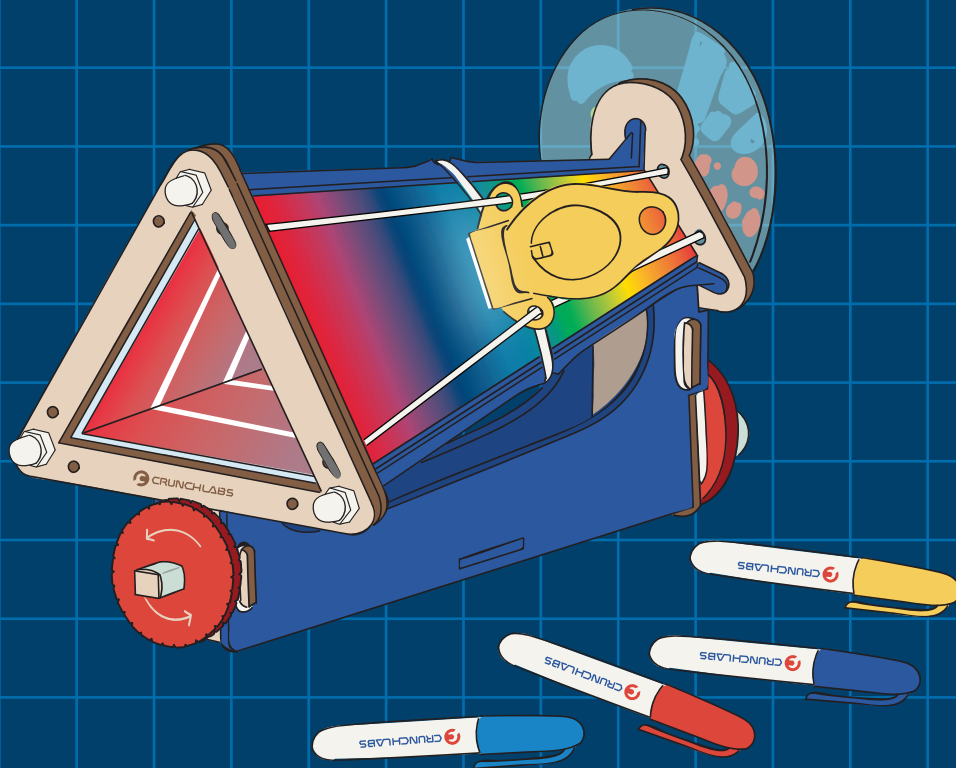




BUILD
BOX



KALEIDOSCOPE

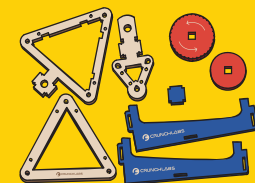


NEW VIDEO UNLOCKED

BUILD ALONG & LEARN WITH MARK ROBER



CRUNCHLABS.COM/SCOPE



wood pieces



struts



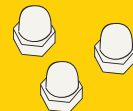
standoff



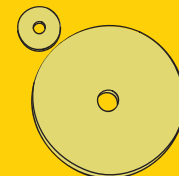
nuts and bolt



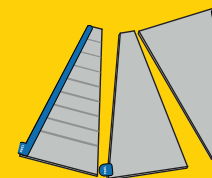
o-rings



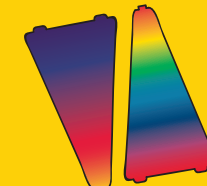
acorn nuts



clear discs



mirrors



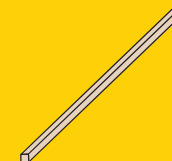
color stickers



elastics



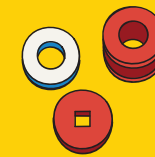
light



dowel



silicon tubes



adhesive spacers

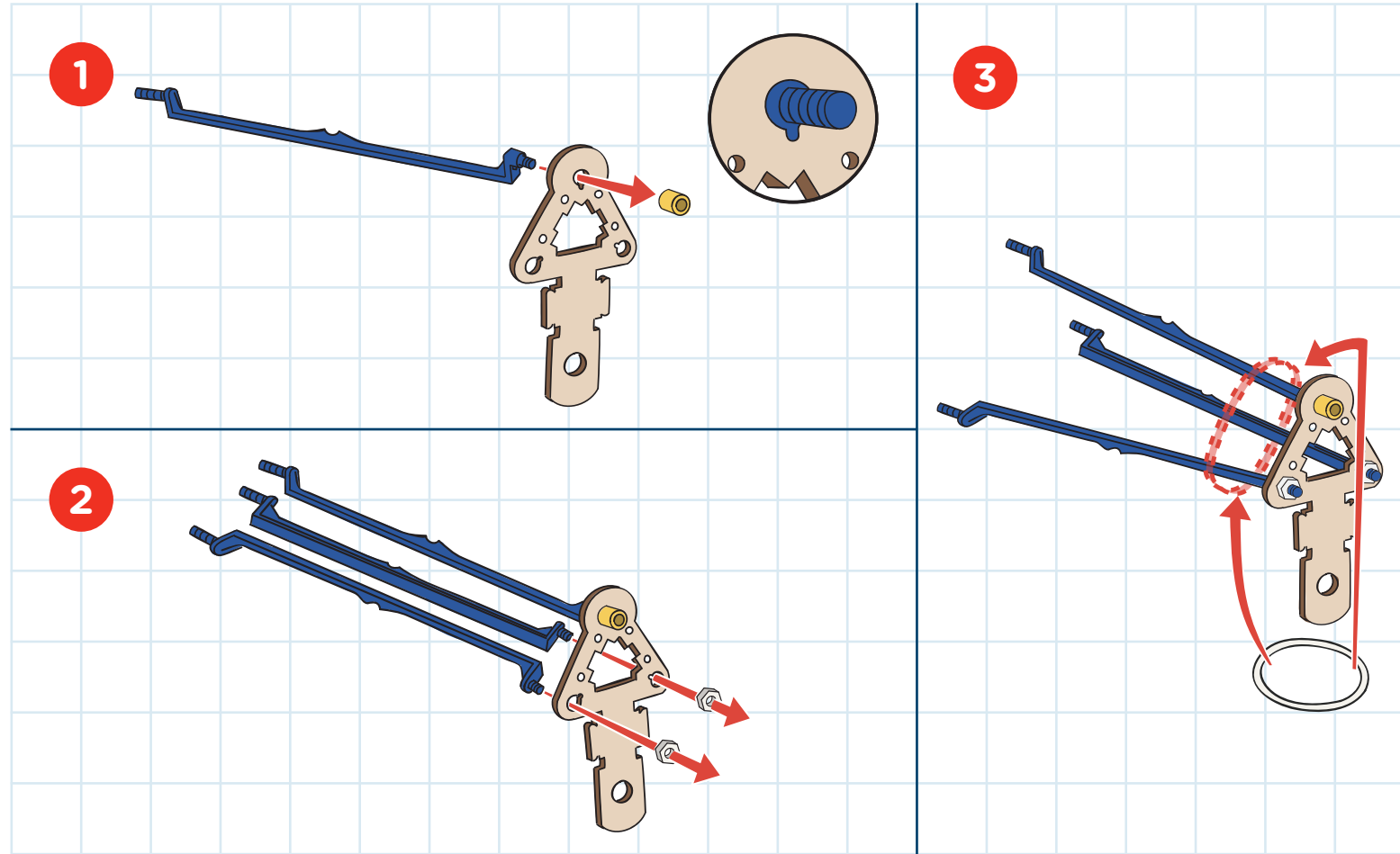


color markers

PARTS

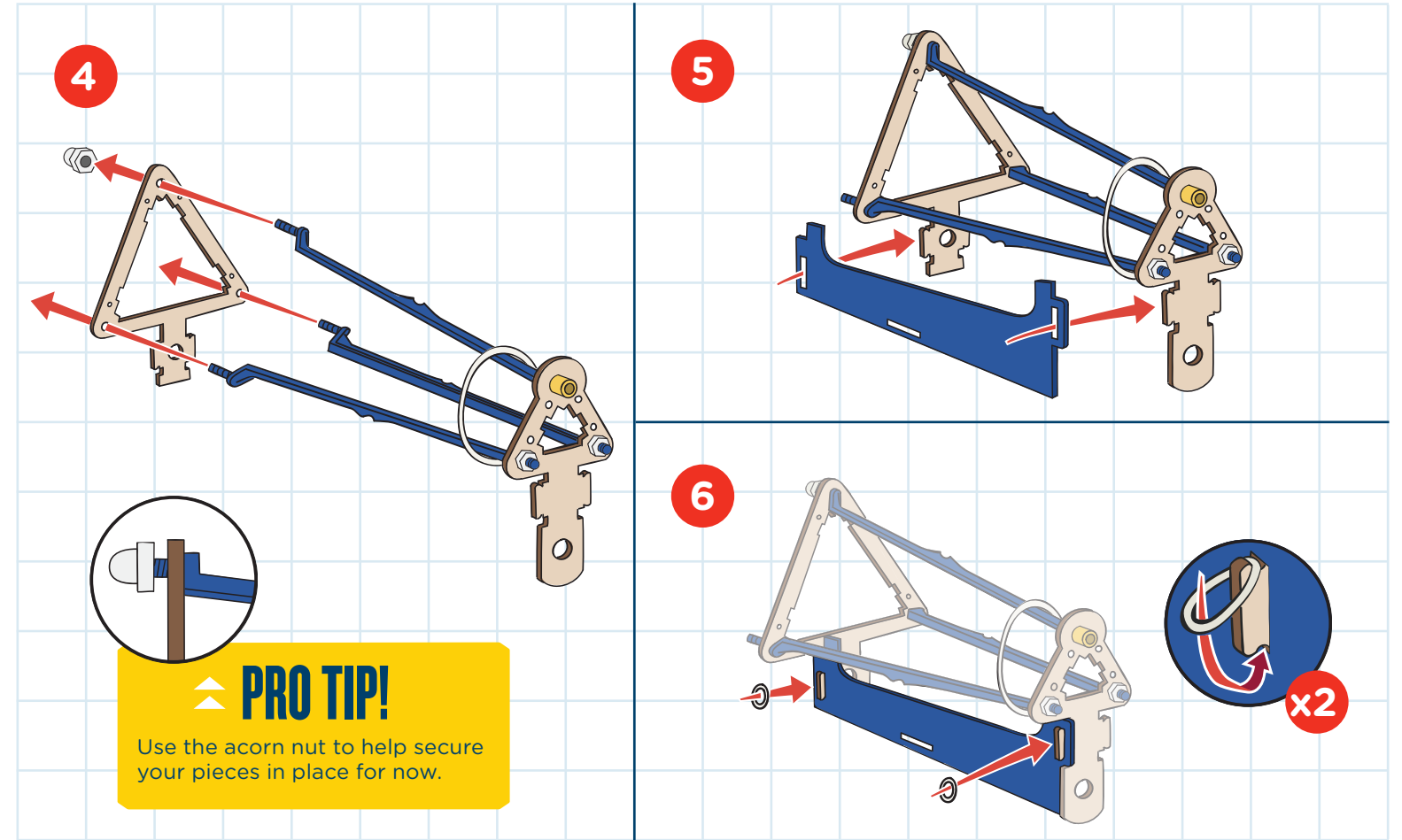
For missing and replacement parts, visit "My Account" at crunchlabs.com and we'll ship them to you for free.

BUILD



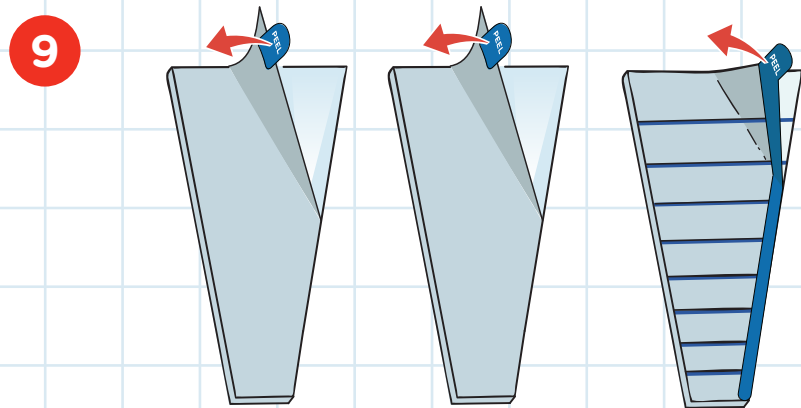
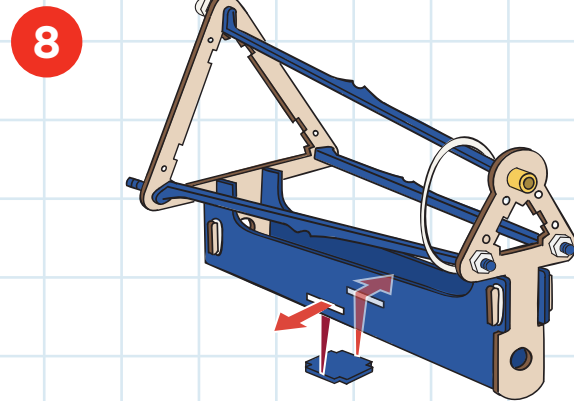
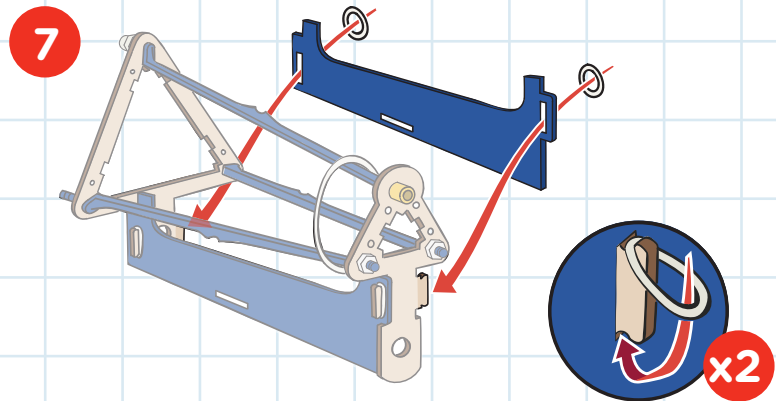
4

BUILD



5

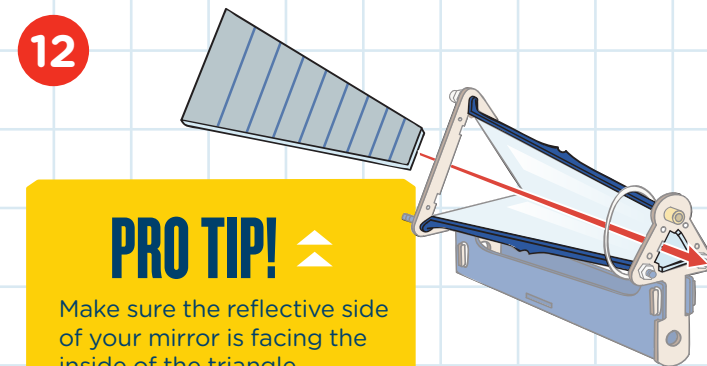
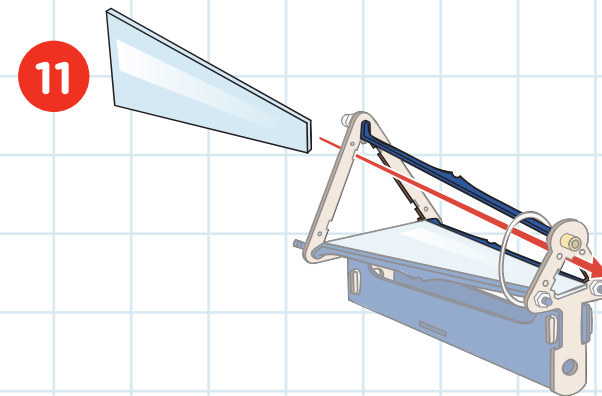
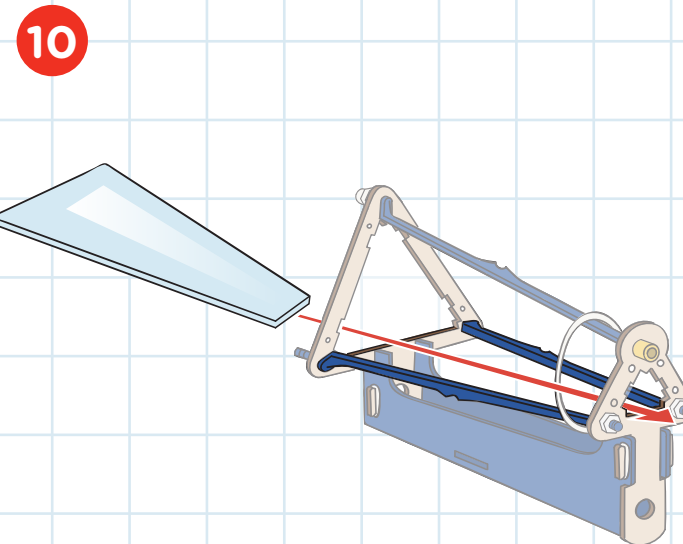
BUILD



PRO TIP!

Peel off the **protective film** from the side marked with the sticker. Leave the film on the backside attached.

BUILD

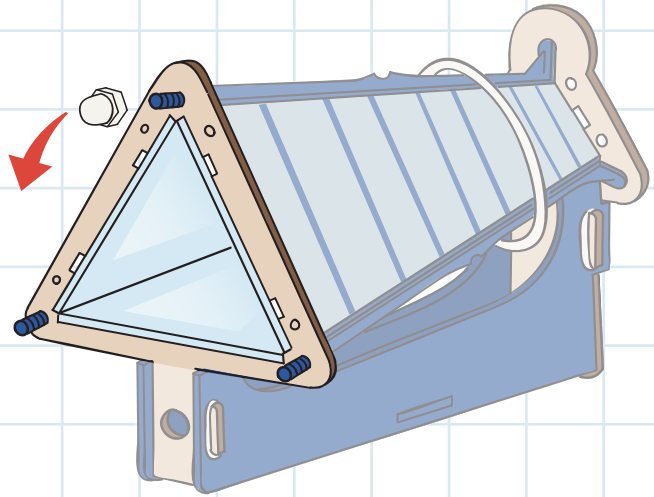


PRO TIP!

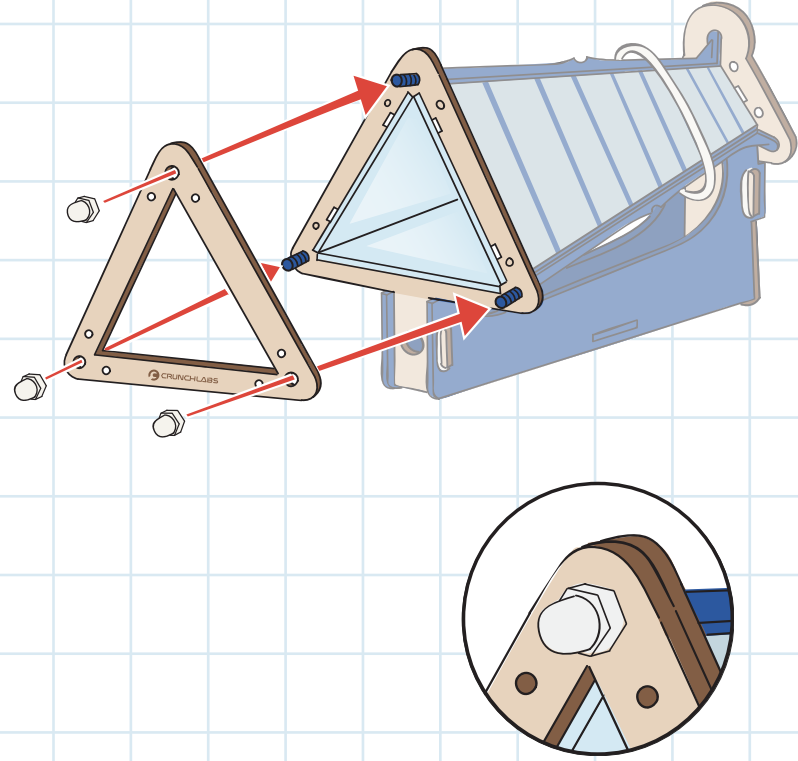
Make sure the reflective side of your mirror is facing the inside of the triangle.

BUILD

13

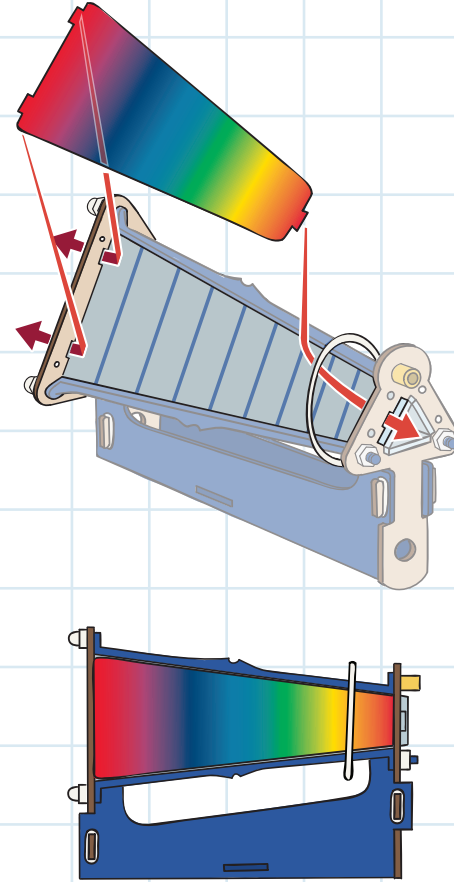


14

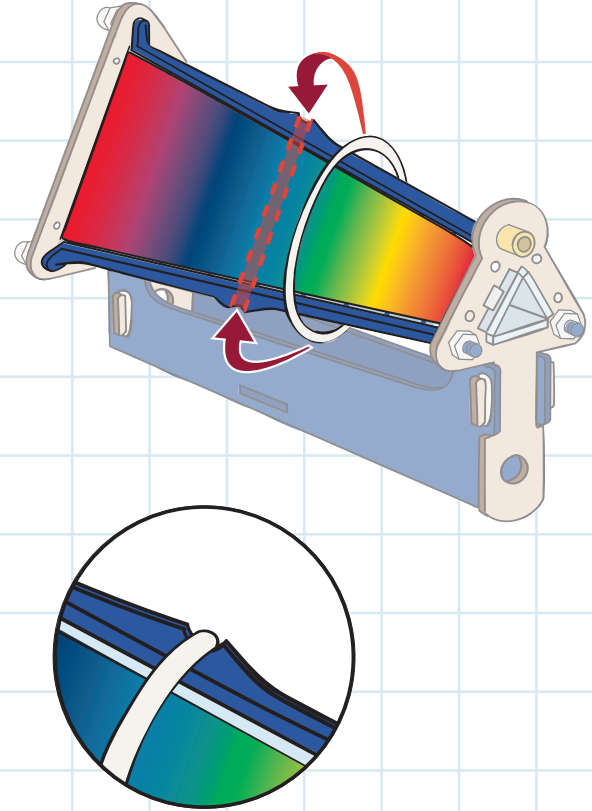


BUILD

15

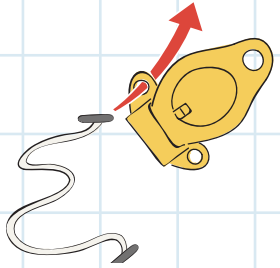


16

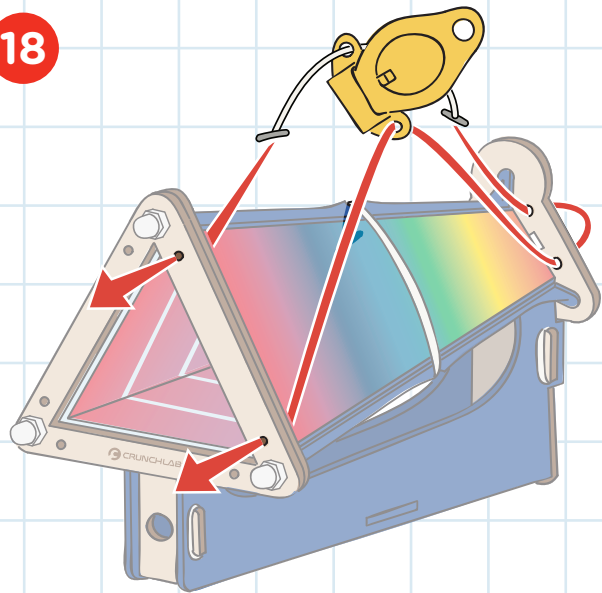


BUILD

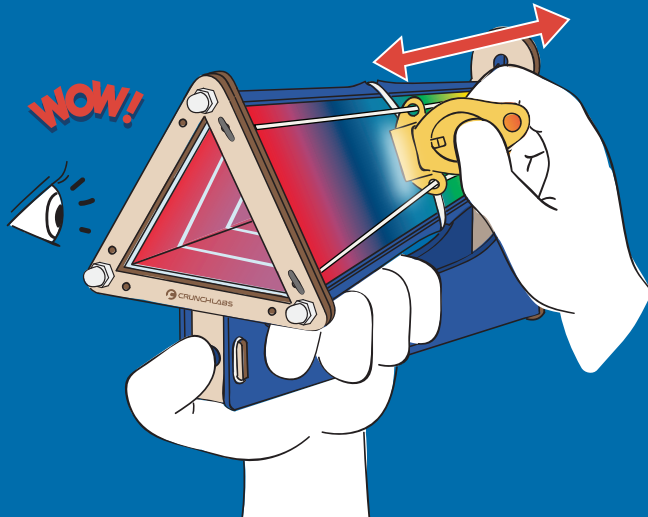
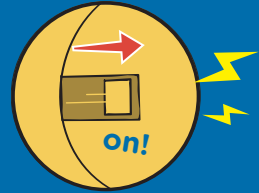
17



18



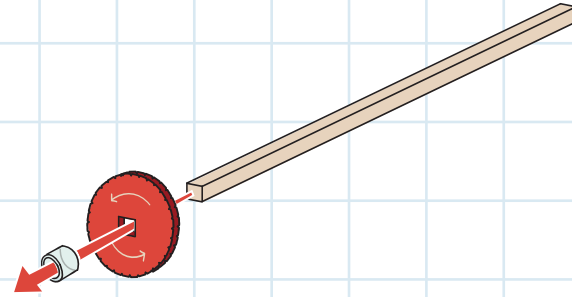
TEST



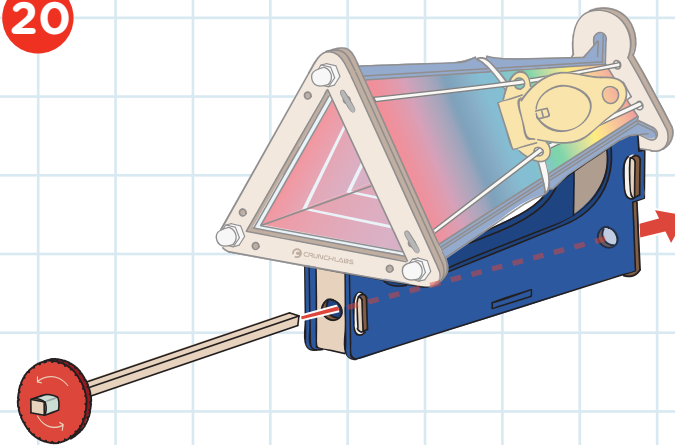
Having trouble? Watch the video at crunchlabs.com/scope

BUILD

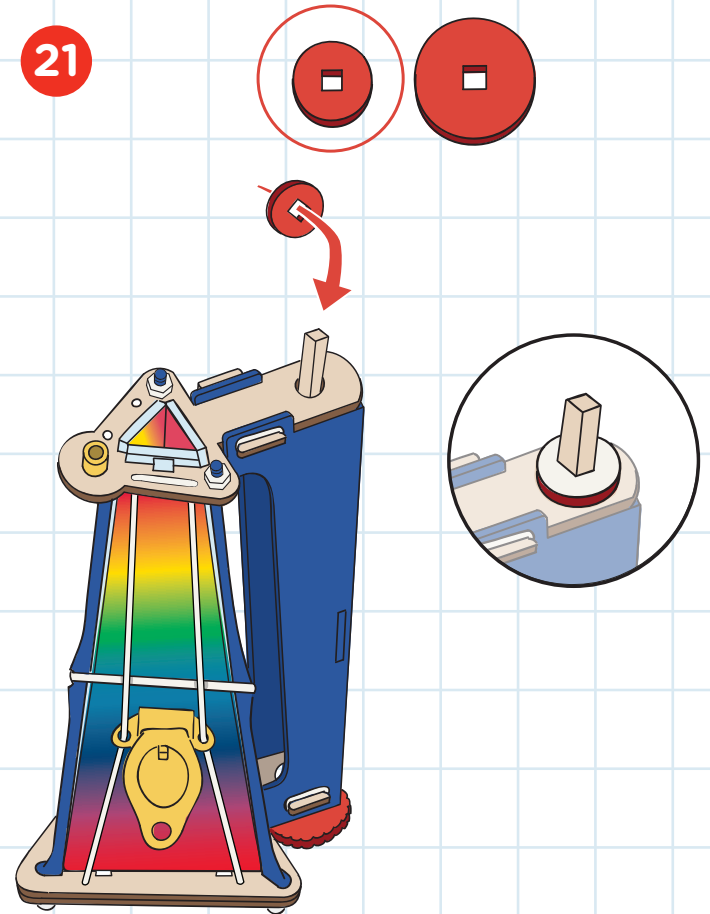
19



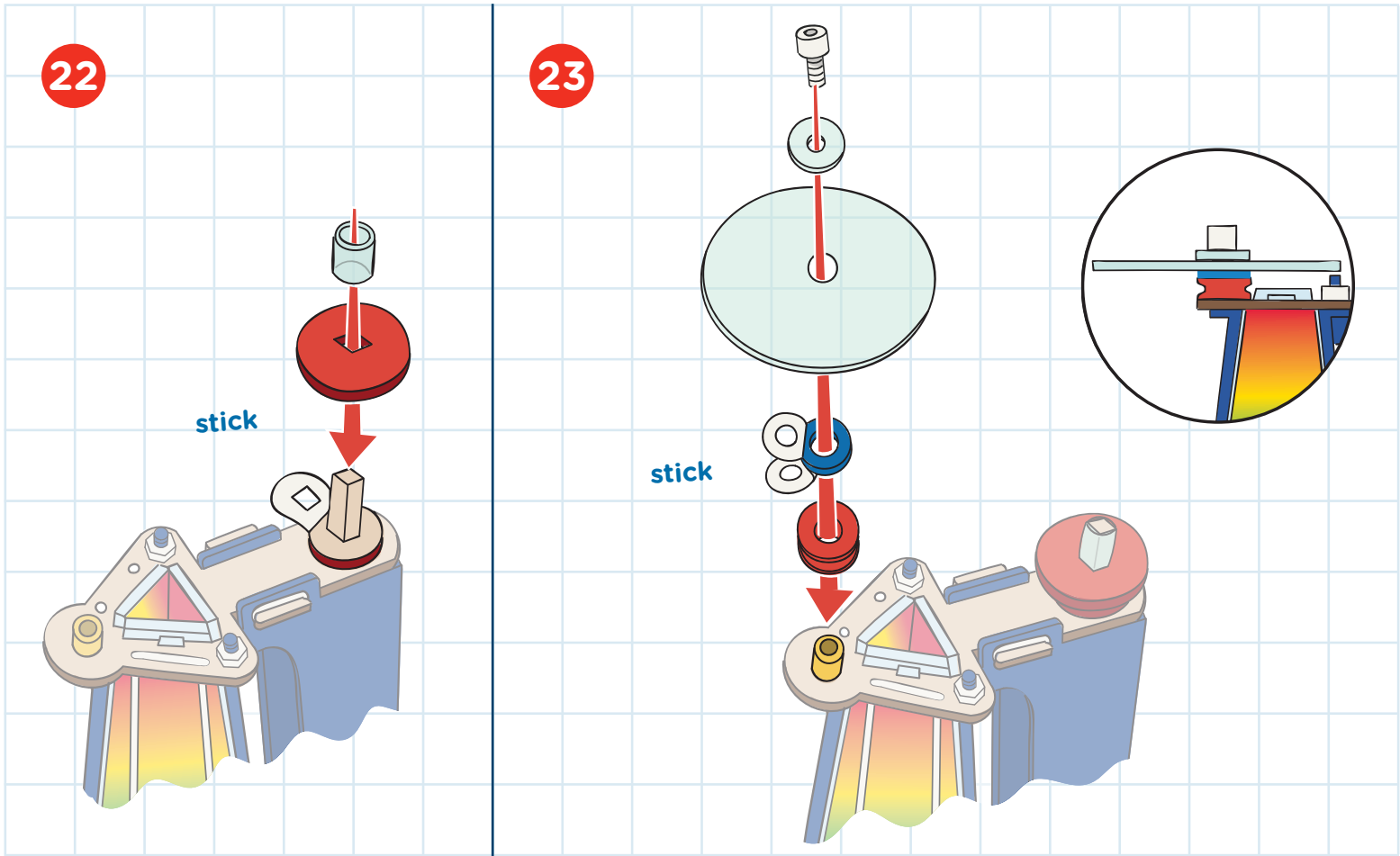
20



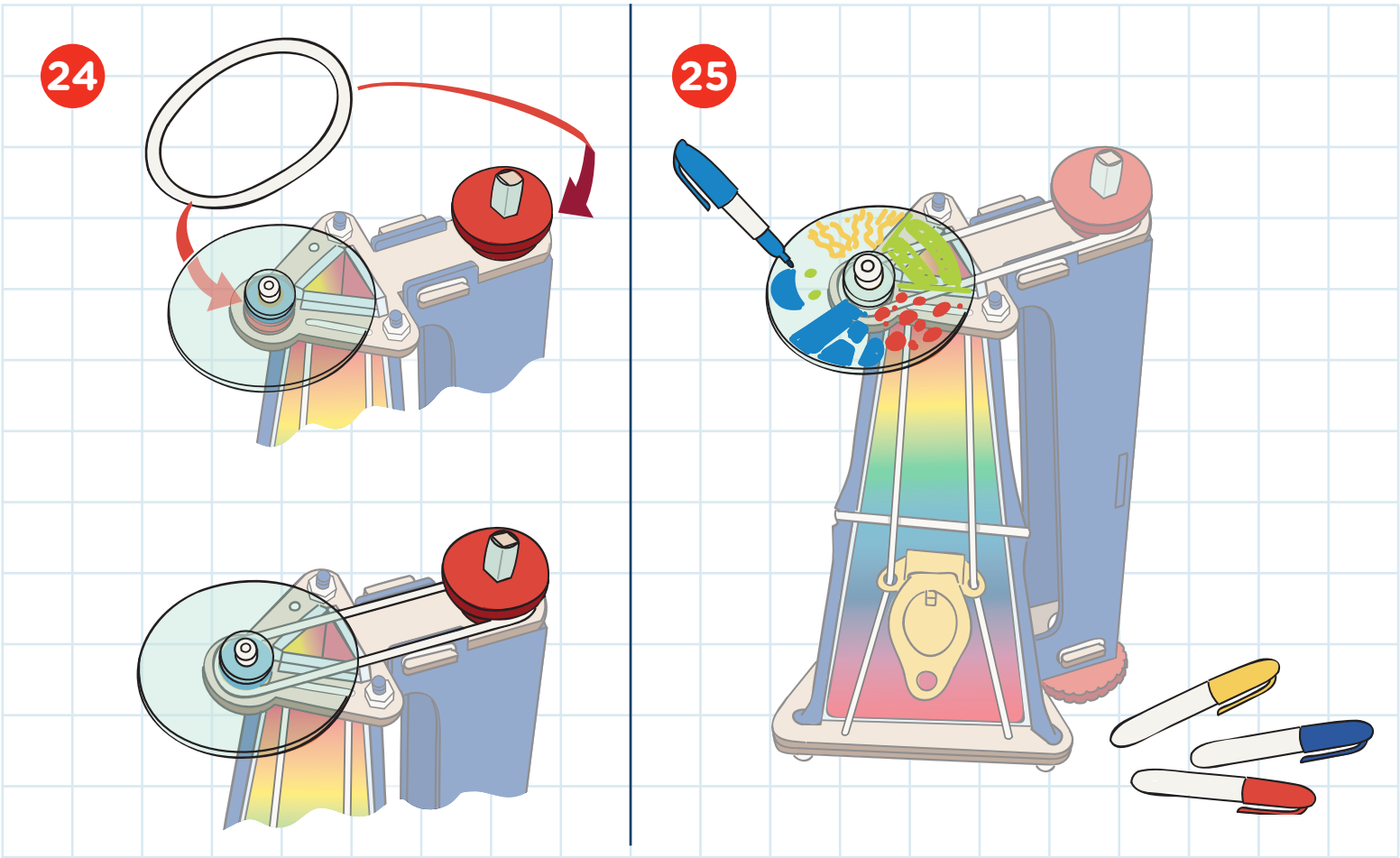
21



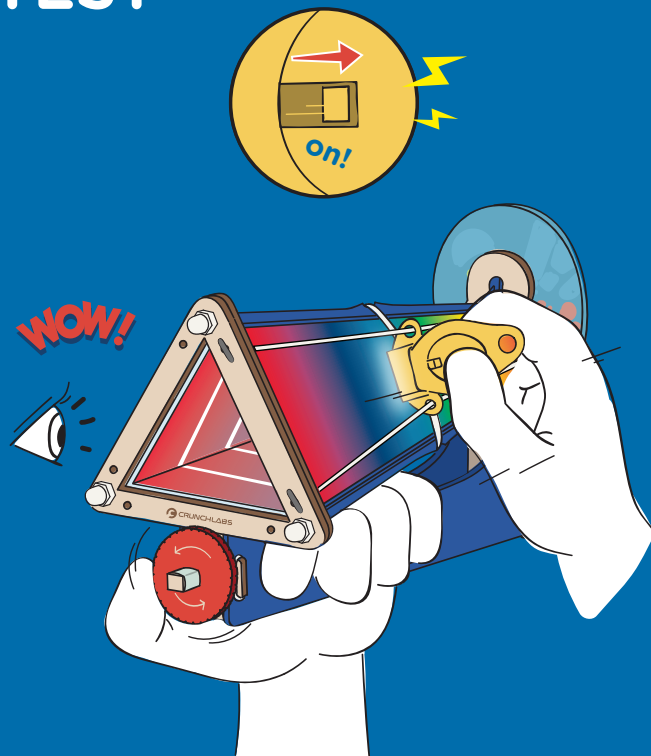
BUILD



BUILD

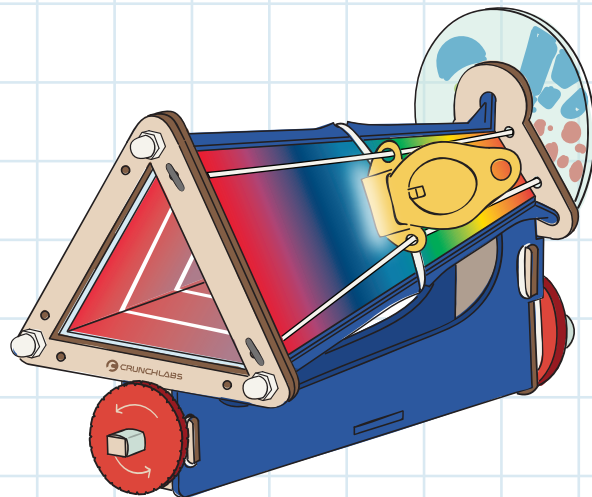


TEST



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

BUILT!

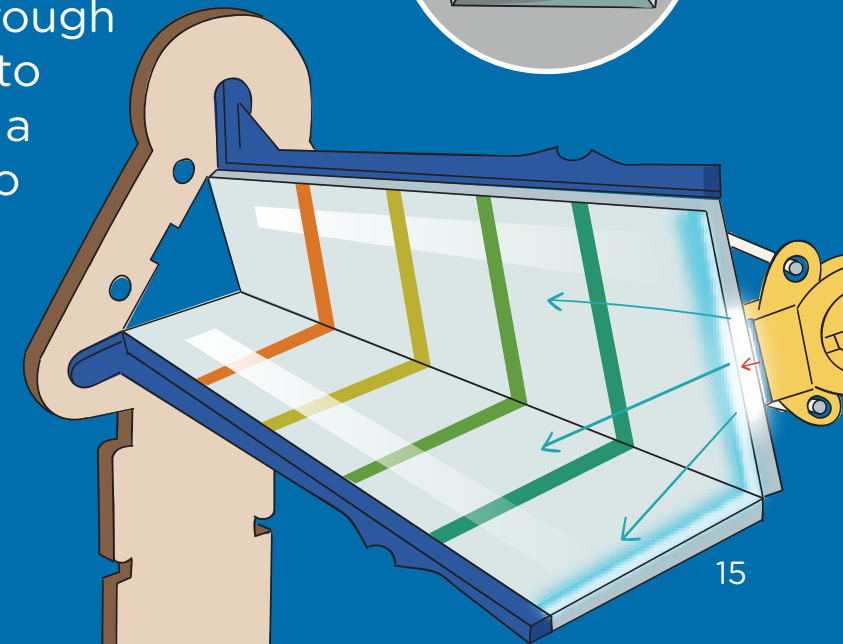
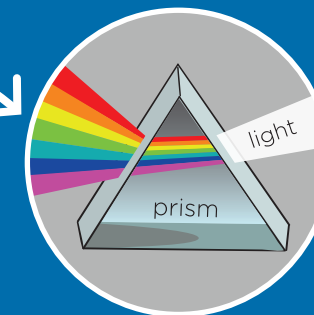


THINK

White light is a combination of all the colors of the rainbow

We call this the visible light spectrum.

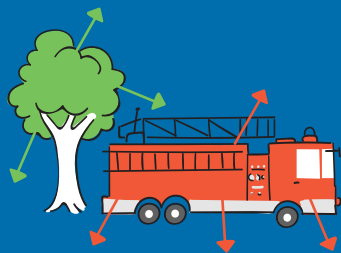
You can observe this spectrum by looking at light when it passes through a prism. Prisms split white light into different **wavelengths**, producing a rainbow. **Color filters** are similar to prisms, but instead of separating colors, they block certain colors. In this kaleidoscope, we use a rainbow color filter to let you change the color of a white light by sliding it back and forth.



THINK

See light spectrum in action!

In order to tell objects apart, our eyes developed a way to categorize light into colors. This works because different objects **reflect** and **absorb** different wavelengths of light.

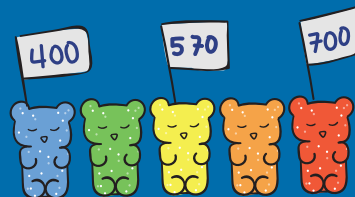


WHY IS THAT RED?

When light from the sun hits a firetruck, the paint **reflects** back red light, and **absorbs** all other wavelengths. The same is true of trees, but instead of reflecting red, the cells in the leaves of the tree reflect back green!

WAVELENGTH

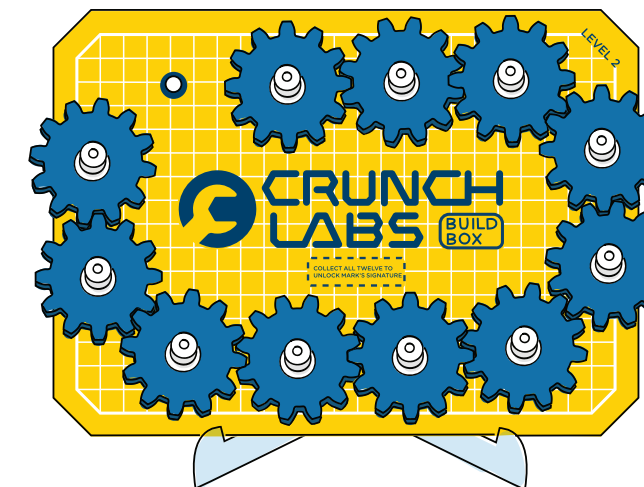
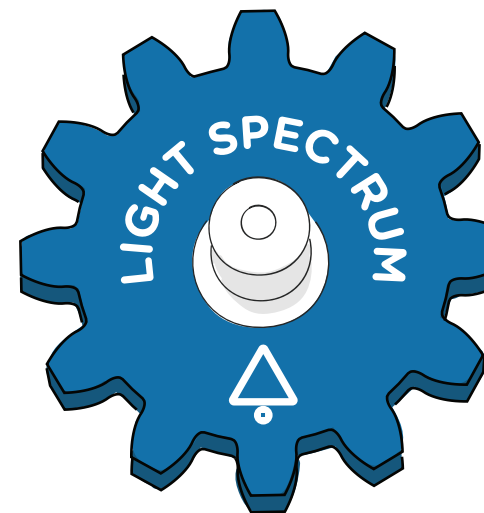
In Mark's Glow Wall video, he explains how each color has a different **wavelength**. The shortest wavelengths we see appear blue, around 400 nanometers in length, while the longest appear red, around 700 nanometers.



THINK

CONGRATULATIONS!

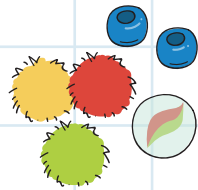
You earned a gear badge for light spectrum



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

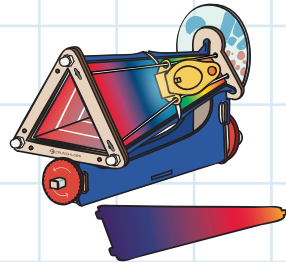
CRUNCH

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



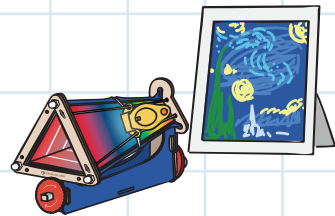
ROCK AND ROLL

Put a bead, marble or pom pom inside the kaleidoscope and roll it around.



CHANGE IT UP

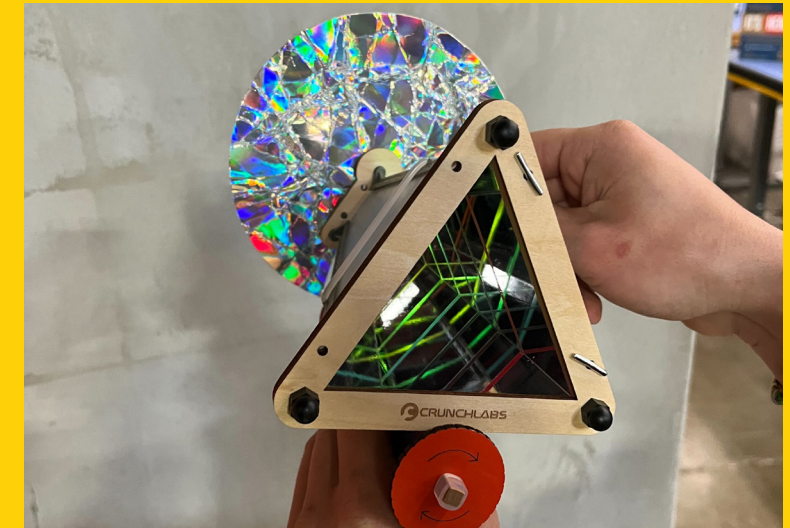
Try swapping the sunset and rainbow color filters. You can store the extra color filter on the other side of the kaleidoscope.



REFLECTIONS

Remove the disc and try holding the end of the scope up to text or images, what happens?

SHOW OFF YOUR BUILD



Share your funniest moments & coolest mods!

#crunchlabs @crunchlabs    



WARNING: This product contains a coin cell battery. A swallowed coin cell battery can cause internal chemical burns in as little as two hours and lead to death. Dispose of used batteries immediately. Keep new and used batteries away from children. If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.

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.

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