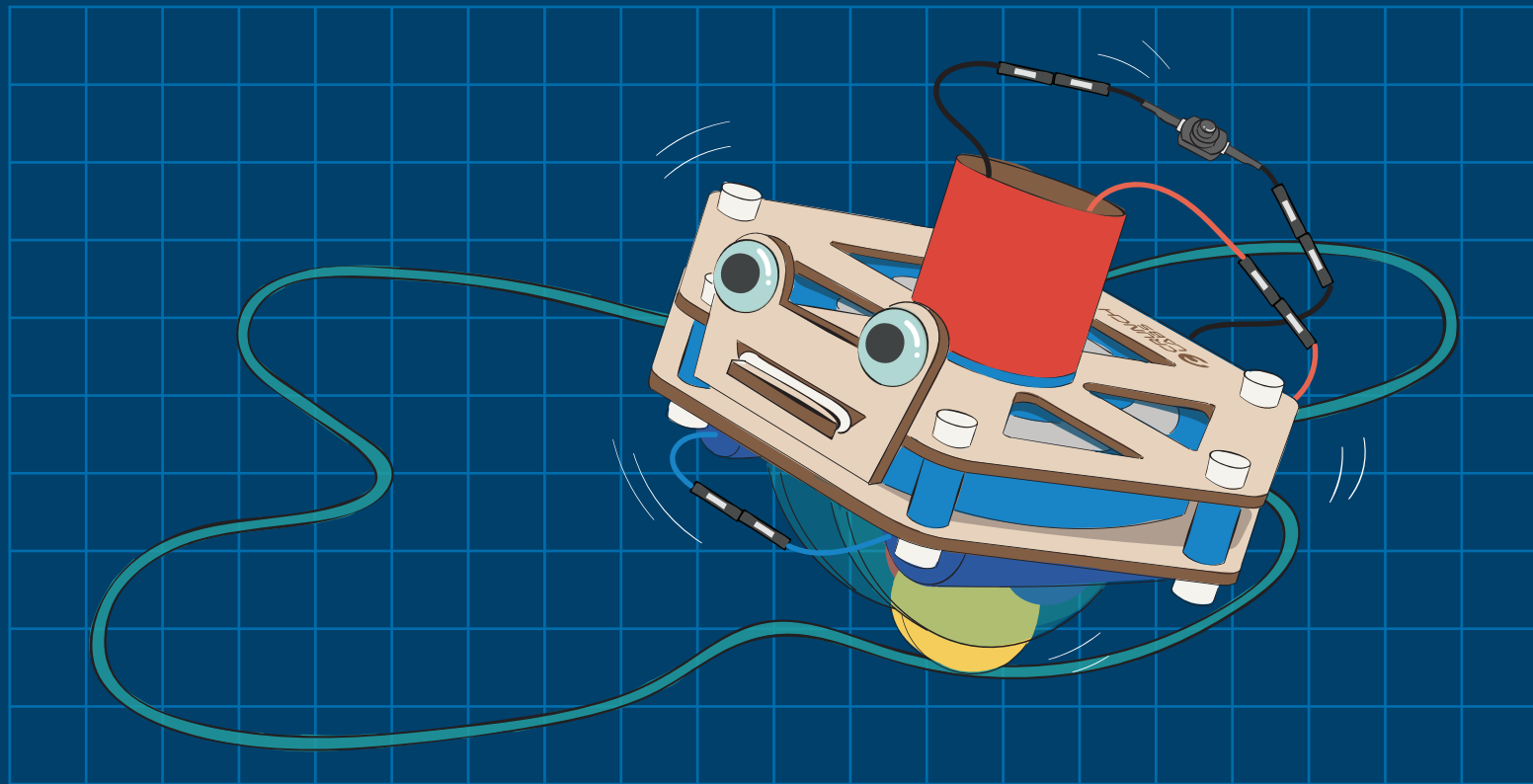




BUILD  
BOX



GYROSCOPE  
**WALKER**



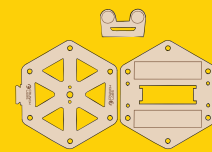
# NEW VIDEO UNLOCKED

BUILD ALONG & LEARN WITH MARK ROBER

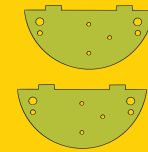


CRUNCHLABS.COM/GYRO

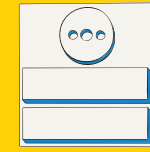
## PARTS



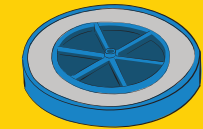
wood pieces



acrylic sides



foam adhesive sheet



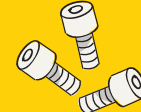
flywheel



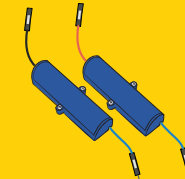
gears



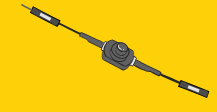
spacers



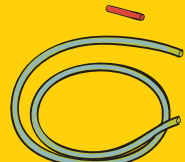
bolts



battery packs



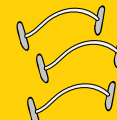
on/off switch



track



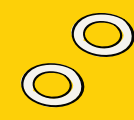
eyes



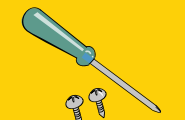
elastic cord



dc-motor and cover



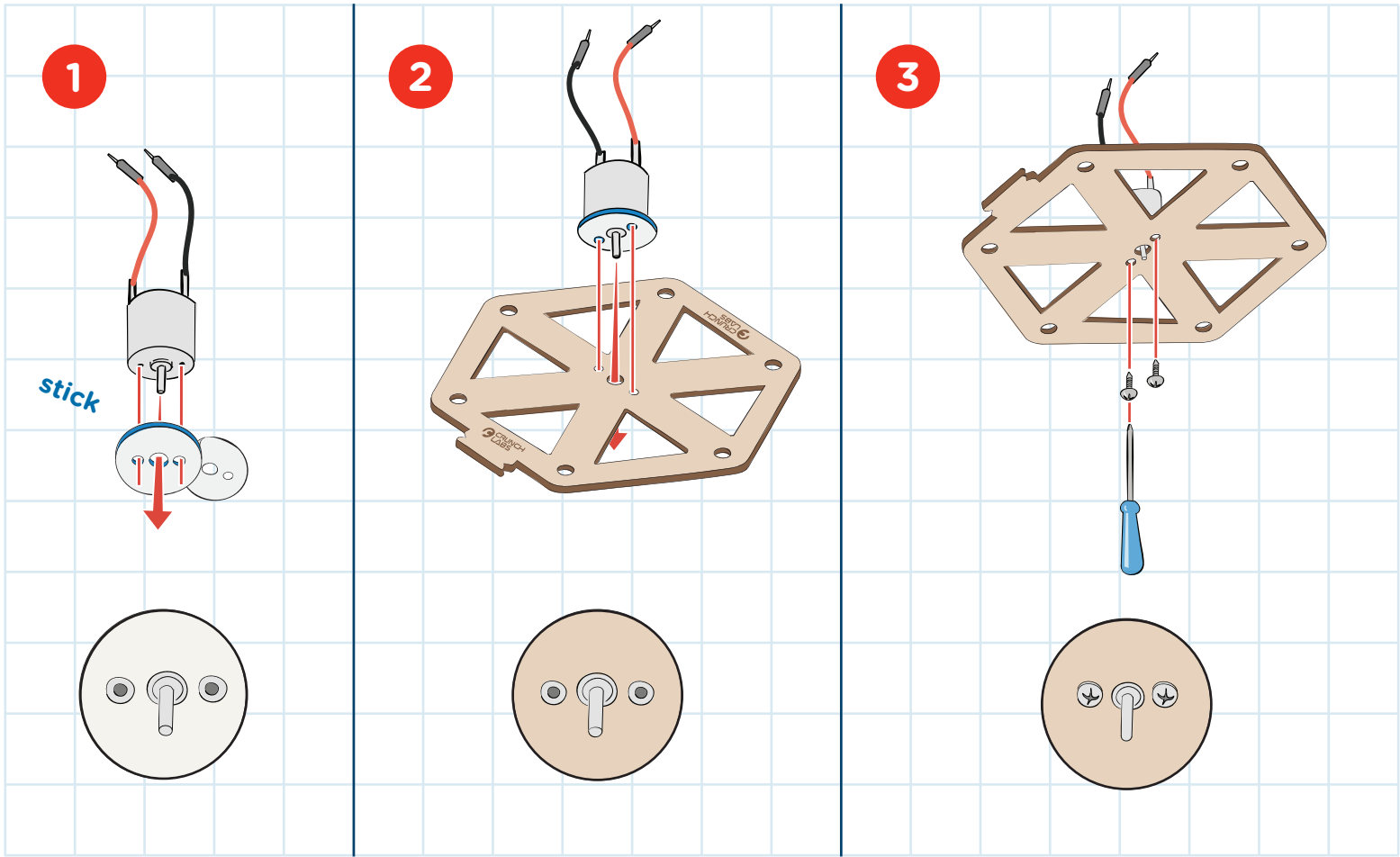
o-rings



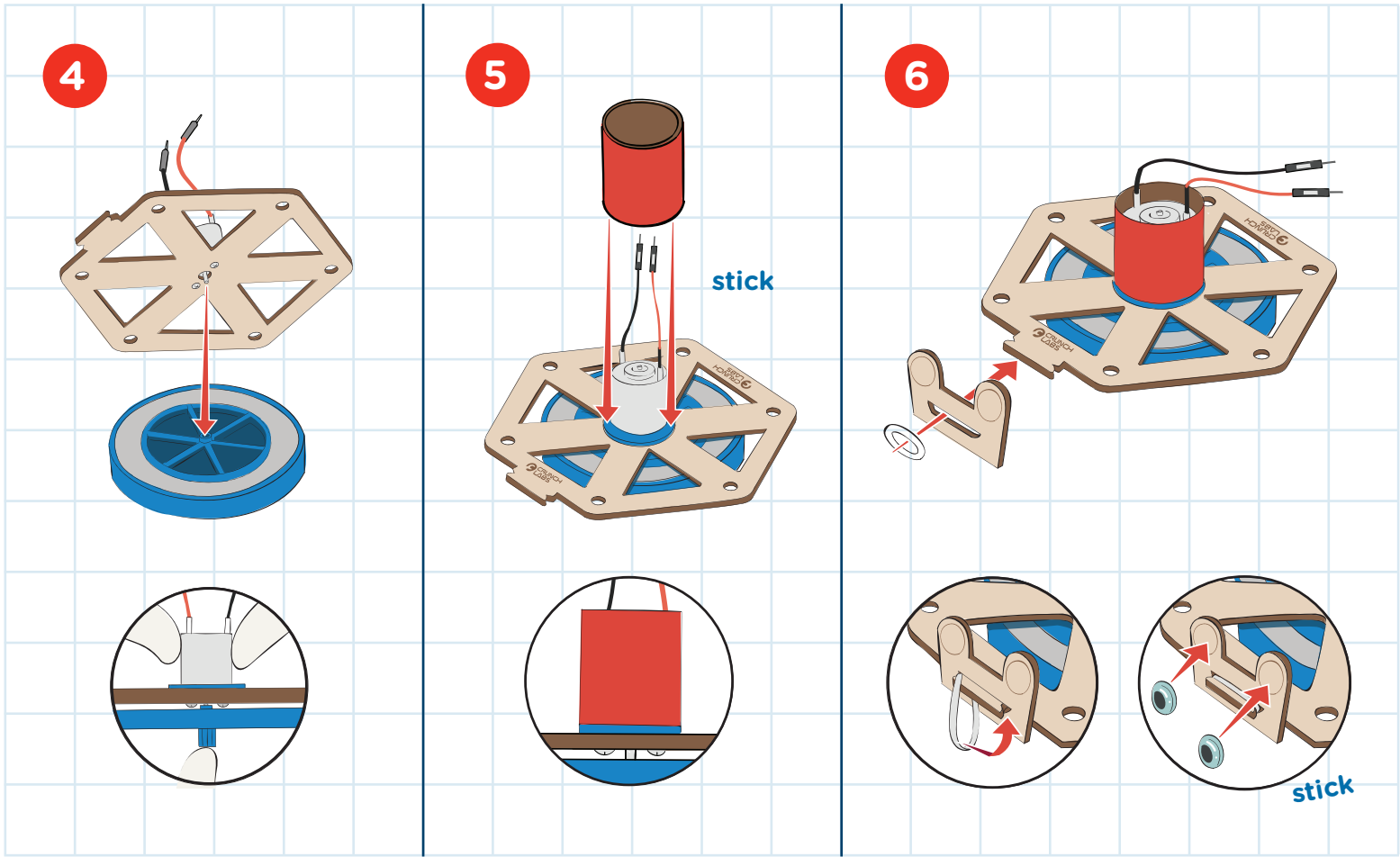
motor bolt kit

For missing and replacement parts, visit "My Account" at [crunchlabs.com](https://crunchlabs.com) and we'll ship them to you for free.

BUILD

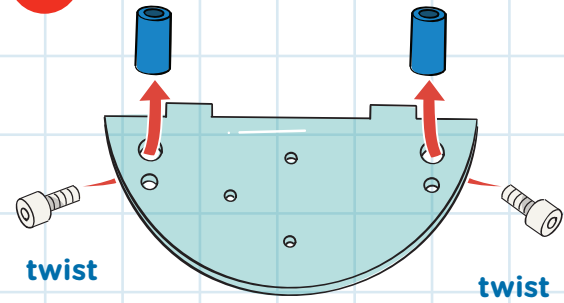


BUILD

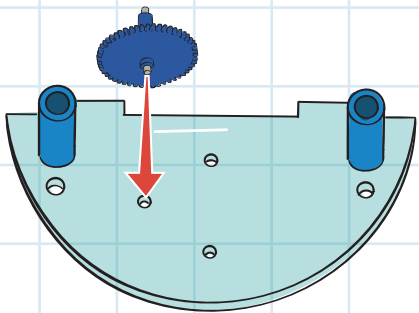


# BUILD

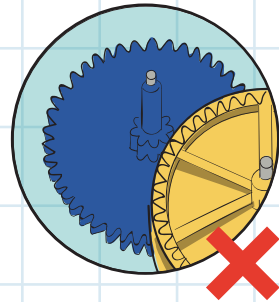
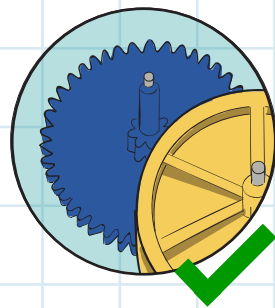
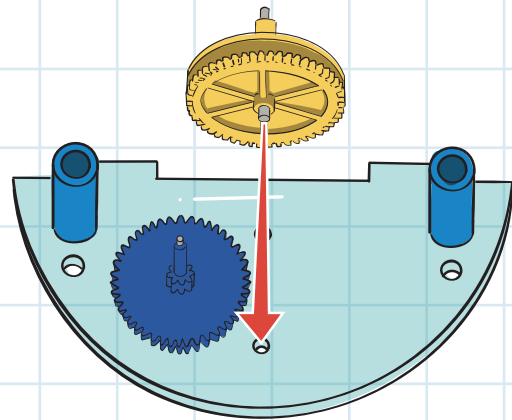
7



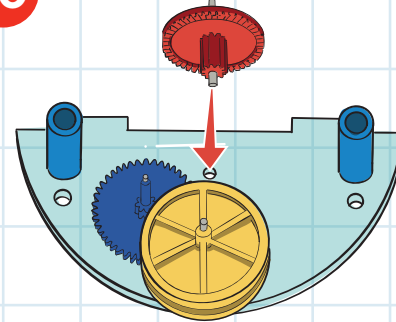
8



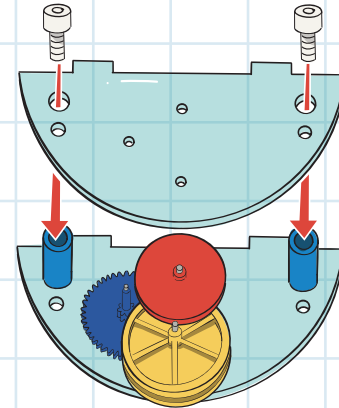
9



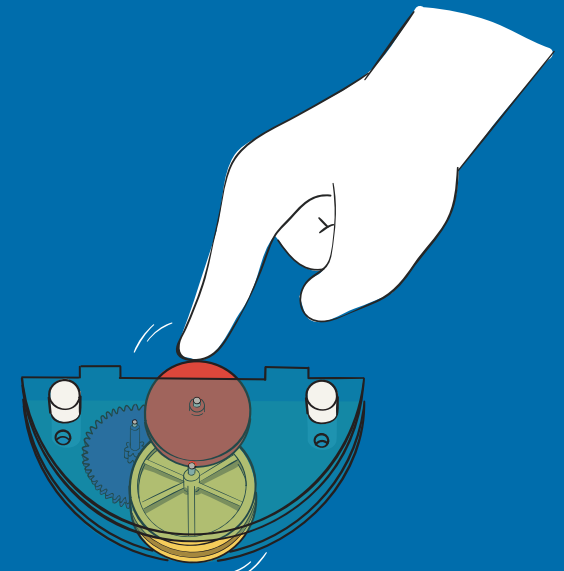
10



11



# TEST

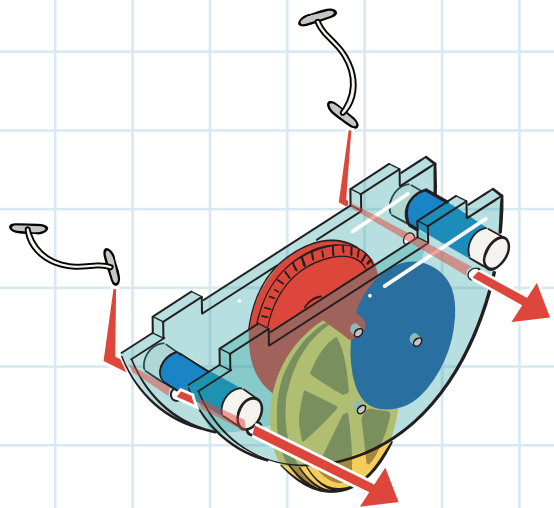


Having trouble? Watch the video at [crunchlabs.com/gyro](https://crunchlabs.com/gyro)

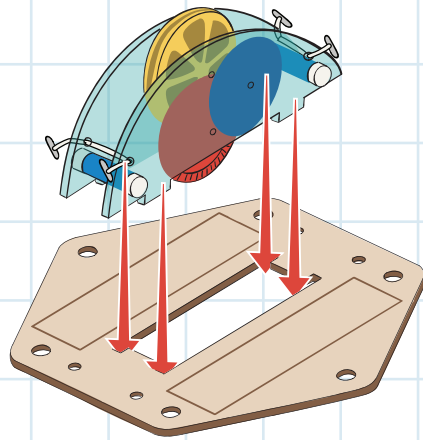


# BUILD

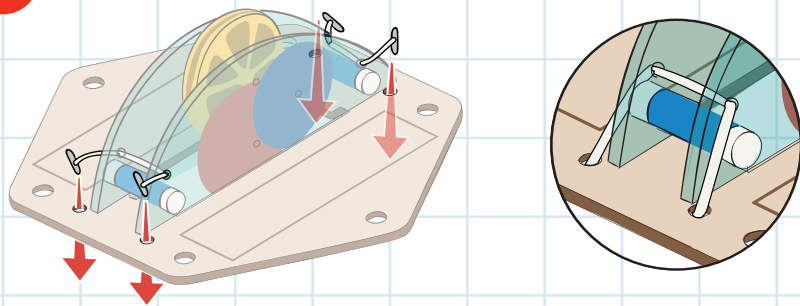
12



13

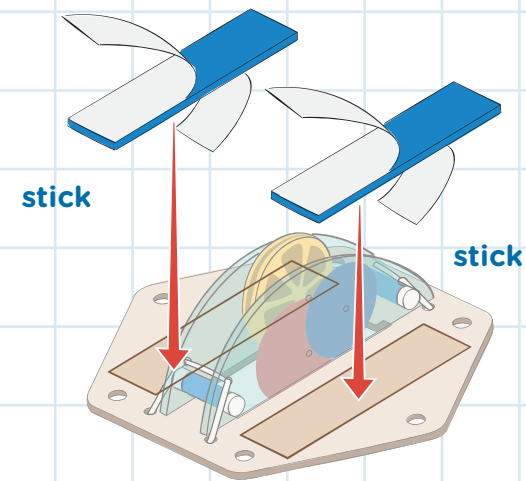


14

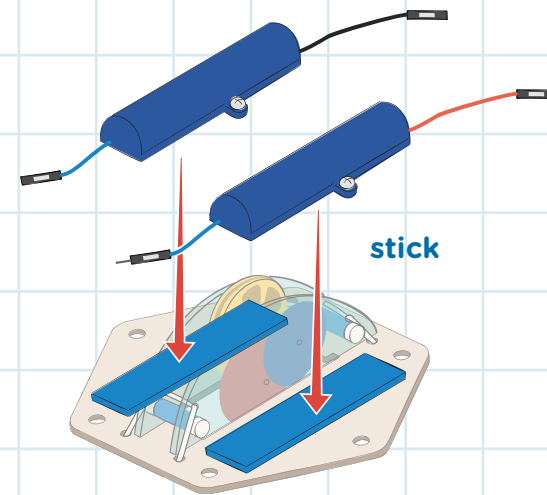


# BUILD

15

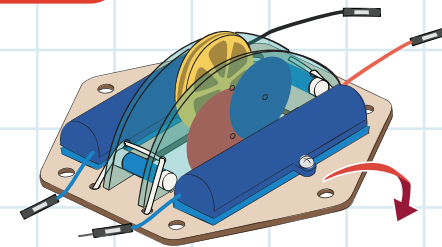


16

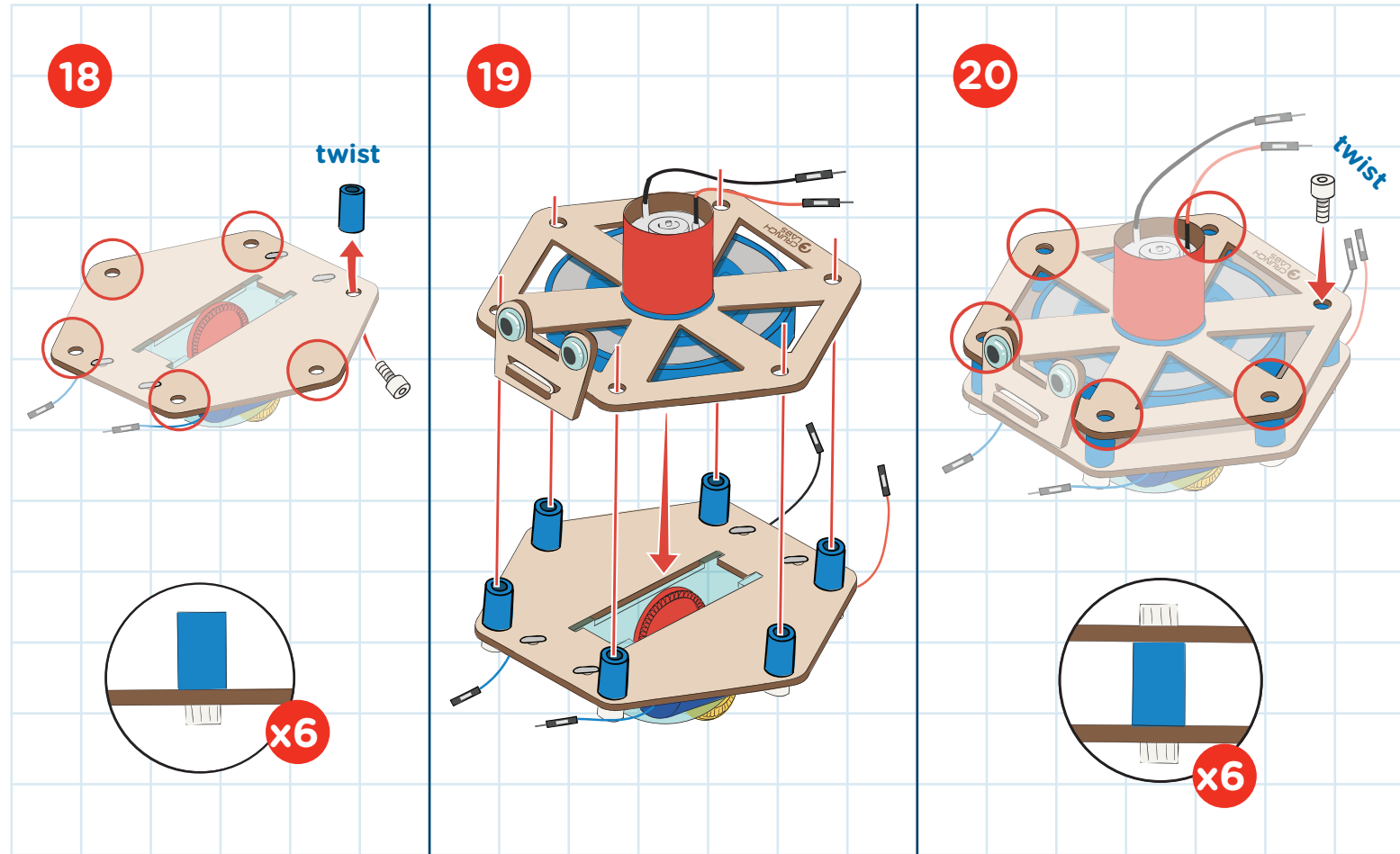


17

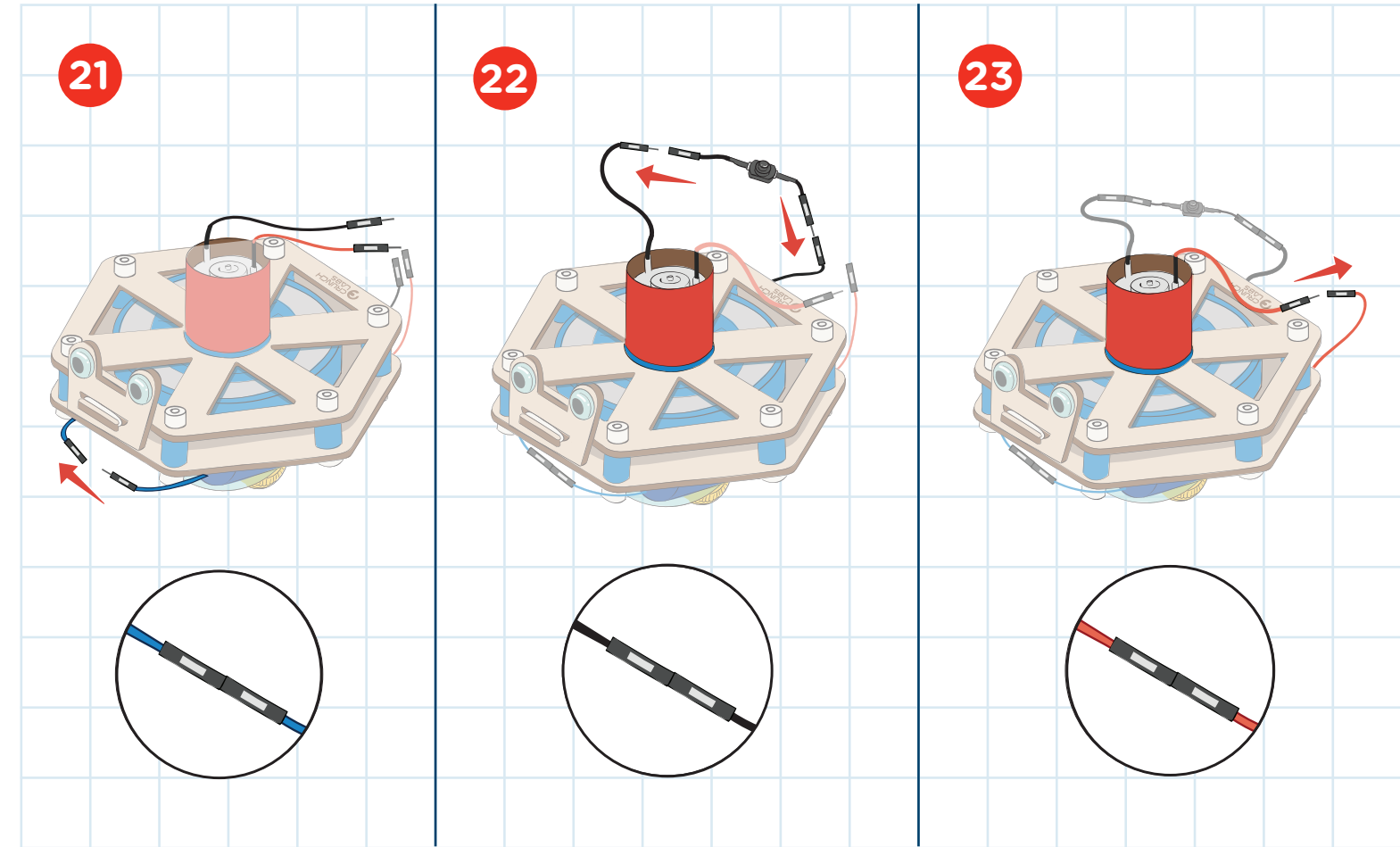
FLIP!



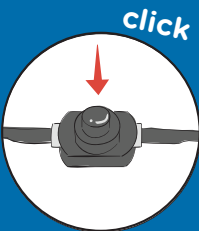
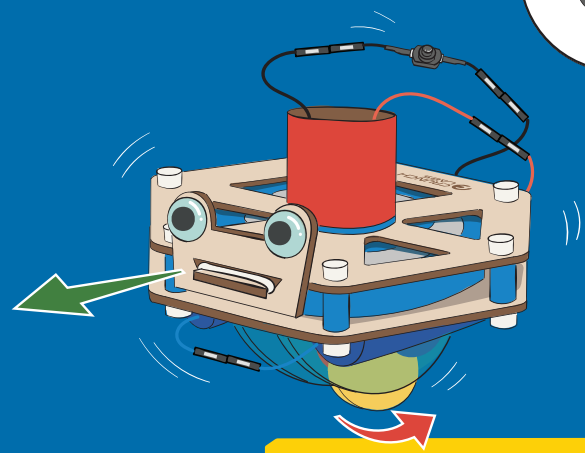
# BUILD



# BUILD



## TEST

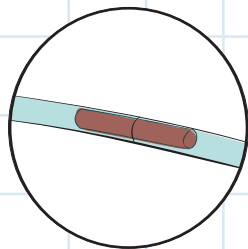
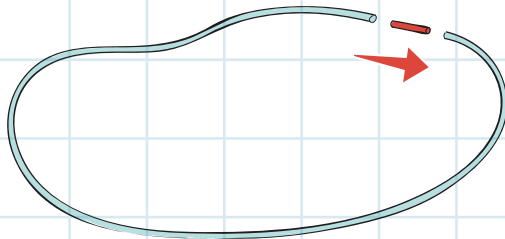


### PRO TIP!

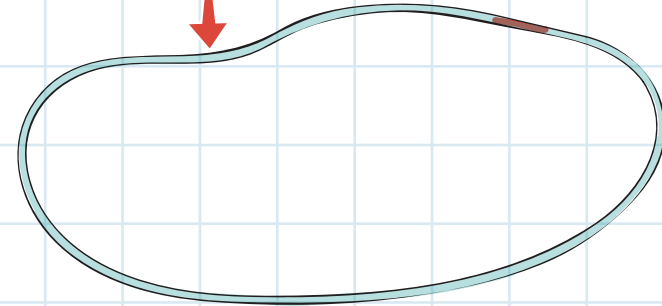
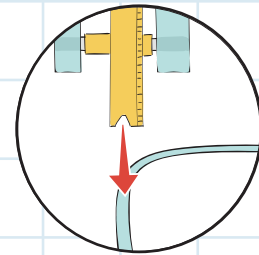
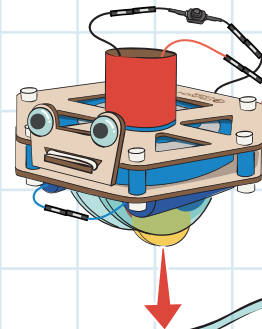
You can reverse the direction that a DC spins by swapping the wire connections.

Having trouble? Watch the video at [crunchlabs.com/gyro](https://crunchlabs.com/gyro)

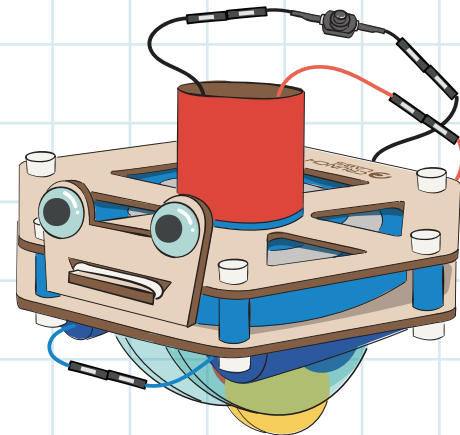
24



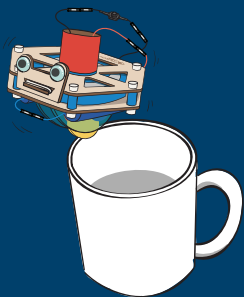
25



BUILT!

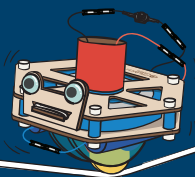


## PLAY



### WALKING ON CUP RIMS

Try and place your walker on the rim of a cup, a bowl, or a bucket!



### TIGHTROPE

Set up a tight rope with a roll of string. See how far your walker can make it!



### SPINNING BAGGAGE

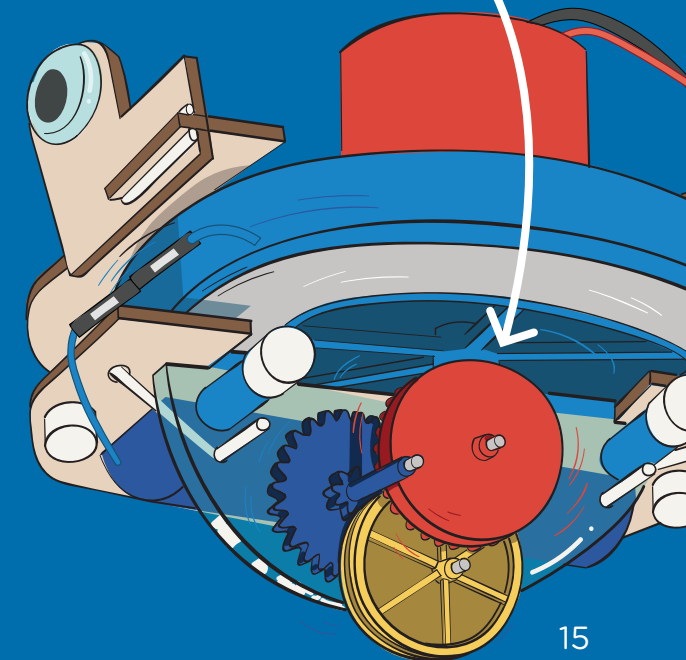
How much weight can your walker carry? Try balancing small objects on top.

## THINK

A gyroscope is a spinning wheel which resists changes in orientation.

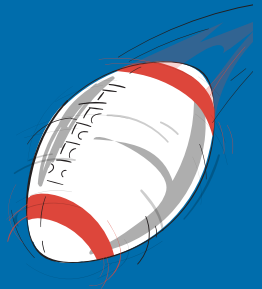
Basically, it stays balanced by spinning.

Have you ever wondered how a spinning top stays balanced? When you spin a top you are giving it a **vertical axis** of rotation. An **axis** is an imaginary line that an object rotates around. The faster an object is spinning, the more it will resist changes to its axis of rotation. Your gyroscope walker uses a flywheel, just like a top, to stay upright.



THINK

Gyroscopic stability can be found in everyday objects. Just think of things that spin!



## SPINNING BALL & DISC

Foot balls and frisbees use gyroscopic stability to stay properly oriented while flying. In order to throw a football or a frisbee, you need to add spin. The spin keeps the objects stable and aerodynamic during flight.

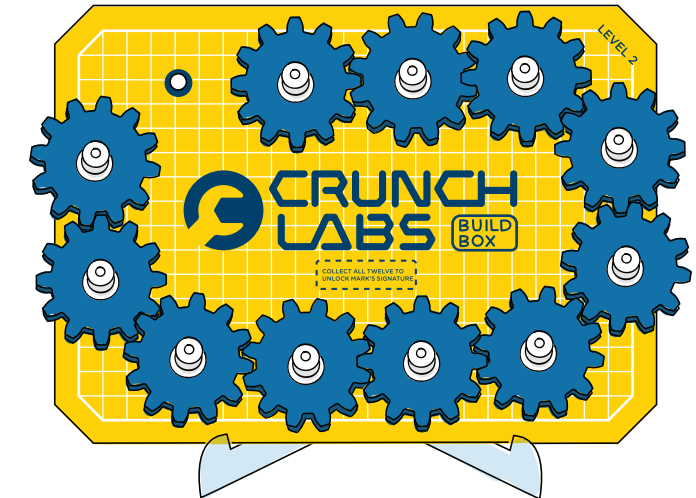
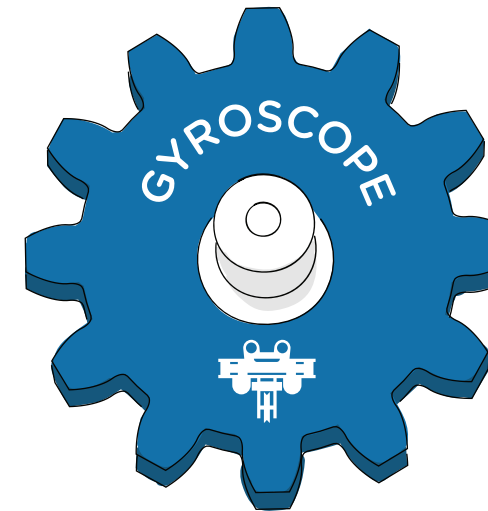


## COIN FLIP TRICK

Mark once made a video about a coin flipping trick. He learned a way to flip a coin so that it would always land the way he wanted it to. His secret was that he used gyroscopic stability. Instead of simply flipping the coin, Mark would spin it. Spinning the coin would stabilize it during flight and guarantee a predictable landing.

THINK

CONGRATULATIONS! You earned a gear badge for gyroscope

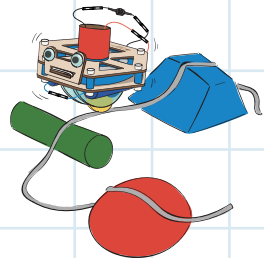


Don't forget to add your gear badge to your gear train!



# CRUNCH

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



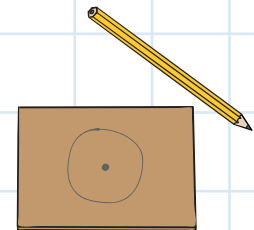
## WALKING OVER OBSTACLES

Set up your tubing on top of some obstacles and see what your walker can climb over.



## DECORATE YOUR WALKER

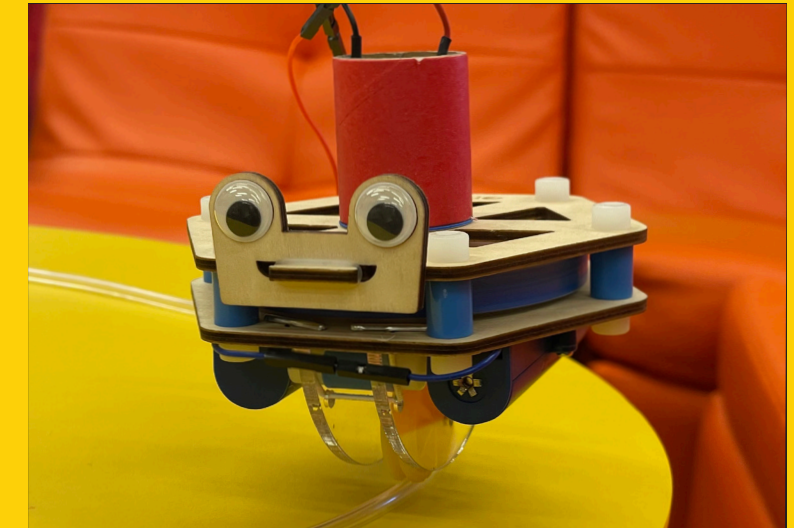
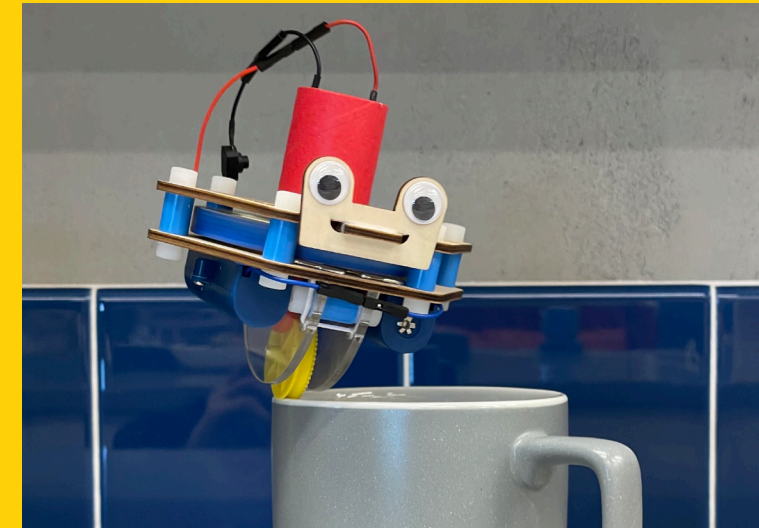
Try making arms with paper and bolt them to your walker.



## CREATE YOUR OWN

Try making your own spinning tops with cardboard and pencils.

# SHOW OFF YOUR BUILD



Share your funniest moments & coolest mods!  
**#crunchlabs @crunchlabs**    



**WARNING:** Improper assembly can short circuit batteries.

#### **BATTERY SAFETY**

Remove exhausted batteries. Do not mix old & new batteries. Do not mix alkaline, standard (carbon-zinc), or rechargeable batteries. Do not recharge non-rechargeable batteries. If using rechargeable batteries, remove them from the toy before charging. Rechargeable batteries should be charged under adult supervision. Do not short-circuit supply terminals. Do not connect this toy to a power supply greater than two AA batteries. **How to remove batteries:** 1. Remove screw and lid from battery pack. 2. Remove batteries. **How to insert batteries:** 1. Remove screw and lid from battery pack. 2. Insert two new batteries into the battery pack with correct polarity (+ and -). 3. Replace lid and secure the screw on the battery pack.

#### **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](http://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.