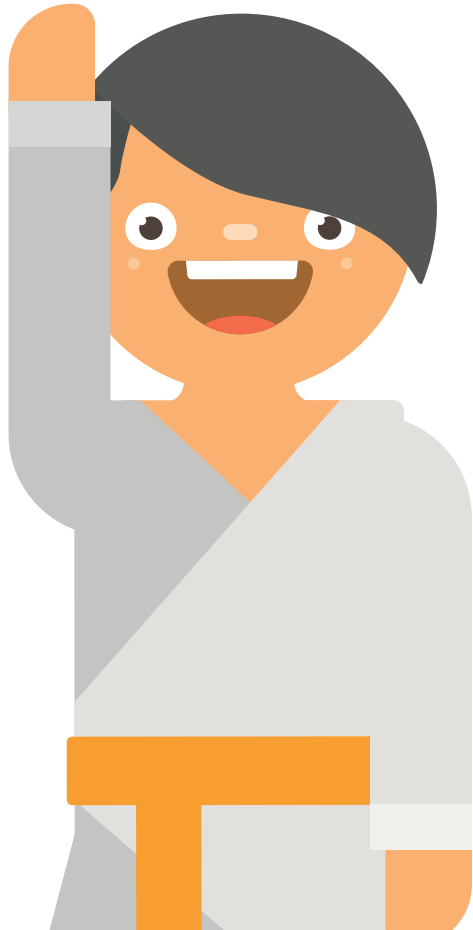


How to  
**make a lightboard**



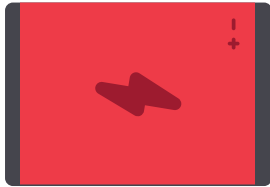


Hi! I'm Judoka, your pixel pal,  
and I'm going to help you  
build and code your own  
lightboard. **Ready? Let's go!**

# Pixel Board



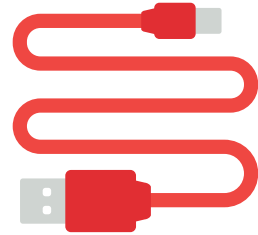
Battery



Mode Dial



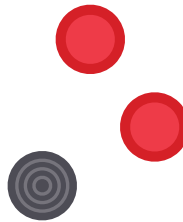
Power Cable



Lanyard



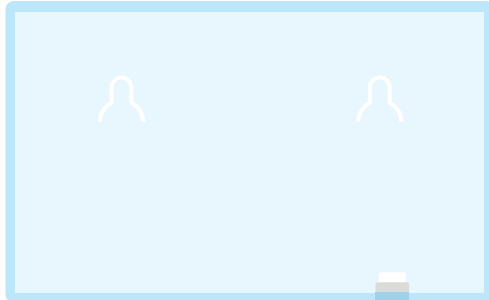
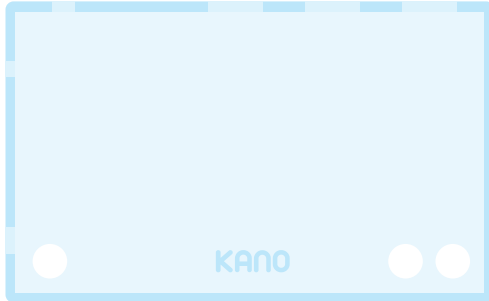
Joystick and Buttons



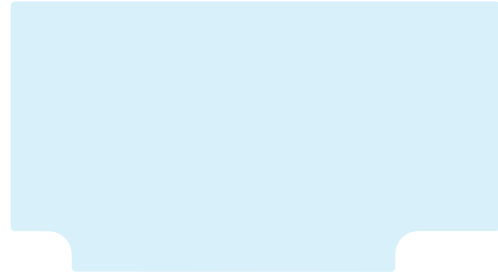
Stickers



## Case



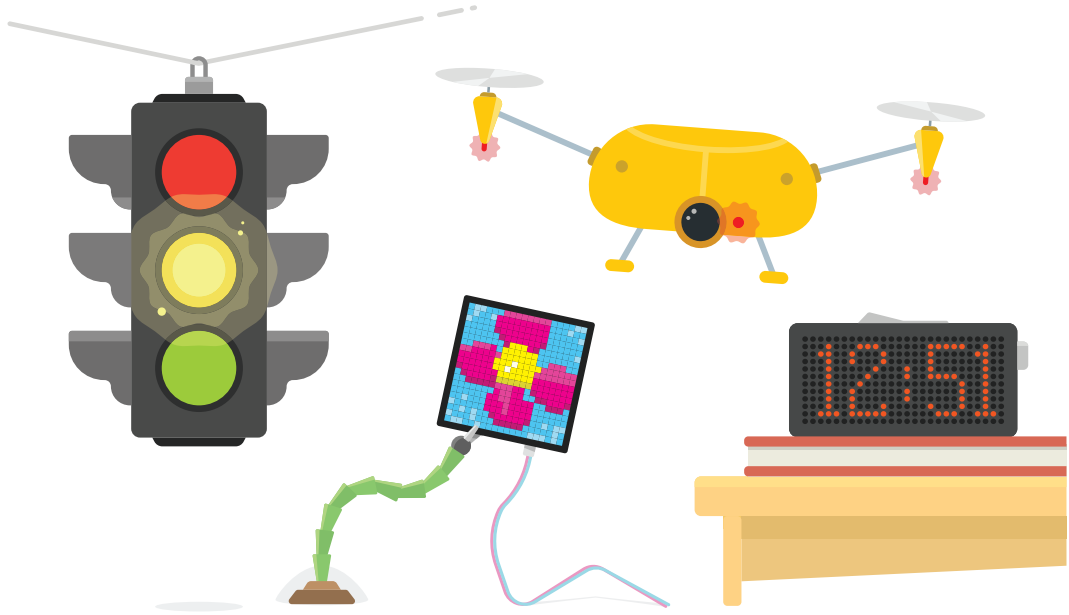
## Filter



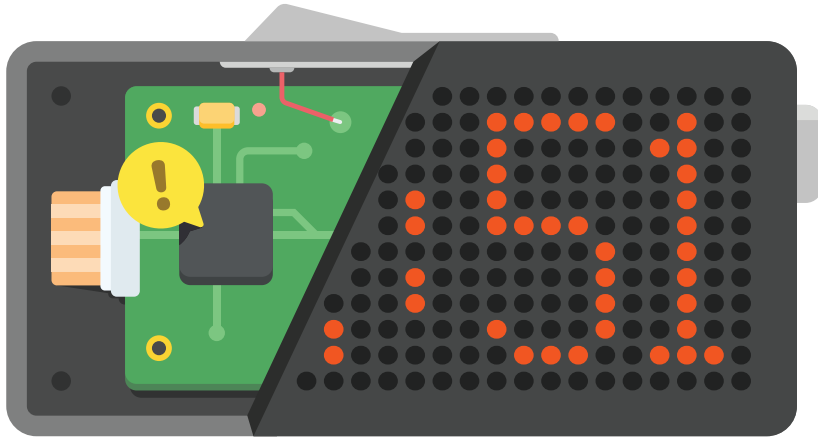
### Kano App

Download the app to talk  
to your Pixel Kit. Visit:  
[www.kano.me/app](http://www.kano.me/app)

Pixels and lights are everywhere

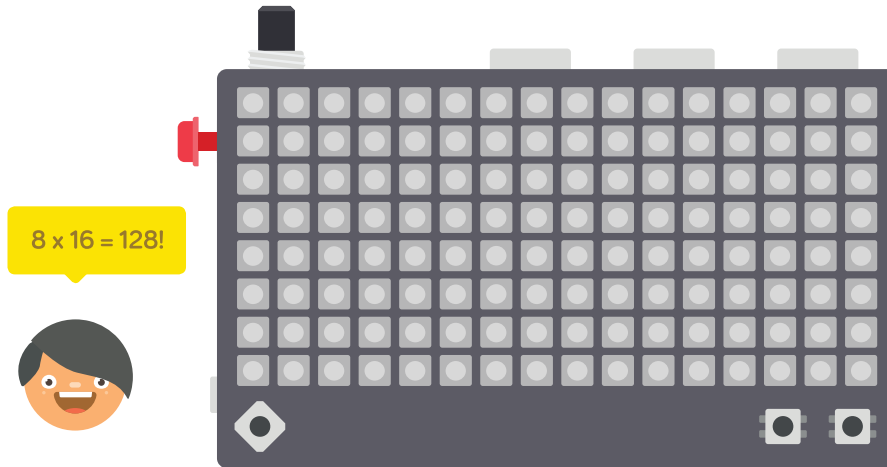


Inside them are tiny computers...



...telling the lights to blink on and off

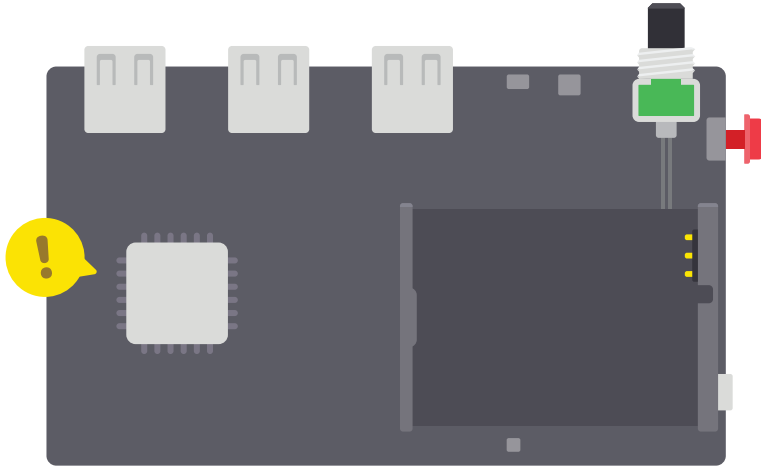
Pick up the board



It has 128 lights

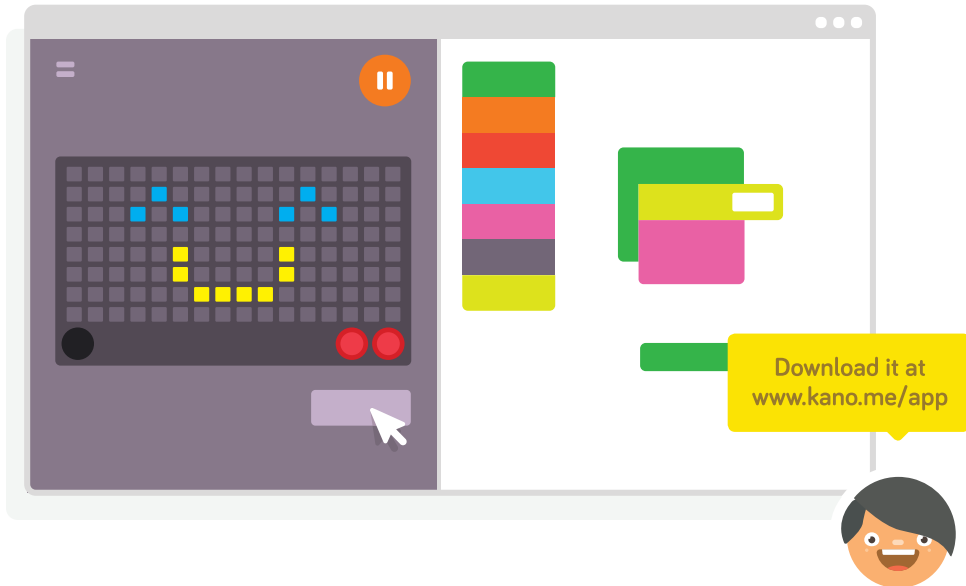


Turn it over

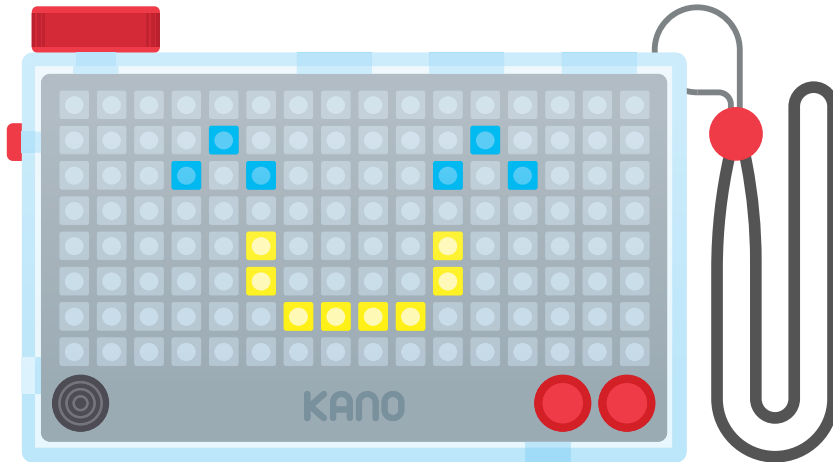


This is its brain

You can talk to the lightboard's brain using **Kano App**...

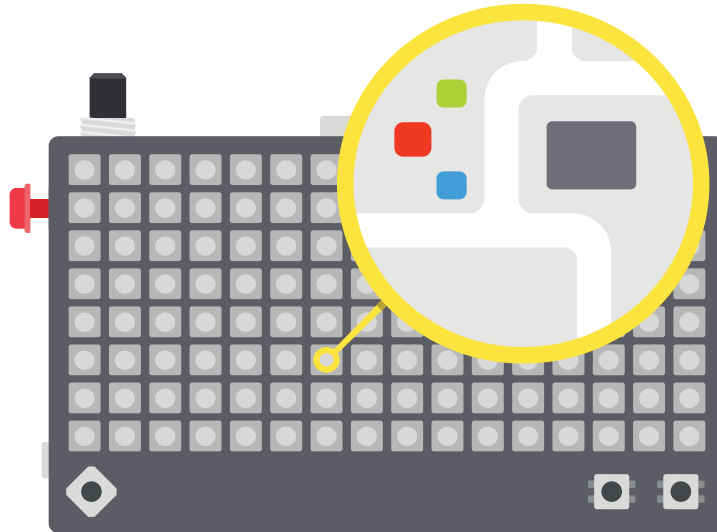


...and take control of the lights



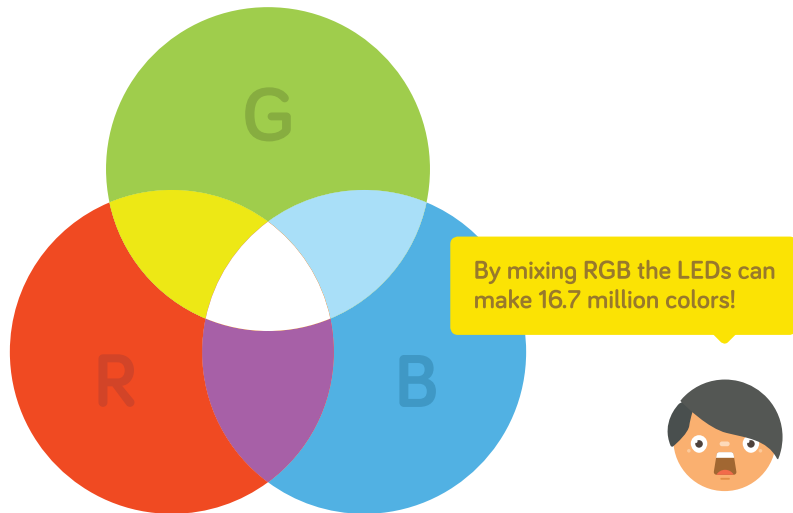
They're called **L**ight **E**mitting **D**iodes - LEDs

Take a closer look. What can you see?



Hidden within each LED are 3 tiny lights - a **R**ed, a **G**reen and a **B**lue

They work together to make colors



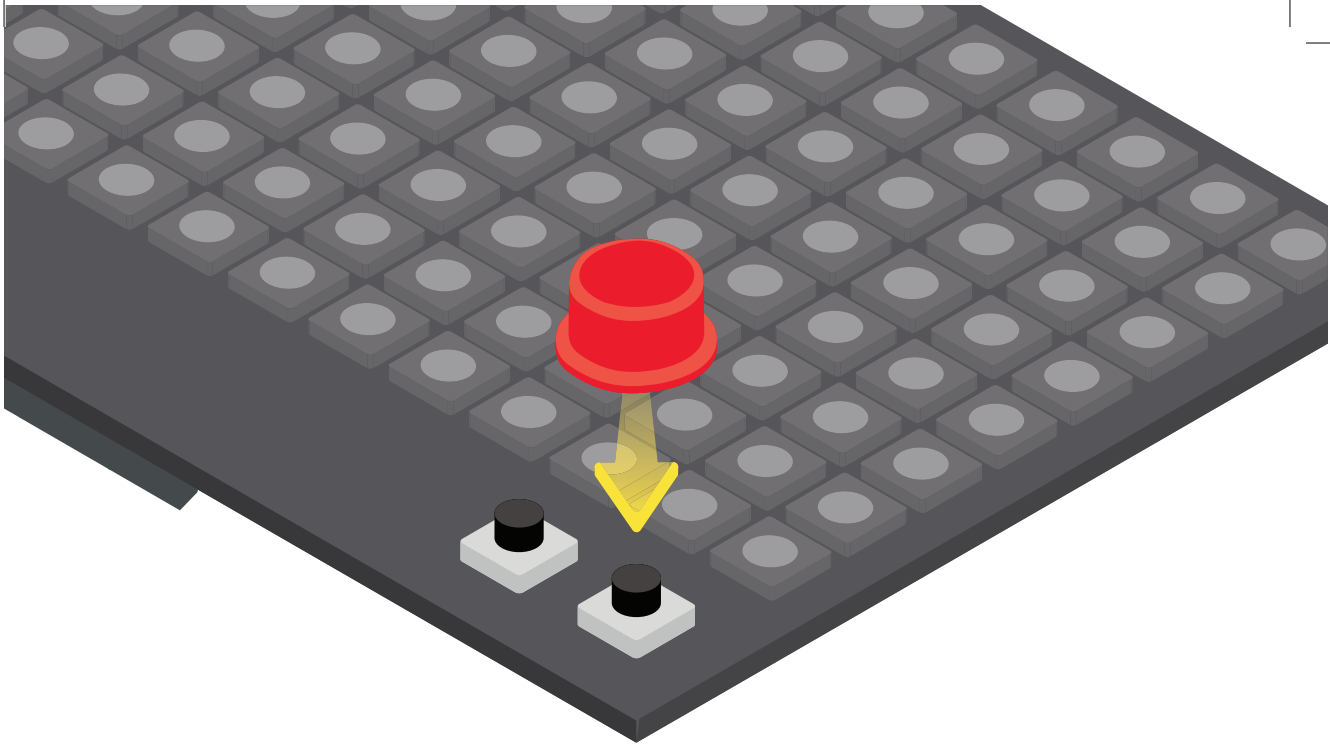
Soon you'll code the LEDs to create patterns, animations, games...

But first, you need buttons



The buttons send electrical signals to the brain when pressed





Push both red buttons firmly in place, like this

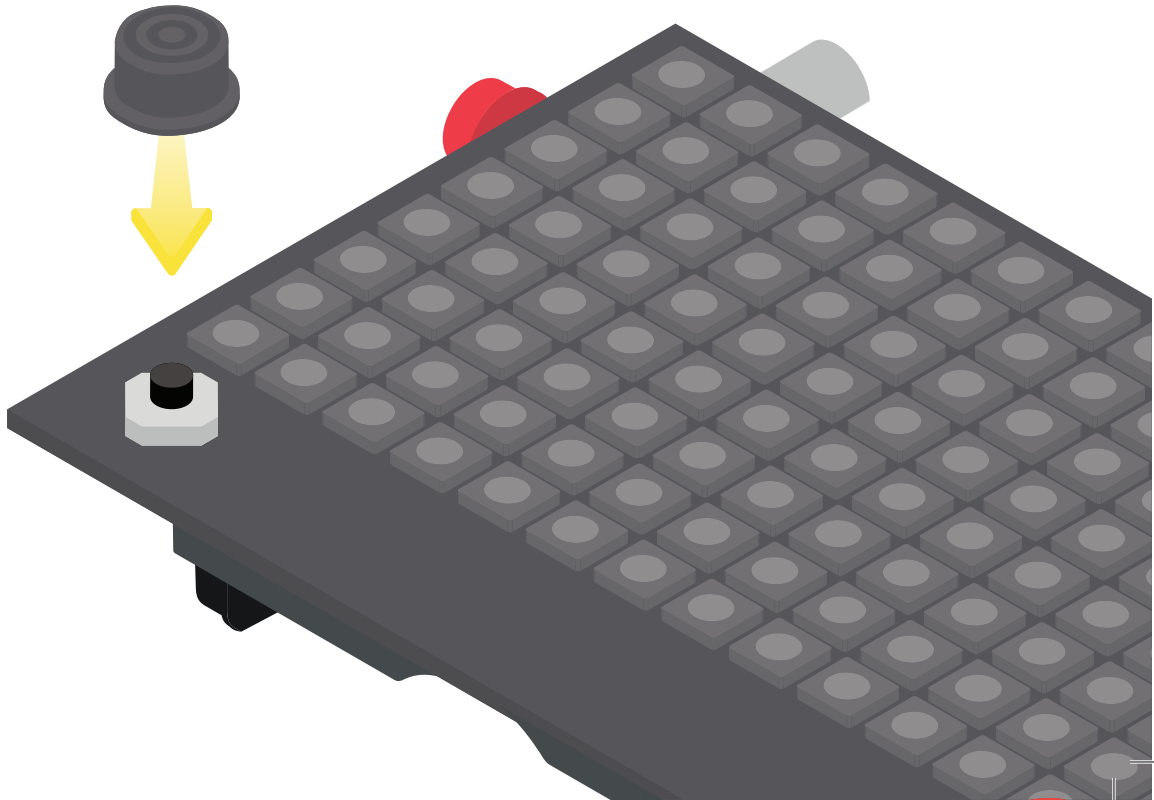
Great! Now let's add the joystick



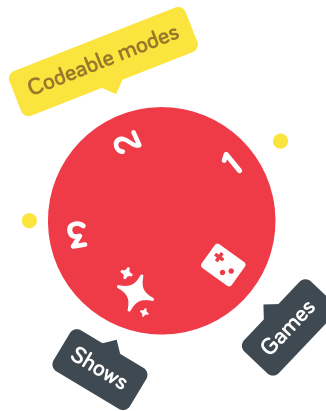
It moves up, down, left, right and clicks



Plug it firmly onto the brain

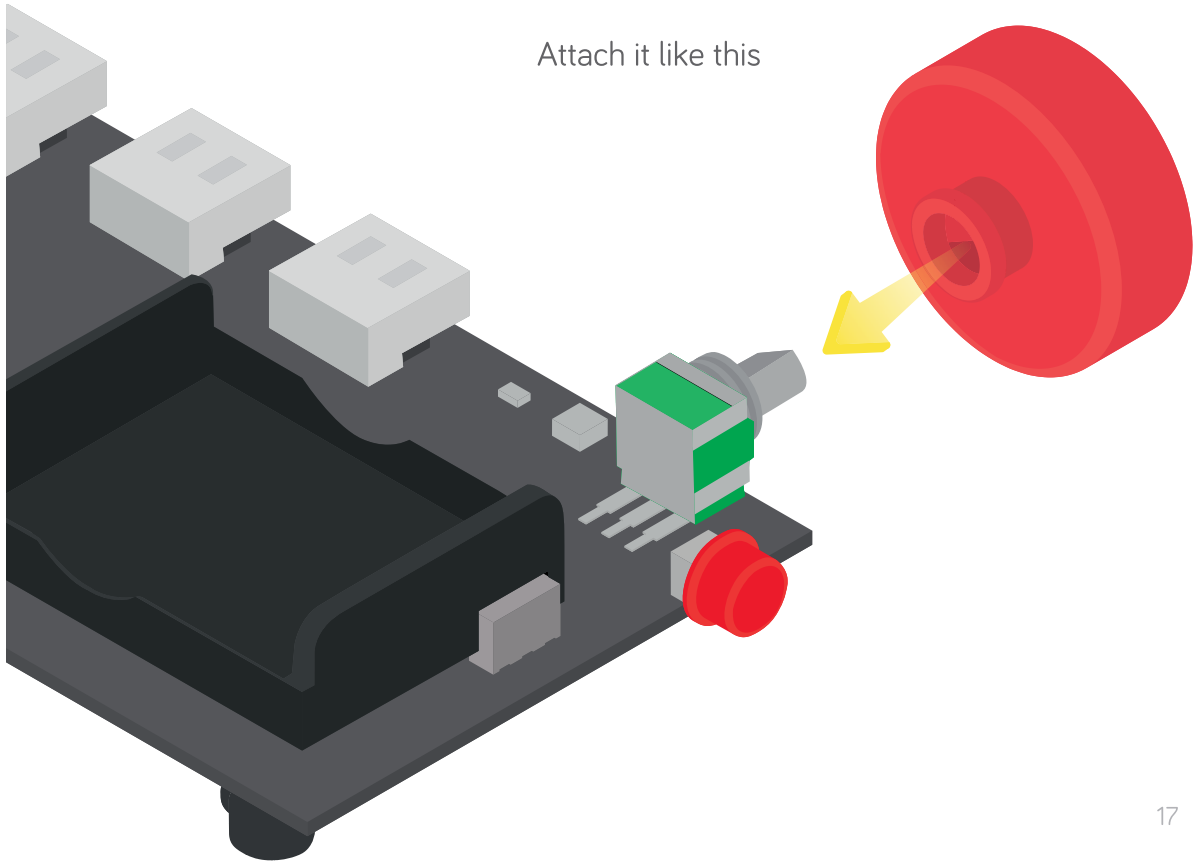


Time for the mode dial



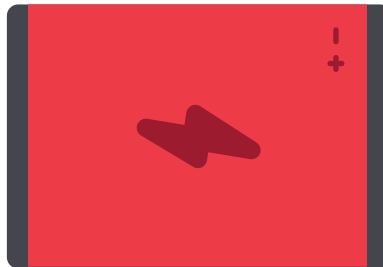
Each turn sends a signal to the brain, telling it what mode you want

Attach it like this



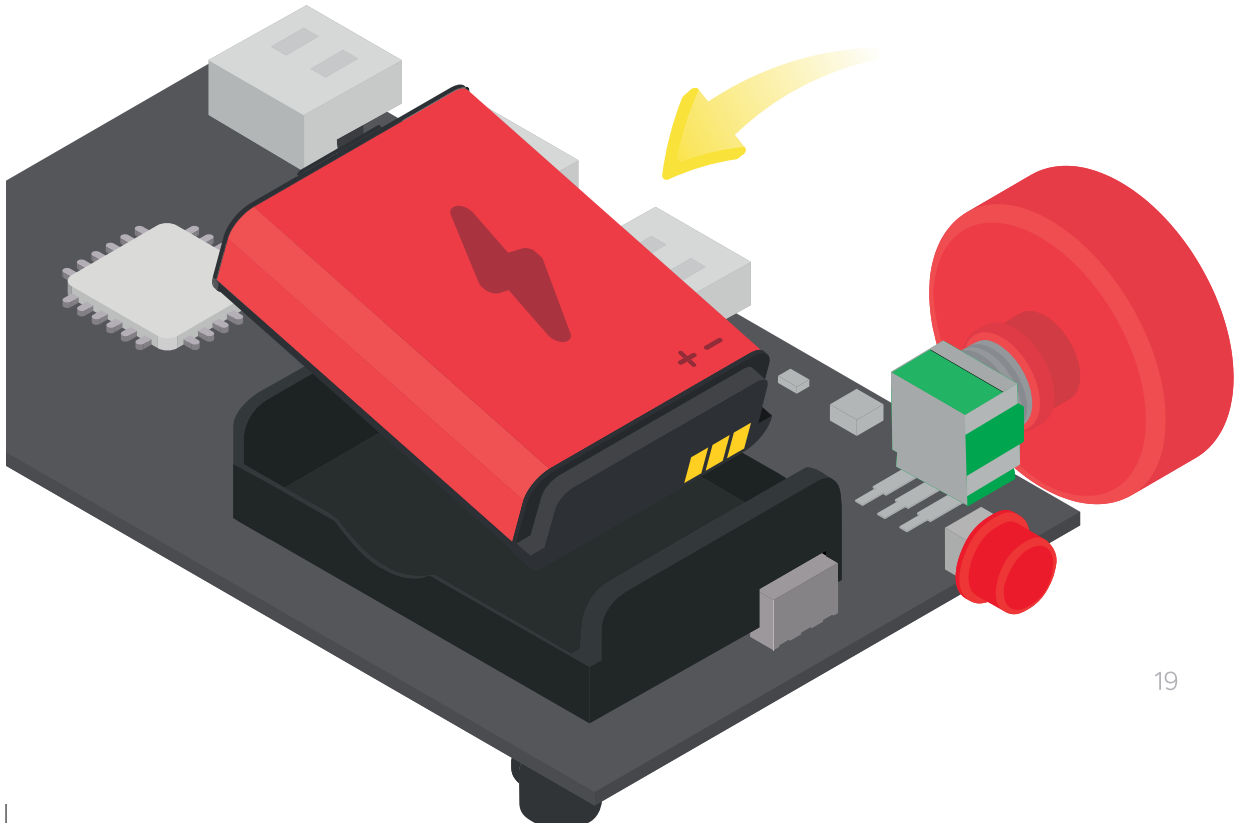
You need the battery to power up the pixels

Inside there are trillions of moving electrons, which create electricity



Make sure it is this way up

Place the battery in, shiny connectors first

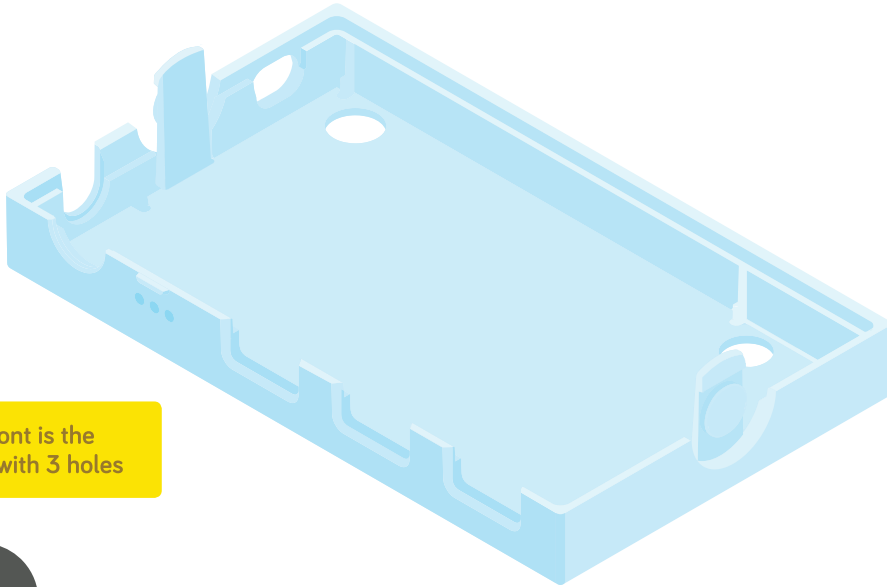


Great! Now, to keep it strong and safe...



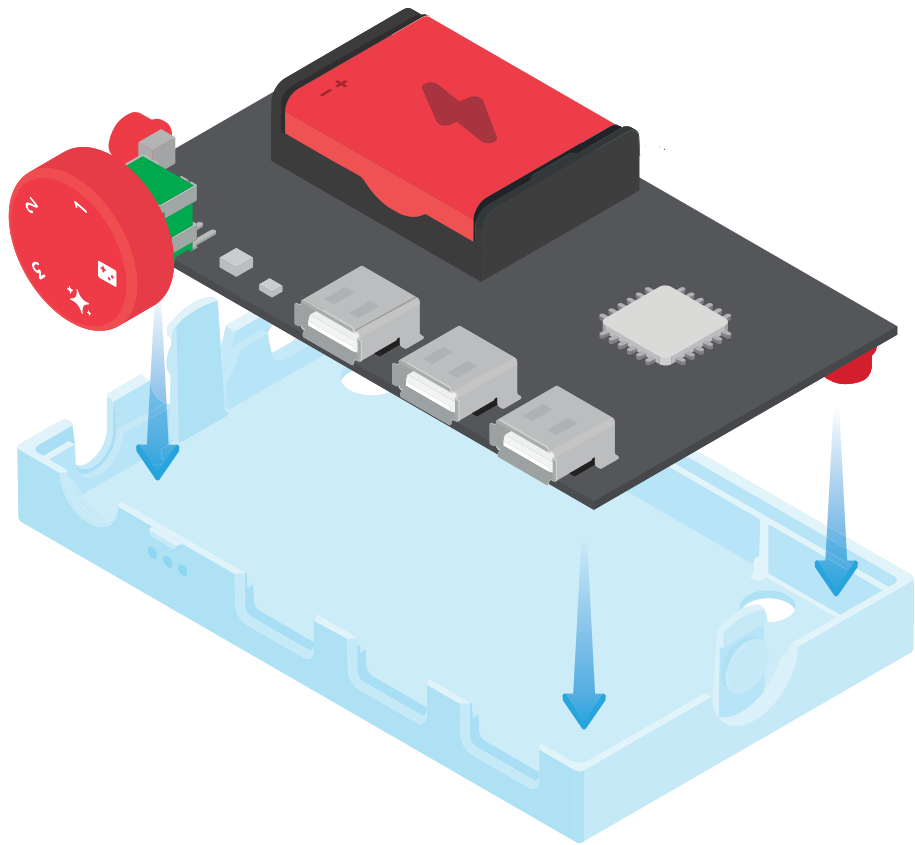
...let's make a case

Put the front of the case on a flat surface

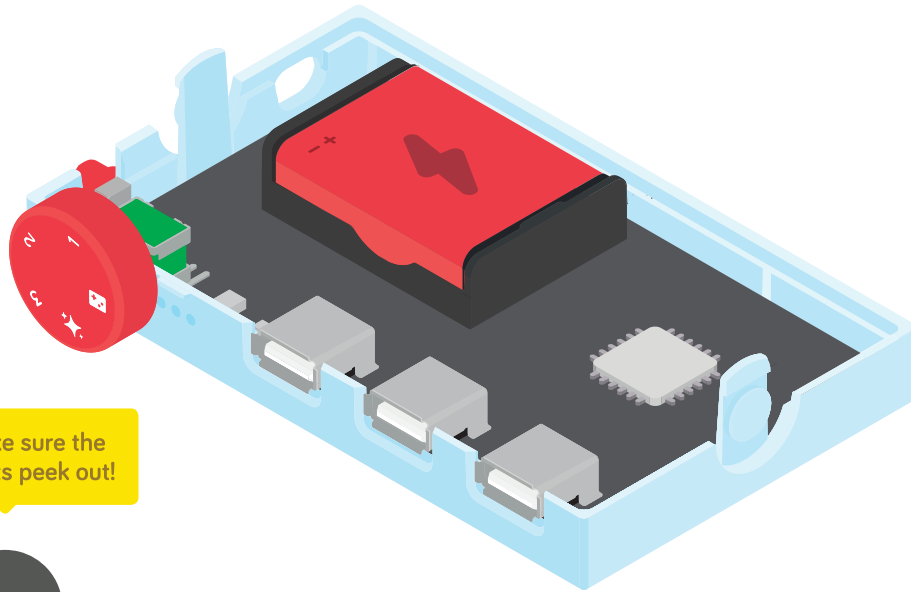


The front is the  
piece with 3 holes



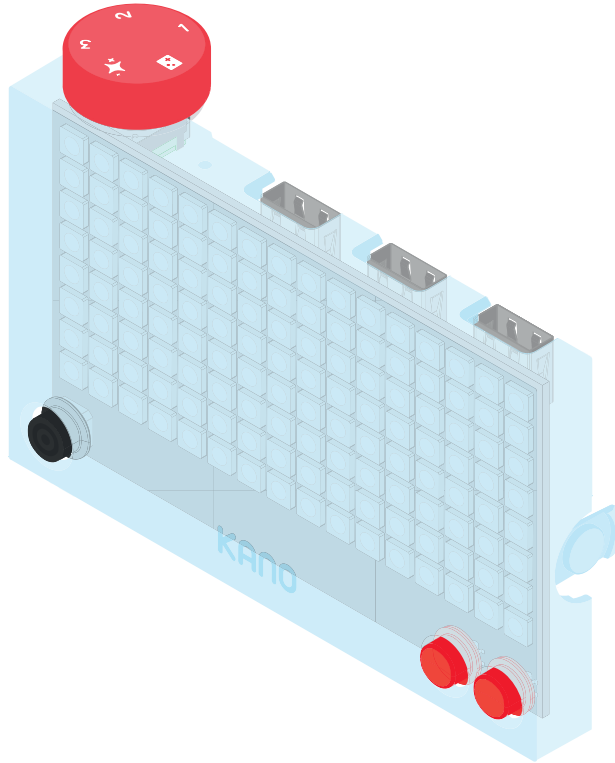






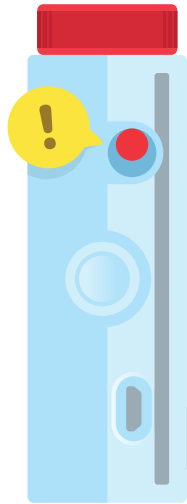
Make sure the ports peek out!





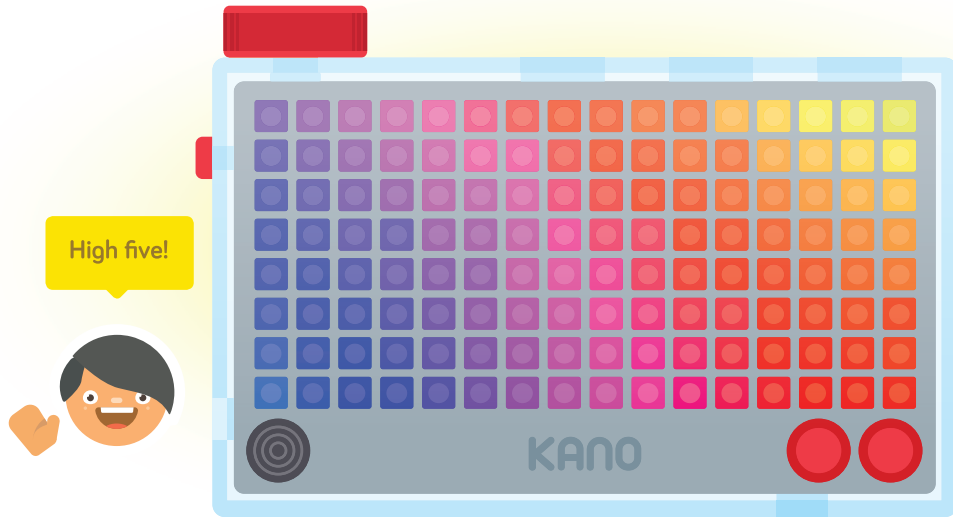


Let's bring it to life



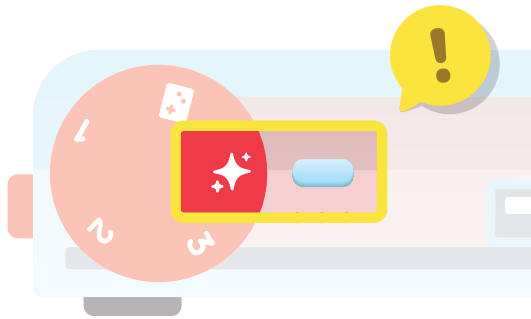
Slide the switch down to turn it on

Awesome!



No lights? Go back to page 20

Turn the dial to ✨

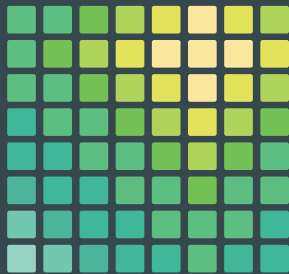


Make sure it lines up like this

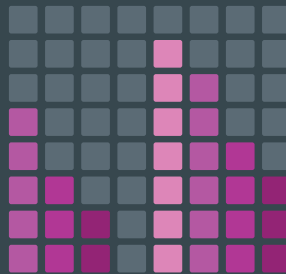


This is **Light Mode**

There are three lightshows



Perlin noise



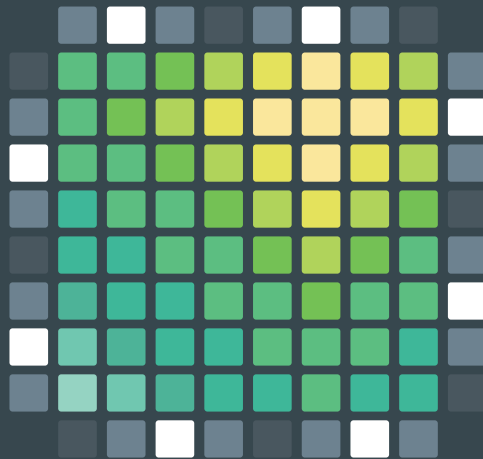
Sound Visualizer



Particle Flow

Move the **joystick** left and right (  ) to choose between them

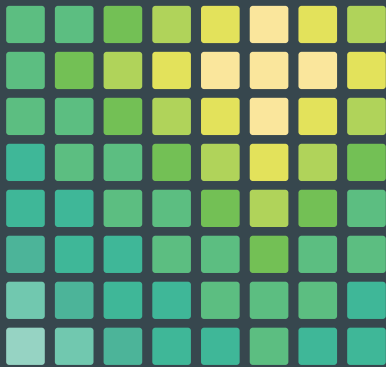
Select the one that looks like this



Press **A** (   ) to Start



## This is **Perlin Noise**





Perlin Noise is an algorithm. It's used to create textures and landscapes in animations, movies, and games like Minecraft.



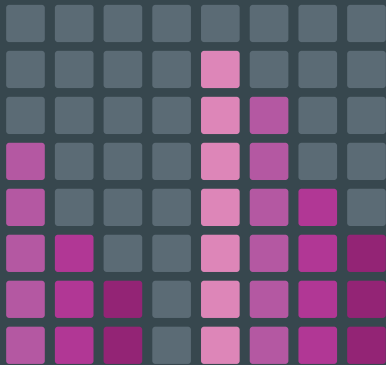
Use your **joystick** to adjust the noise pattern



The **A** button morphs the colors

Press **B** (   ) to go back to the Menu

Select the second lightshow, **Sound Visualizer**, and press **A** to start



Sound Visualizer uses your Pixel Kit's microphone to turn sound into light



Now make some **noise**, and see how the device reacts



Change the colors with your **joystick**

Press **B** to go back to the Menu

## The third lightshow is **Particle Flow**



These points of light drift across the lightboard leaving a trail of color like shooting stars

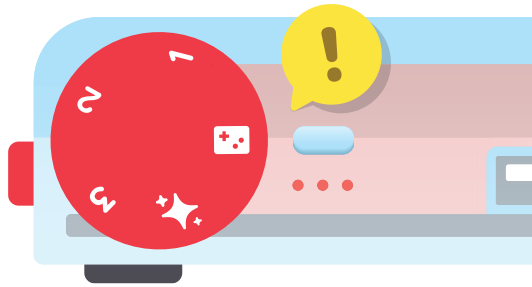


Use the **joystick**  
to control the flow of  
the particles

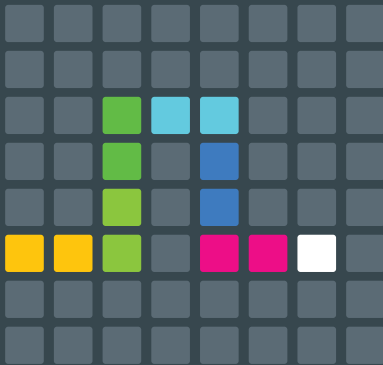


**Up and Down**  
adjusts the speed

Now turn the dial to **Game Mode**, 



## Let's start with a classic – **Super Snake**



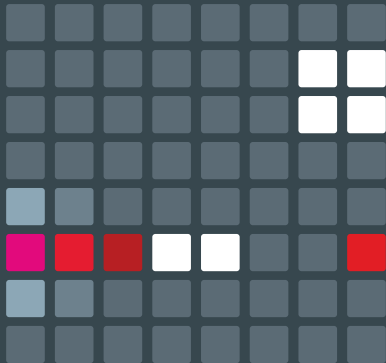
Snake was first released in 1978, but the same rules still apply today – eat the apples, don't hit your tail!



Move the snake around  
with your **joystick**

Press **A** to start and **B** when you're finished

Rainbow Runner is a space adventure



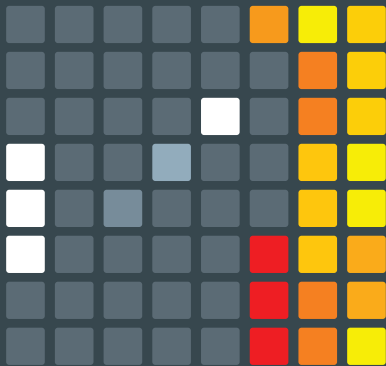
Switch lanes. Avoid white meteors. And grab the flashing fuel crystals! Swoosh!



Steer your ship using the **joystick**

Press **B** to go back to the Menu

Test your accuracy in **Breakout!**

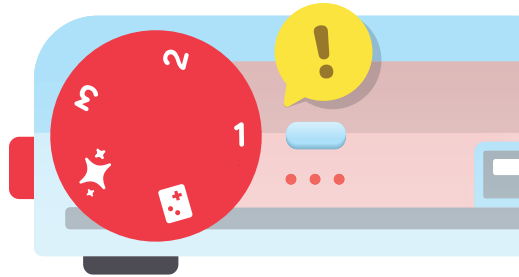


Bounce the ball, using the paddle. And smash your way through the wall!



Move your paddle with the **joystick**

Now it's time to code your own creations...



...with modes **1, 2** and **3**



You'll make your own **games, animations** and **more**



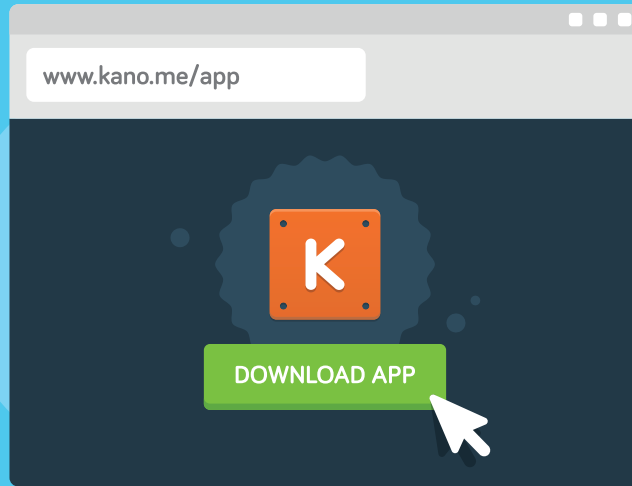
Let's fire up the **Kano App**

Go to [www.kano.me/app](http://www.kano.me/app) on your home computer...



...and follow the instructions on screen

Once installed and connected...



...you'll activate the full power of your lightboard!

Beat the **coding challenges** to unlock...



### **Weather Watcher**

Live weather data to help you decide if you need an umbrella

### **Musical Heartbeat**

Create amazing light displays that move in time with the beat



### **Chatterbox**

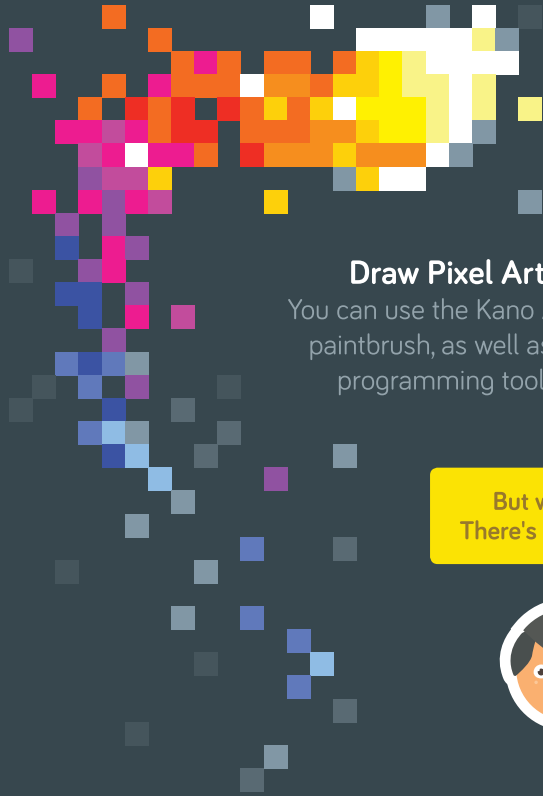
A face that talks when you talk





## News Ticker

Stream live news to your display  
to stay on top of events



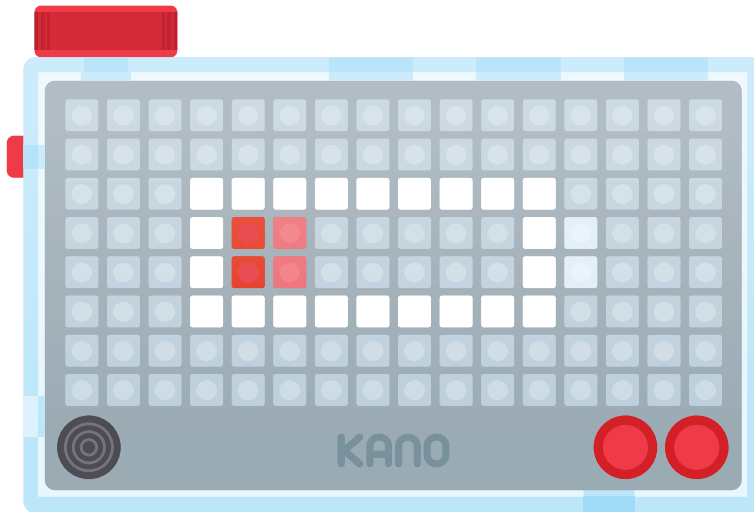
## Draw Pixel Art

You can use the Kano App's  
paintbrush, as well as its  
programming tools

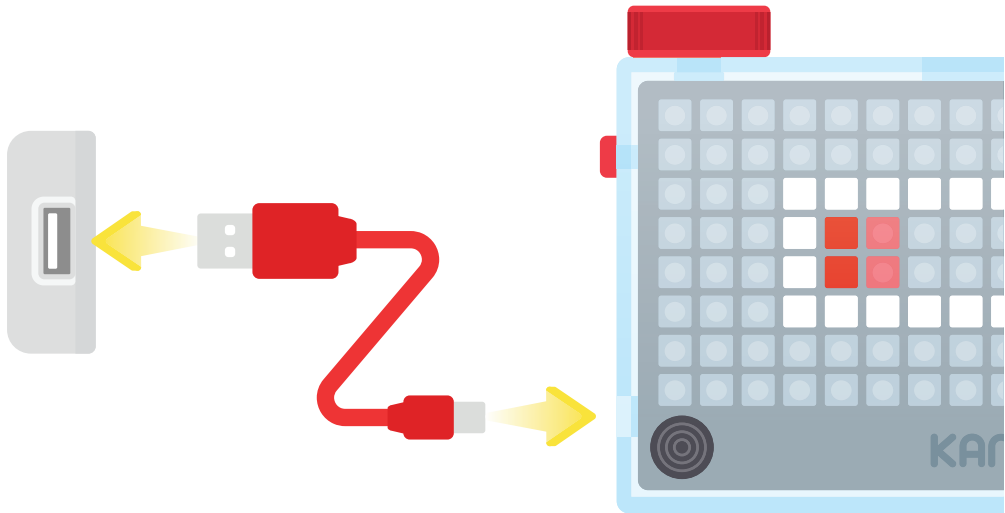
But wait!  
There's more...



Your lightboard will need to be charged from time to time

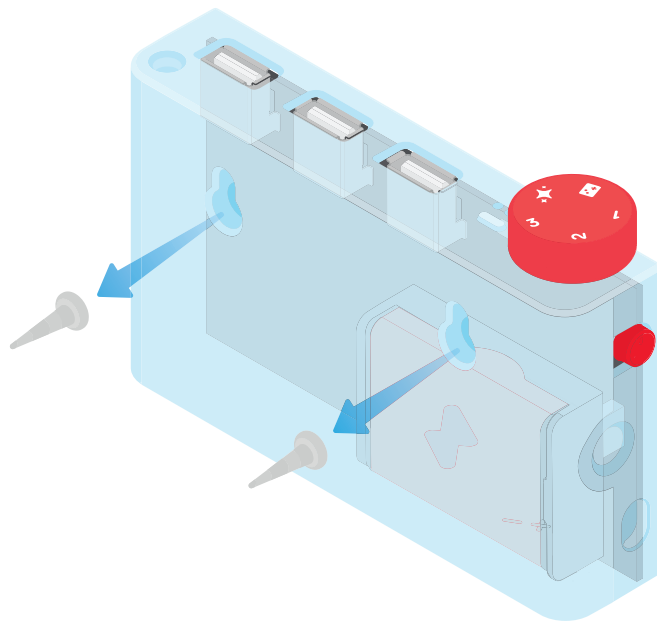


Plug the small end of the red cable into your lightboard...



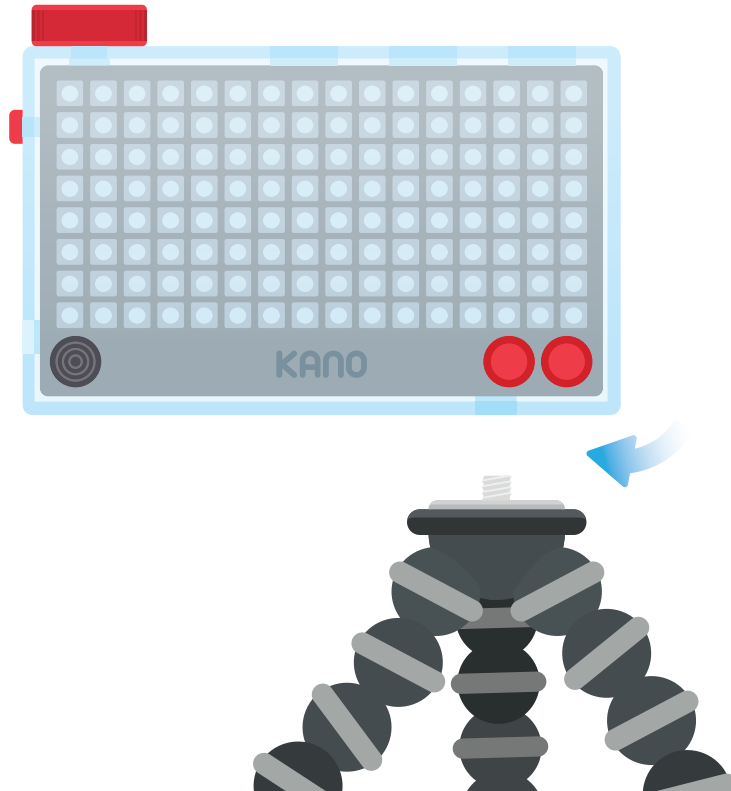
...and the big end into a USB charger or computer

The holes on the back help you mount it to things

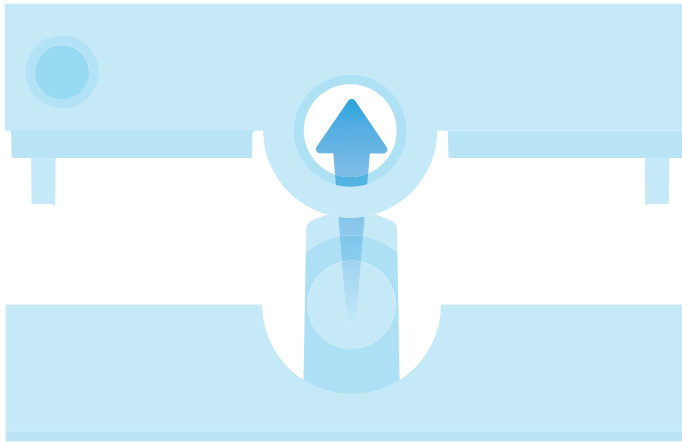




Even screw it onto tripods!

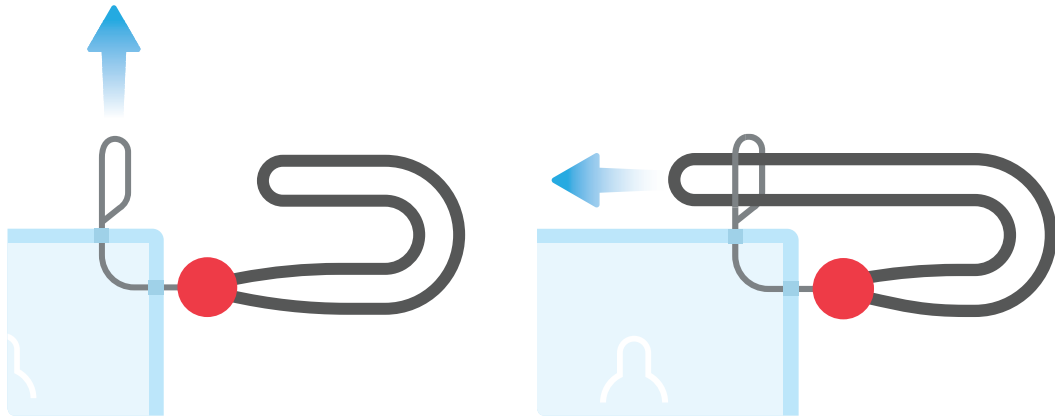


Let's make it easier to carry

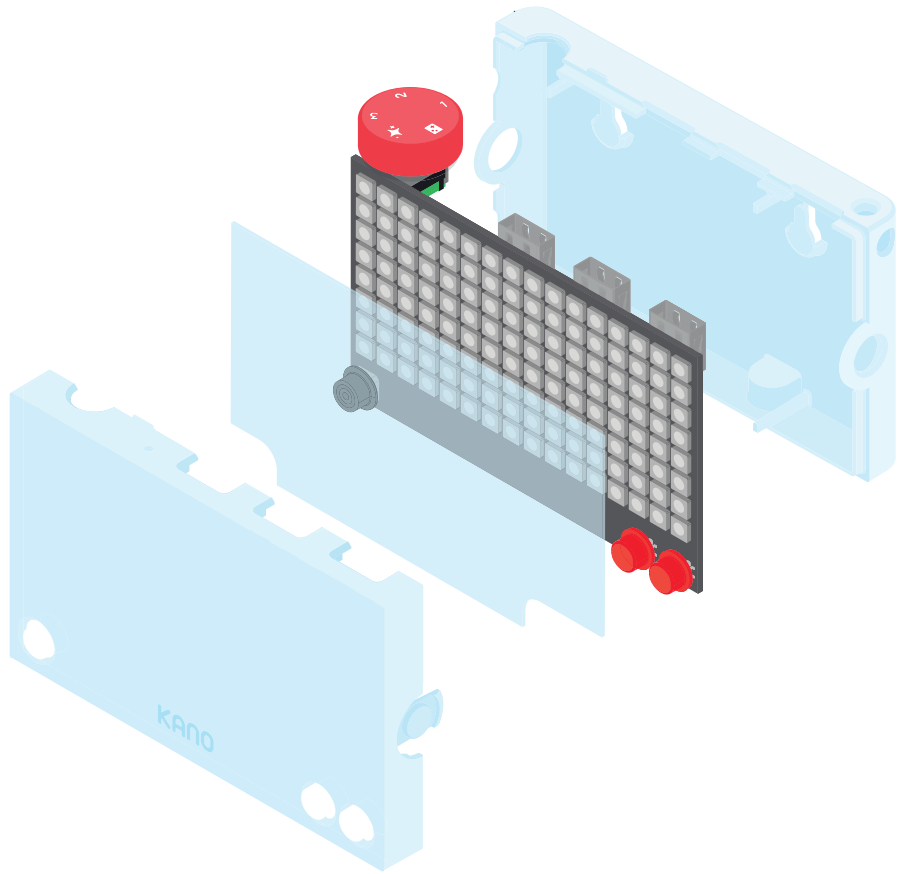


Take off the back

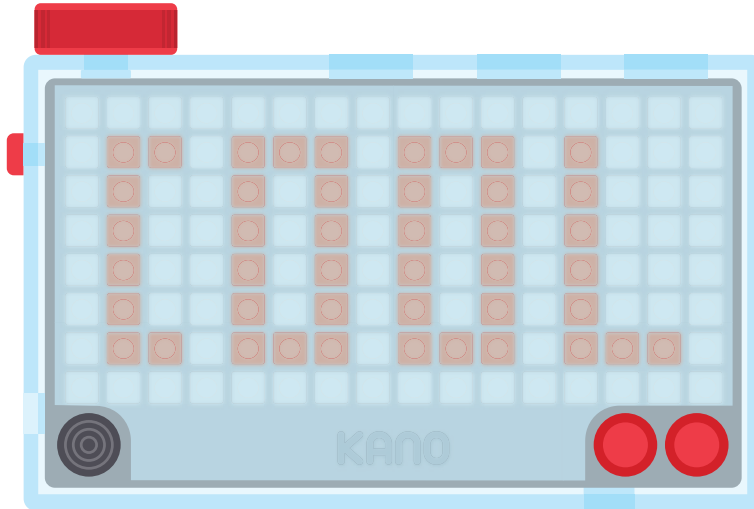
Push the small end of the lanyard through the side hole



Now pull tight

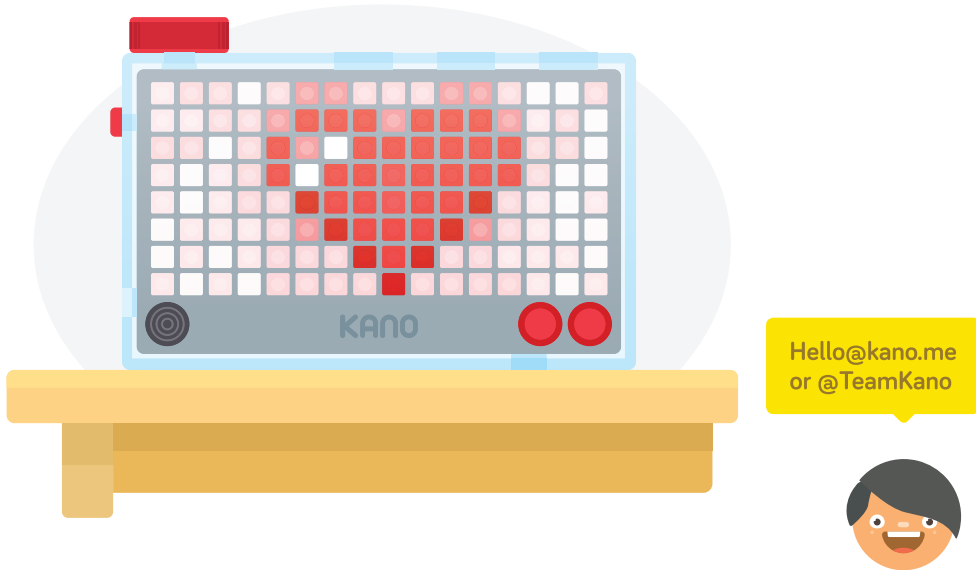


Add a filter



It'll change the effect of the light

Email or tweet us a picture of what you make with your Pixel Kit...



...and we'll make you famous!

Want more?



**help.kano.me**

Help with anything  
from kits to coding



**kano.me/world**

Endless content by  
a friendly community



**kano.me/shop**

More kits  
and sensors



**/teamkano**

For tutorials, films  
and fun stuff



**/kanocomputing**

Talk to us and get  
the latest news



**@teamkano**

Send us your pic  
and questions

This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum distance between 20cm the radiator your body: Use only the supplied antenna.

FCC ID: 2ACVK-1003



**KANO**

A Computer Anyone Can Make™  
Anyone Can Make™

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