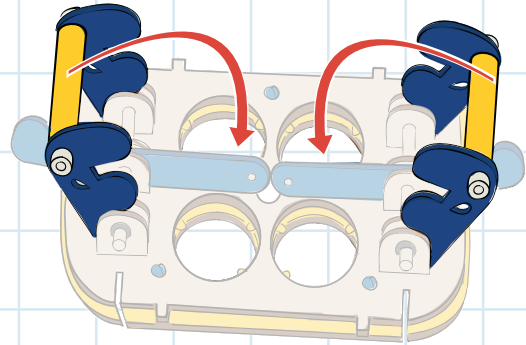
BUILD

BUILD

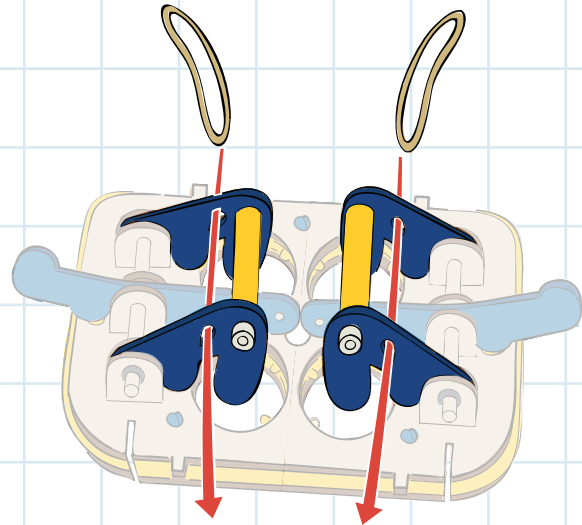
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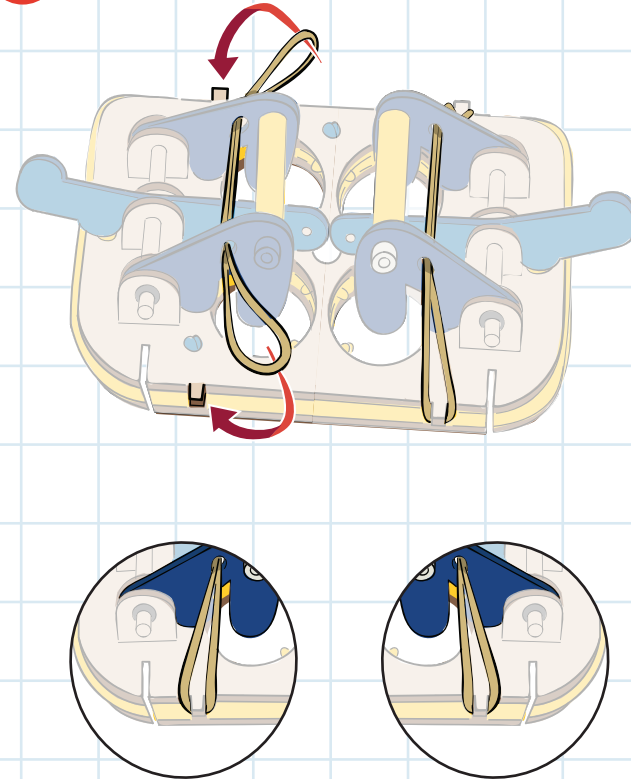
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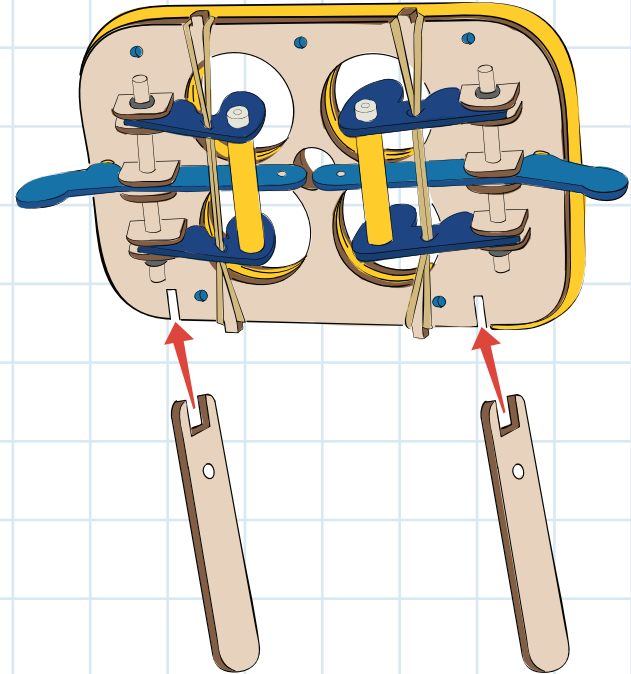
15



16

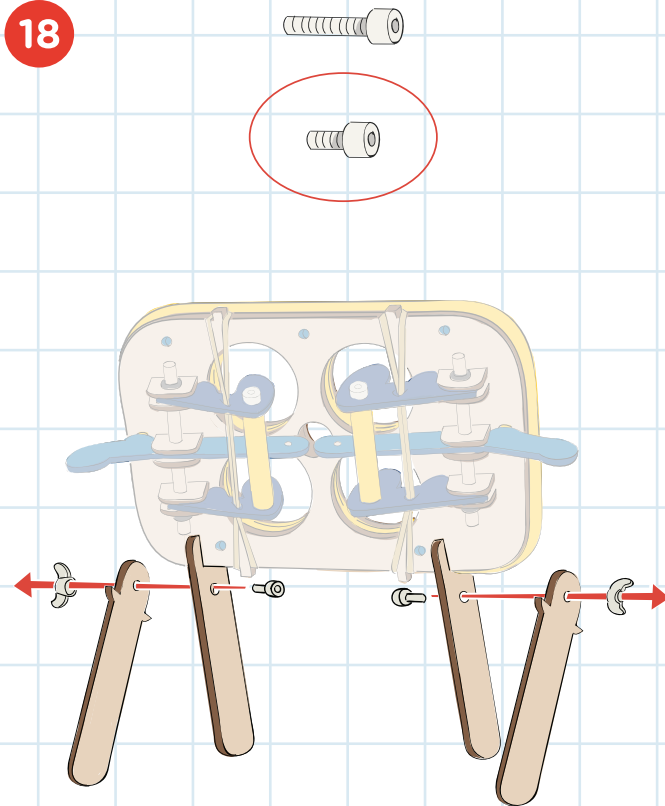


17

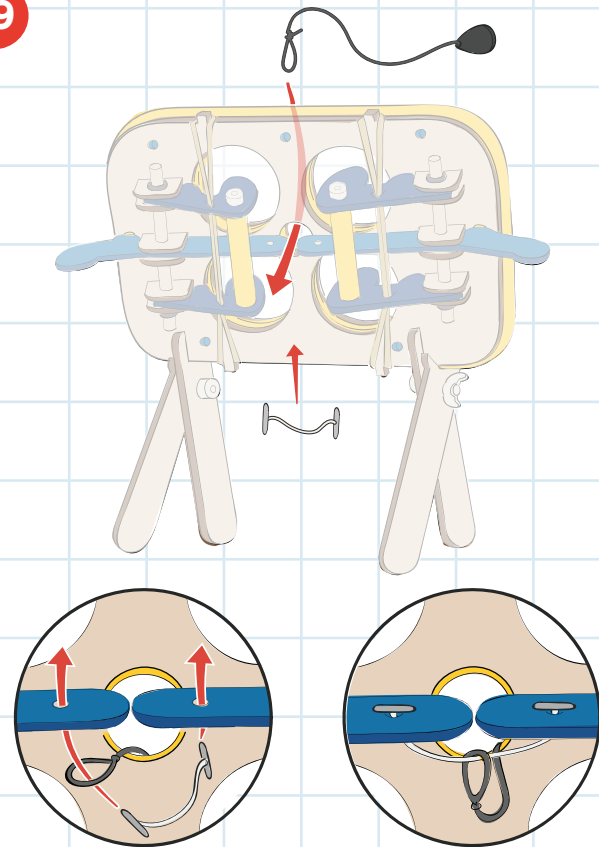


BUILD

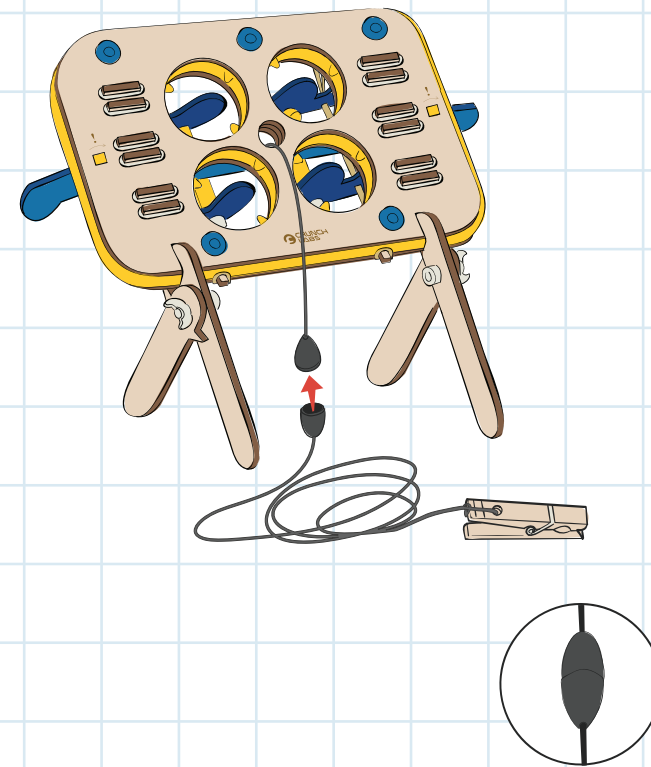
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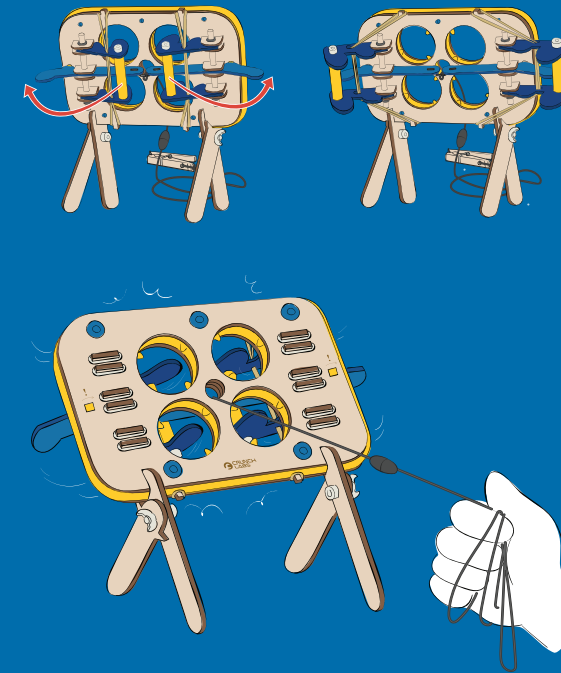
19



20



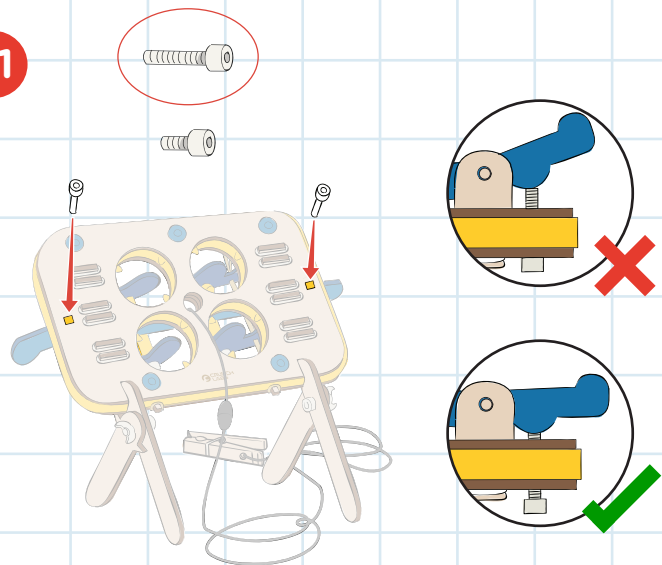
TEST



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

BUILD

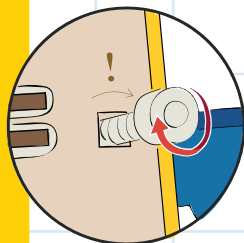
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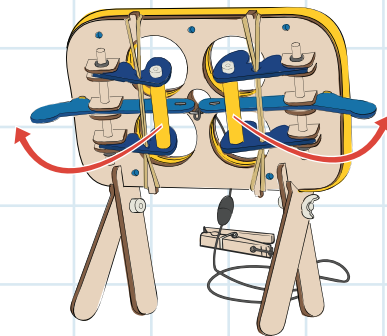
PRO TIP! ▶▶

Fine-tuning a machine is called **calibration**. Screw in the bolts to increase how easily your tripwire is triggered.

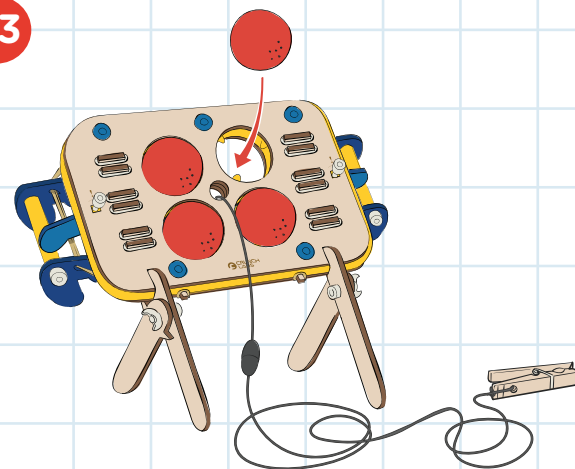
Test as you tune! If you screw in the bolts too far, the tripwire won't work.



22

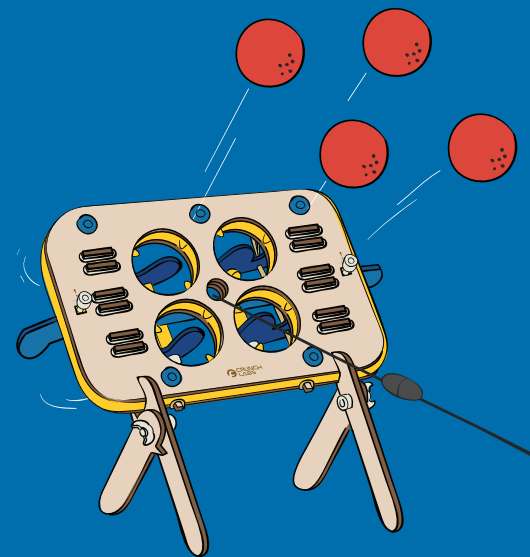


23



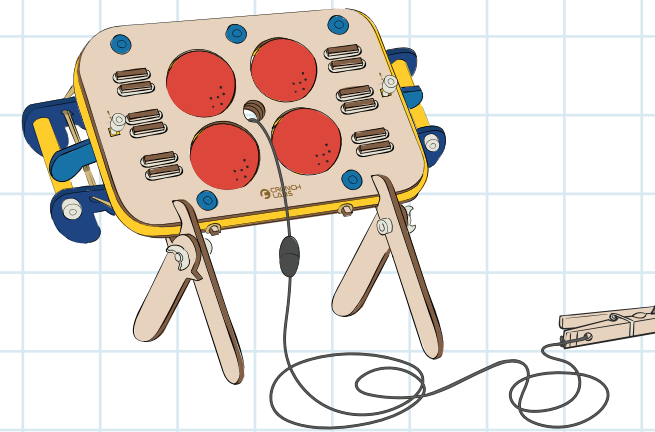
BUILD

TEST

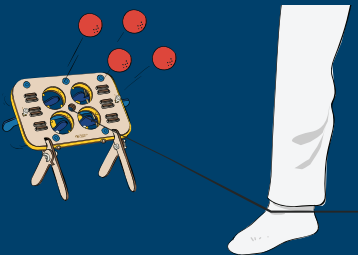


Having trouble? Watch the video at crunchlabs.com/trip

BUILT!

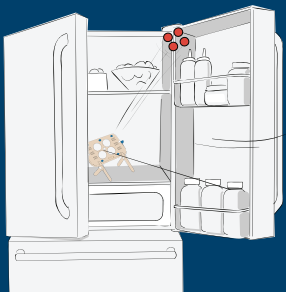


PLAY



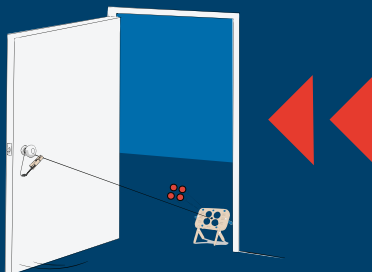
CLASSIC TRIPWIRE

Place the cord low to the ground so it's difficult for someone to see but easy to trigger when they walk by. Where will you prank someone with your tripwire?



SNACK ATTACK

You can attach the cord to anything that gets moved! Try hiding the tripwire where people will least expect it, like inside a fridge or cabinet.



INTRUDER ALERT

Make a home made alarm system! Use the tripwire to secure your stuff by rigging the cord to your door.

THINK

Momentum transfer is motion passing between objects.

Basically, one thing bumps into something else.

When the tripwire is triggered, the kicker lever swings into the foam ball. The energy transfers from the kicker to the ball, just like kicking a soccer ball.

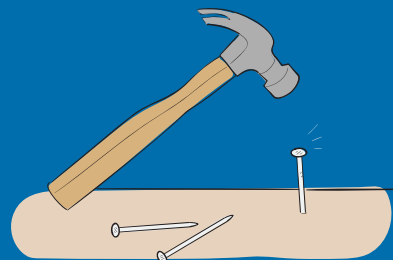
Energy is never lost. Instead, it has to go somewhere else. Even though the kicker lever stops, the ball keeps going!



THINK

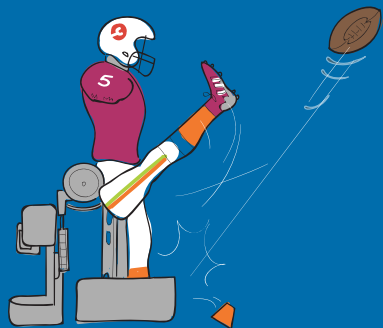
Find momentum transfer in other machines!

Things transfer momentum all the time by bumping into each other. Engineers can use these bumps and crashes to their advantage. Even though momentum transfer seems chaotic, it can be super useful when it's predicted accurately.



HAMMER

How hard it would be to *push* a nail into wood slowly? Thankfully, a hammer can build up energy as it swings, and then transfer that momentum into the nail all at once.

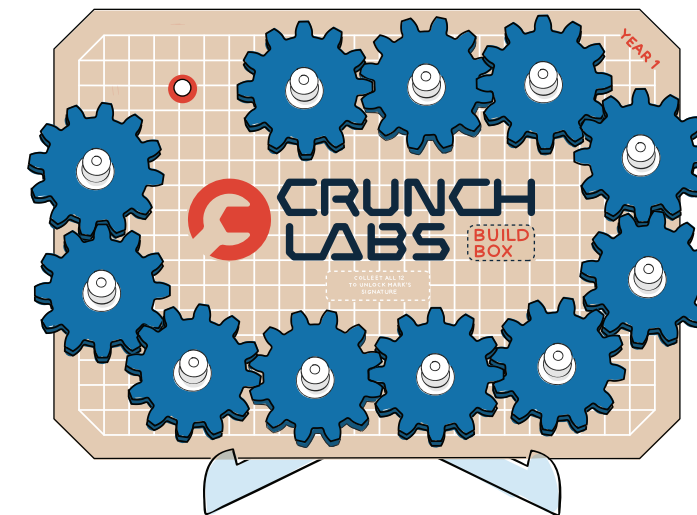
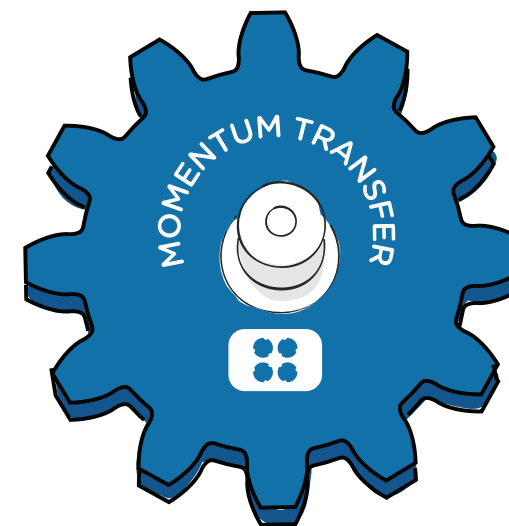


FIELD GOAL KICKER

Mark used the basic principle of momentum transfer to build a field goal kicking robot. The robot's leg gathers a ton of momentum, and then slams into a football. That momentum sends the football all the way through the uprights!

THINK

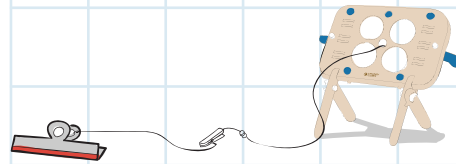
CONGRATULATIONS! You earned a gear badge for momentum transfer



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

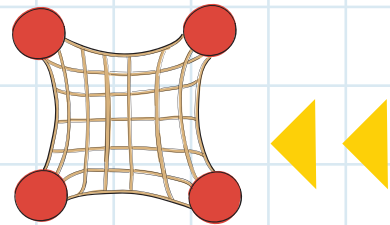
CRUNCH

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



MOD YOUR CORD

Attach a longer cord for a bigger trip range, or try new clips besides the clothespin.



CAST A WIDER NET

Try connecting the balls together with strings or a net. Now you have a web shooter!



CAMOUFLAGE

Paint your tripwire to camouflage it. Hide it in plain site by matching its surroundings.

SHOW OFF YOUR BUILD



Share your funniest prank videos & coolest mods!

#crunchlabs @crunchlabs    



WARNING: Do not aim at eyes or face.

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.