

KIDY PLAY
TO
GROW
WOLF®

MY FIRST ELECTRICAL LAB

Learn, assemble, and turn on!

KIDYELEC



Starting at

6

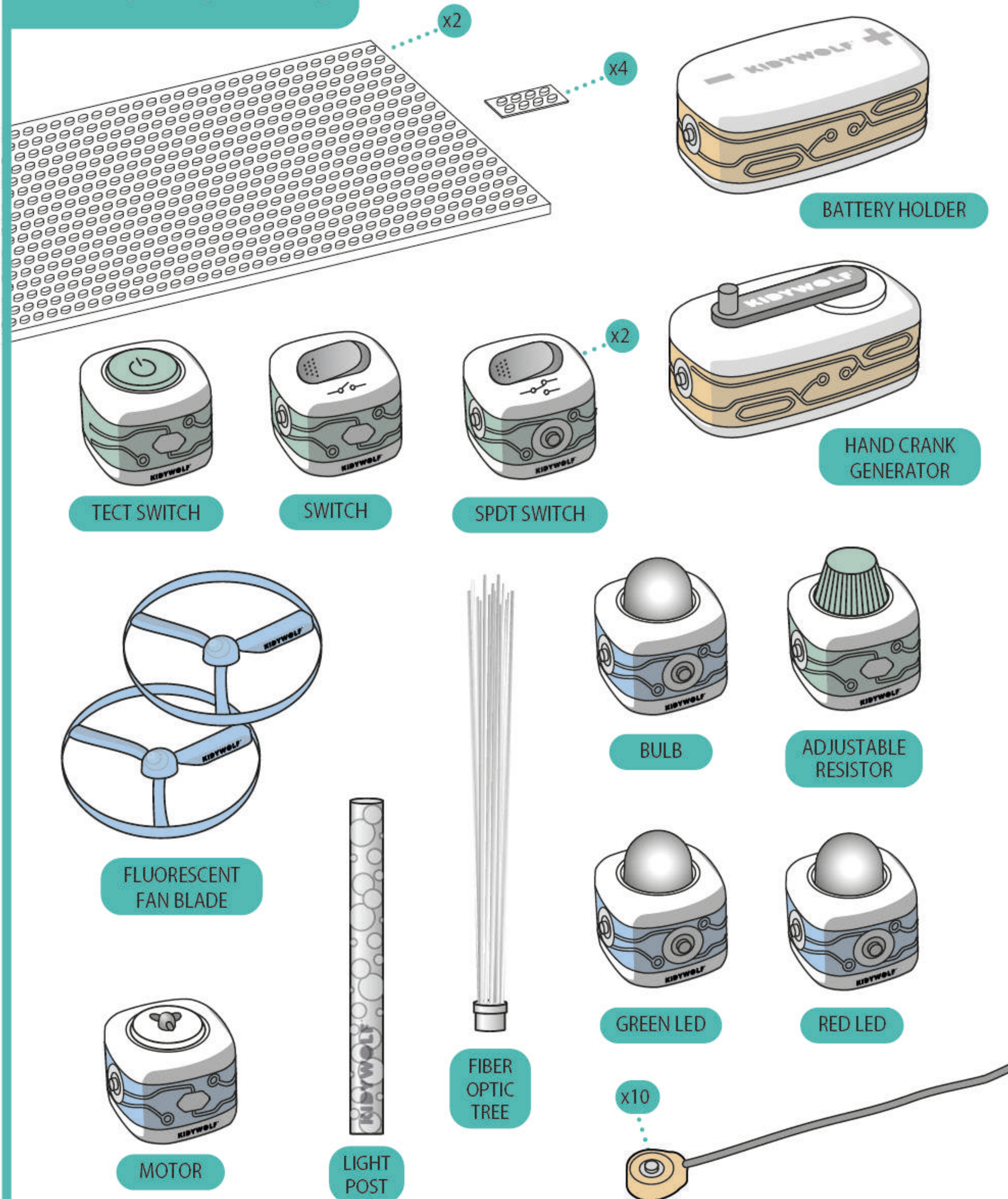
years



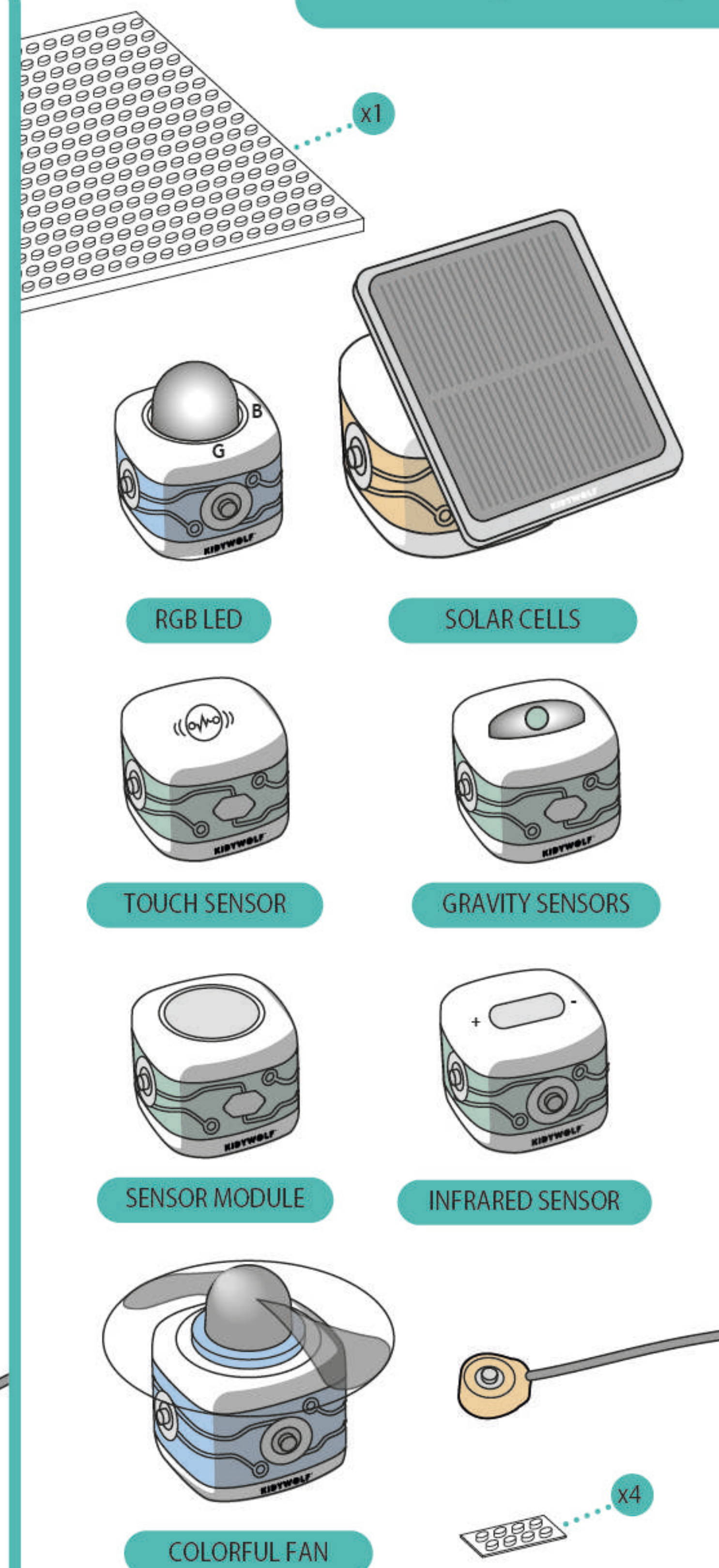
**Welcome to the world of
electricity with KIDYELEC!**

A kit for learning about electricity while having fun!

STARTER PACK



EXPERT PACK

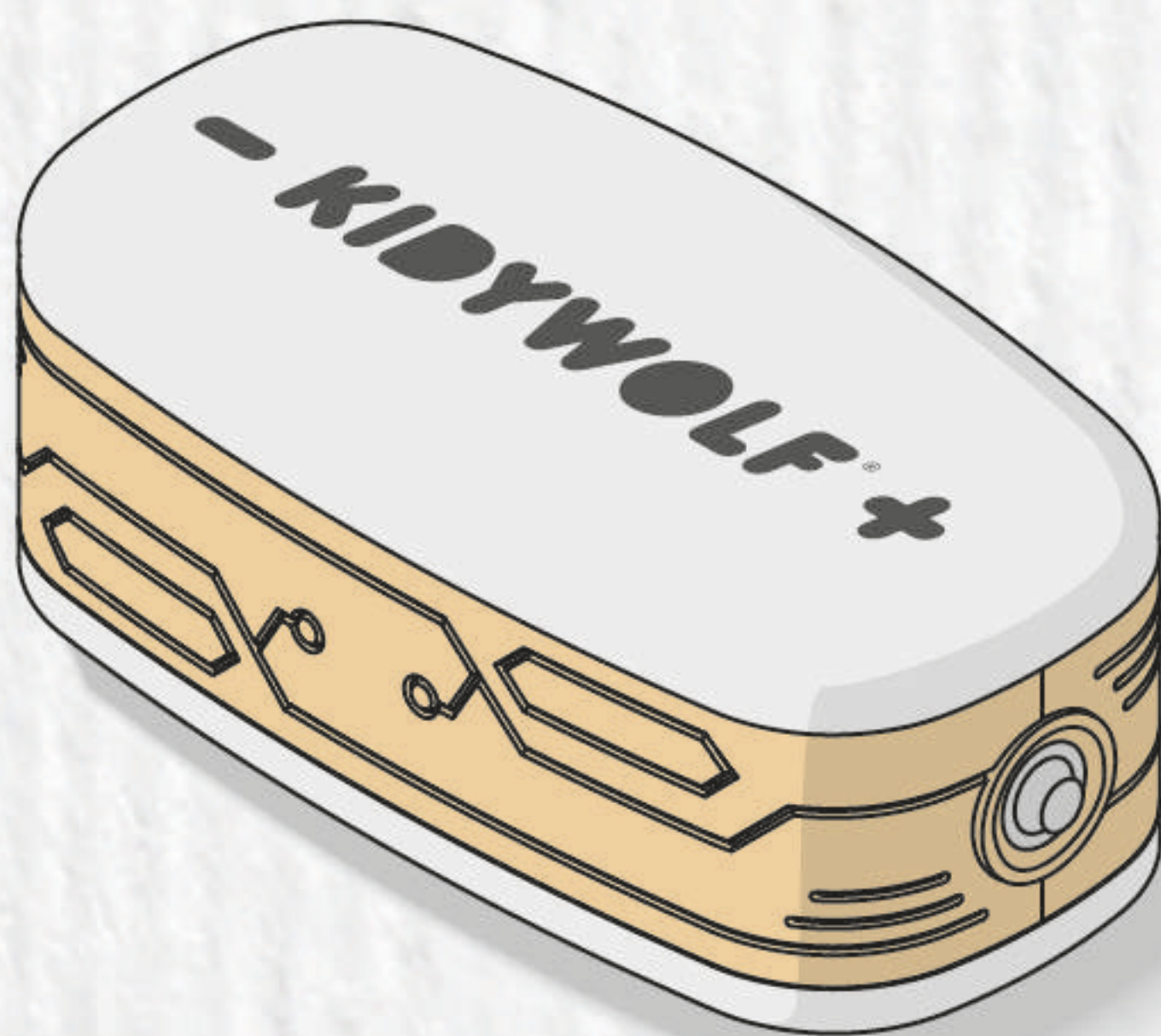


ALL THE COMPONENTS OF YOUR KIDYELEC KIT

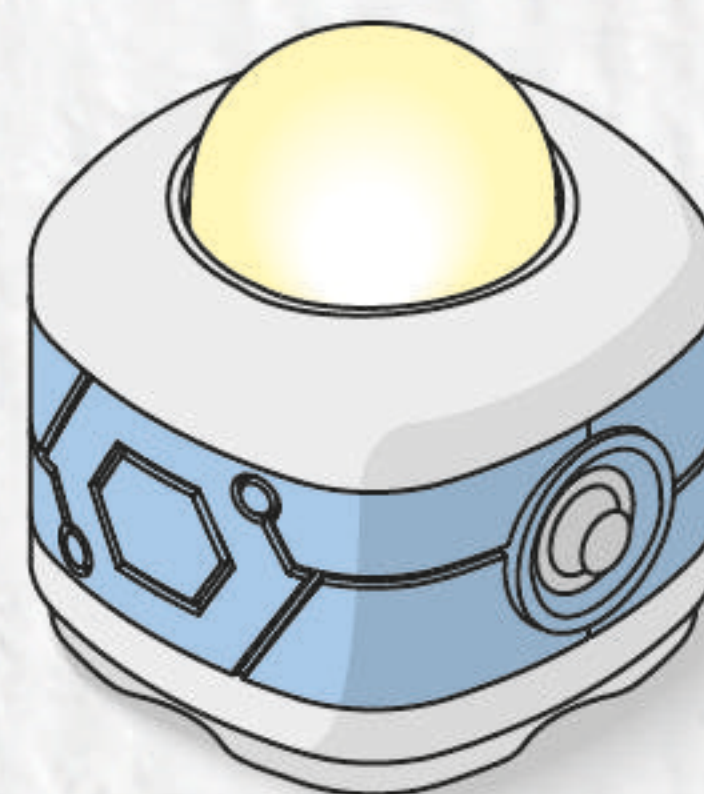
Here are the items you will use to conduct your electrical experiments depending on your pack!

Don't forget to familiarize yourself with them before you begin.

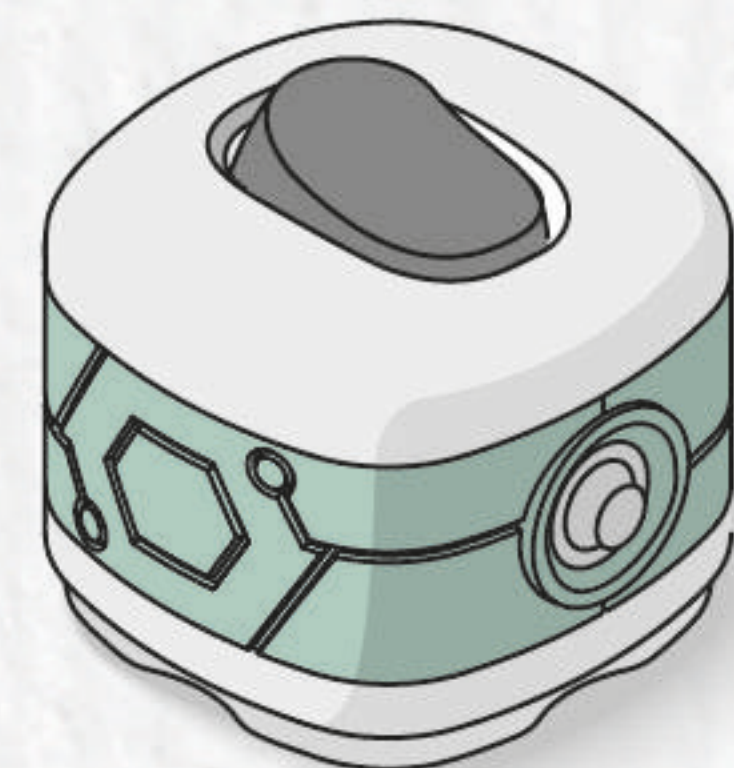
Power source



Receiver

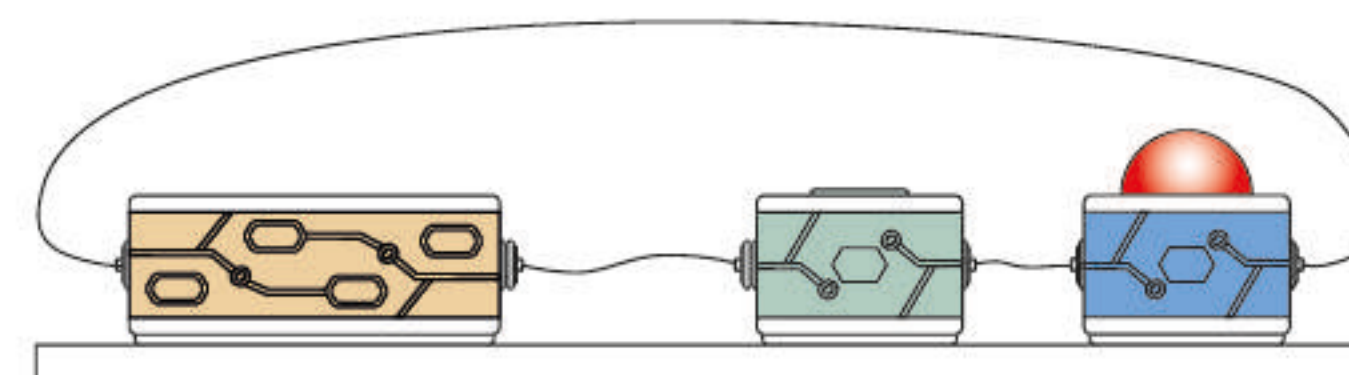
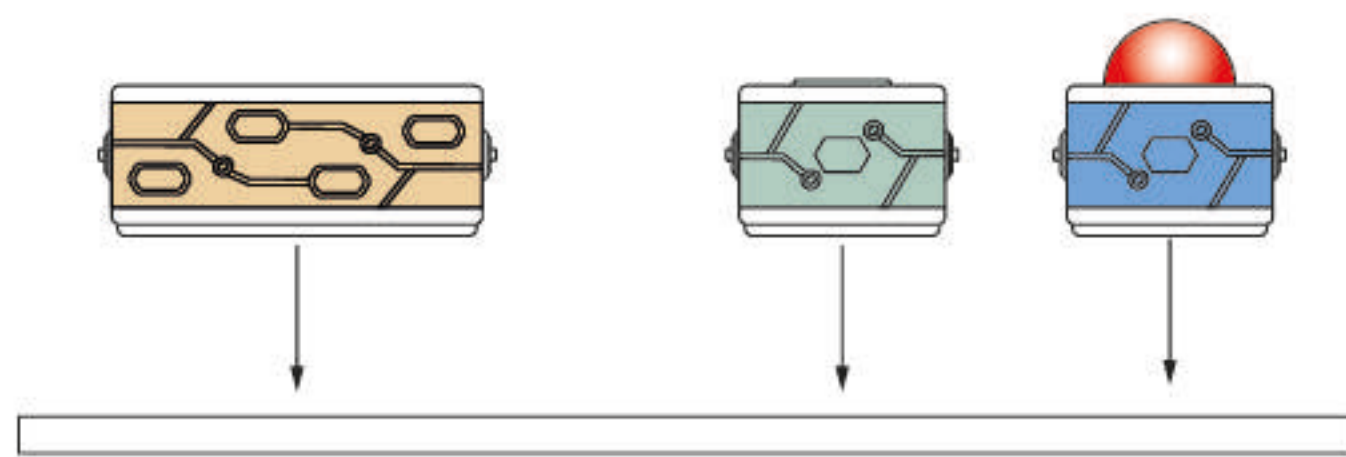
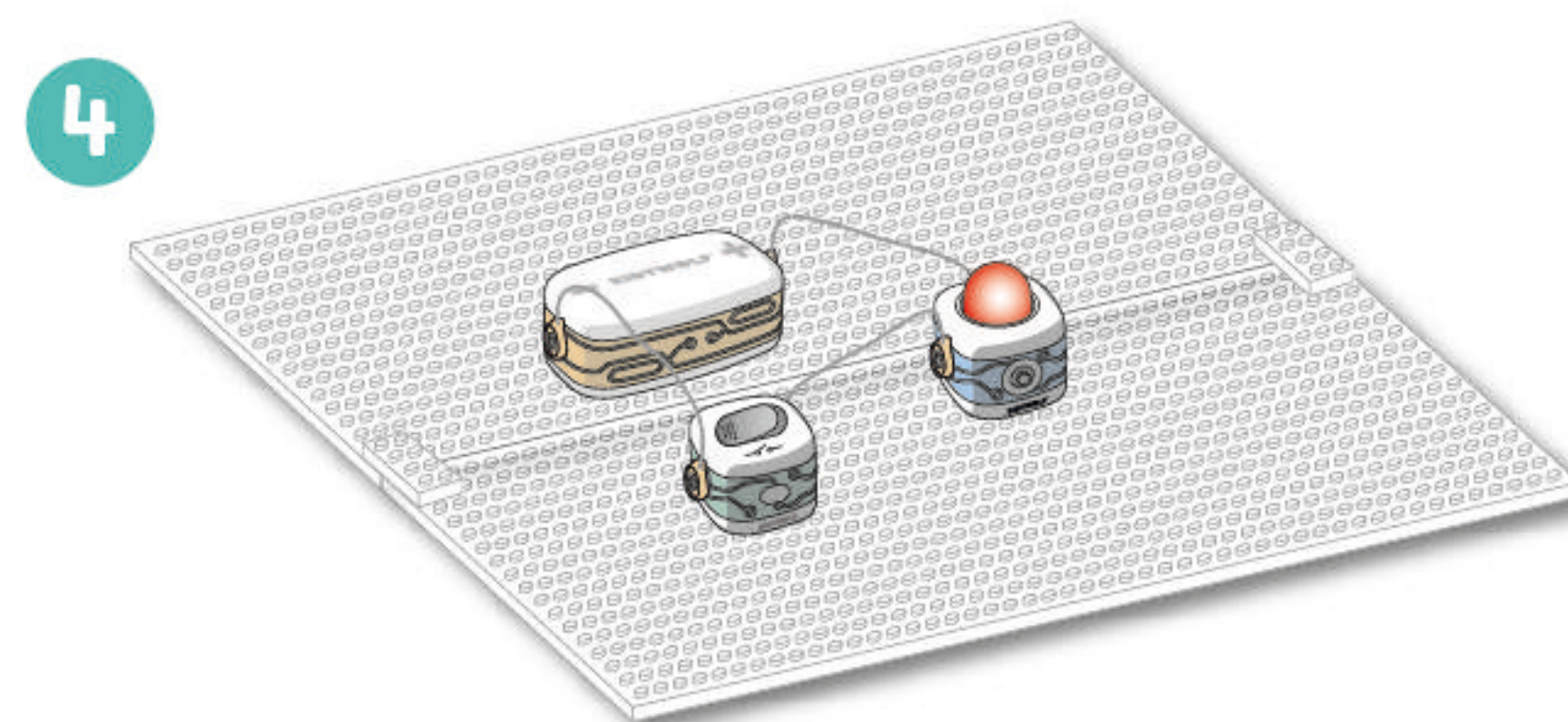
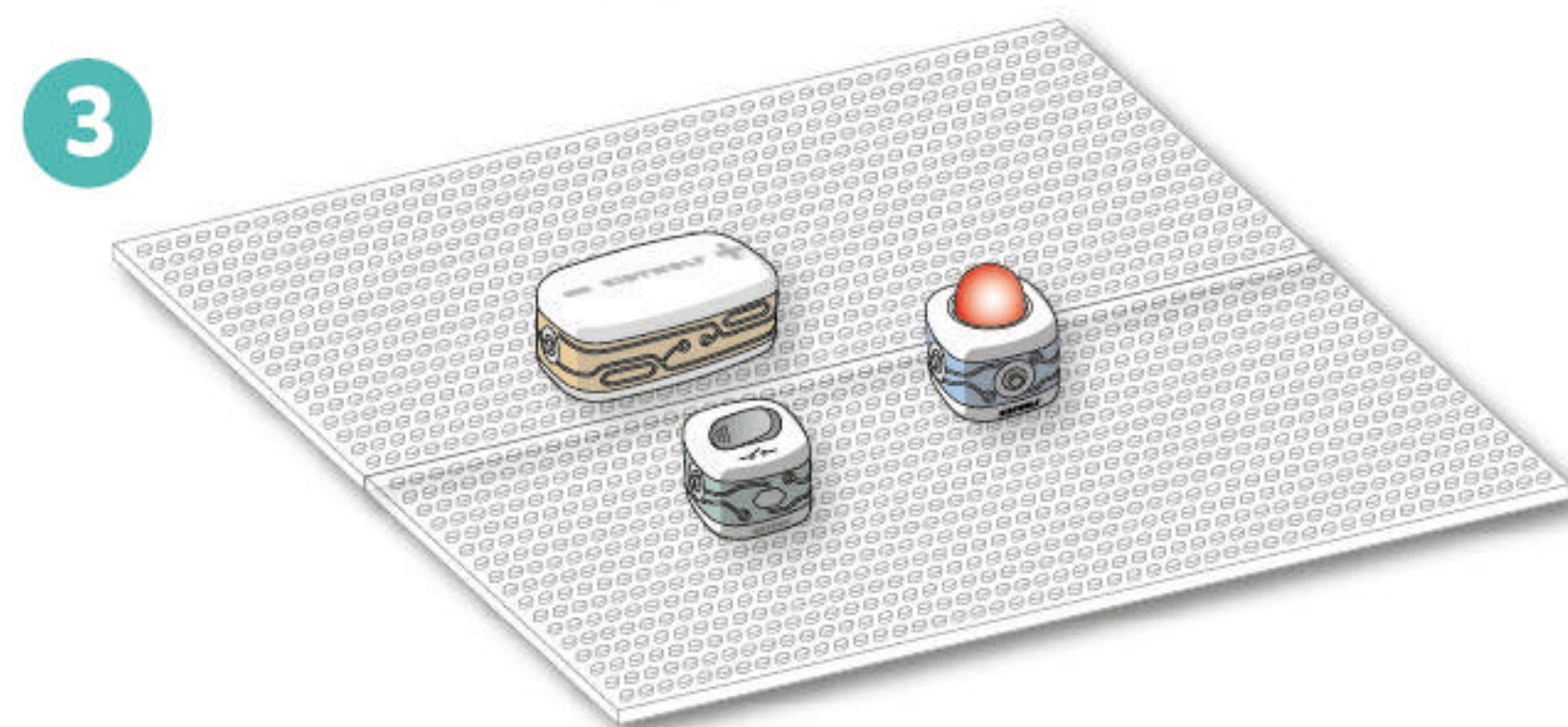
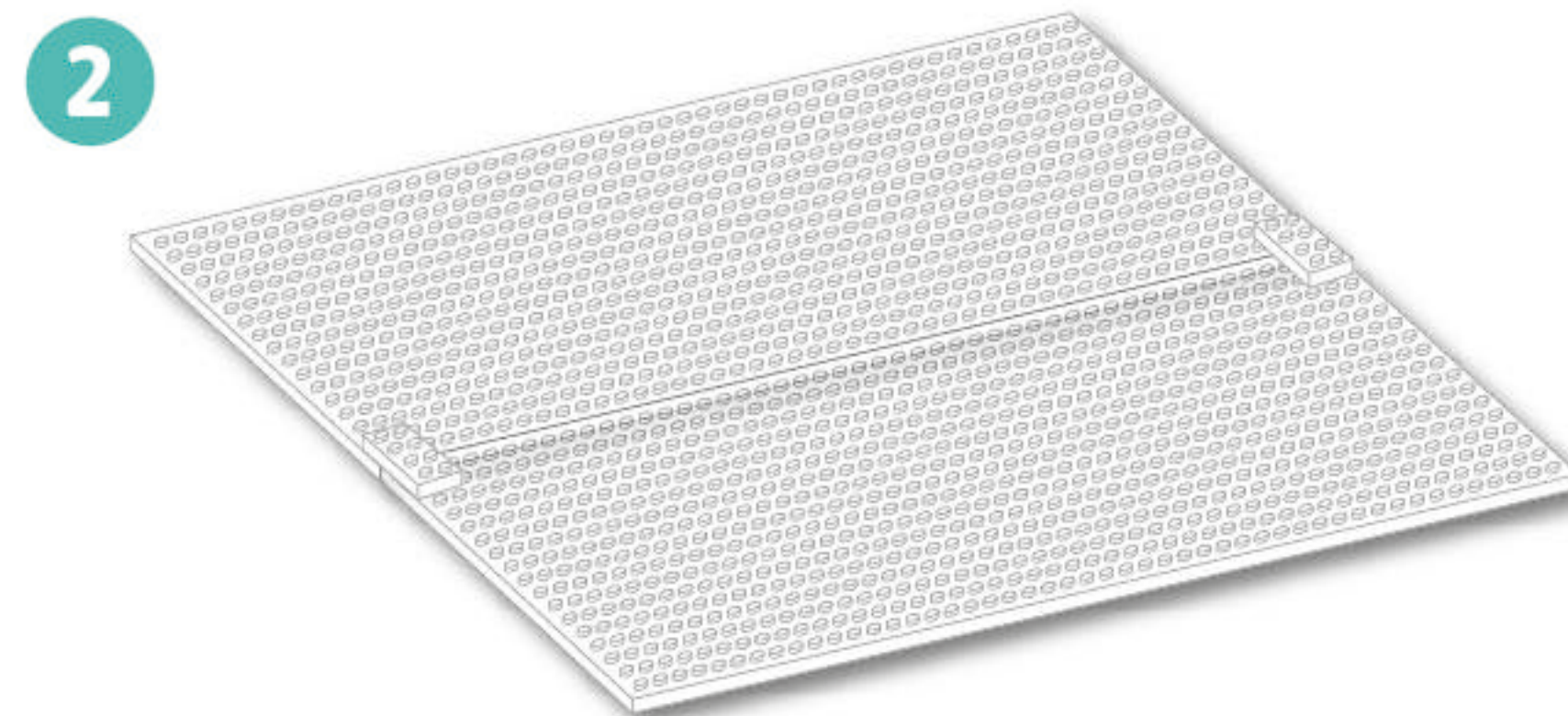
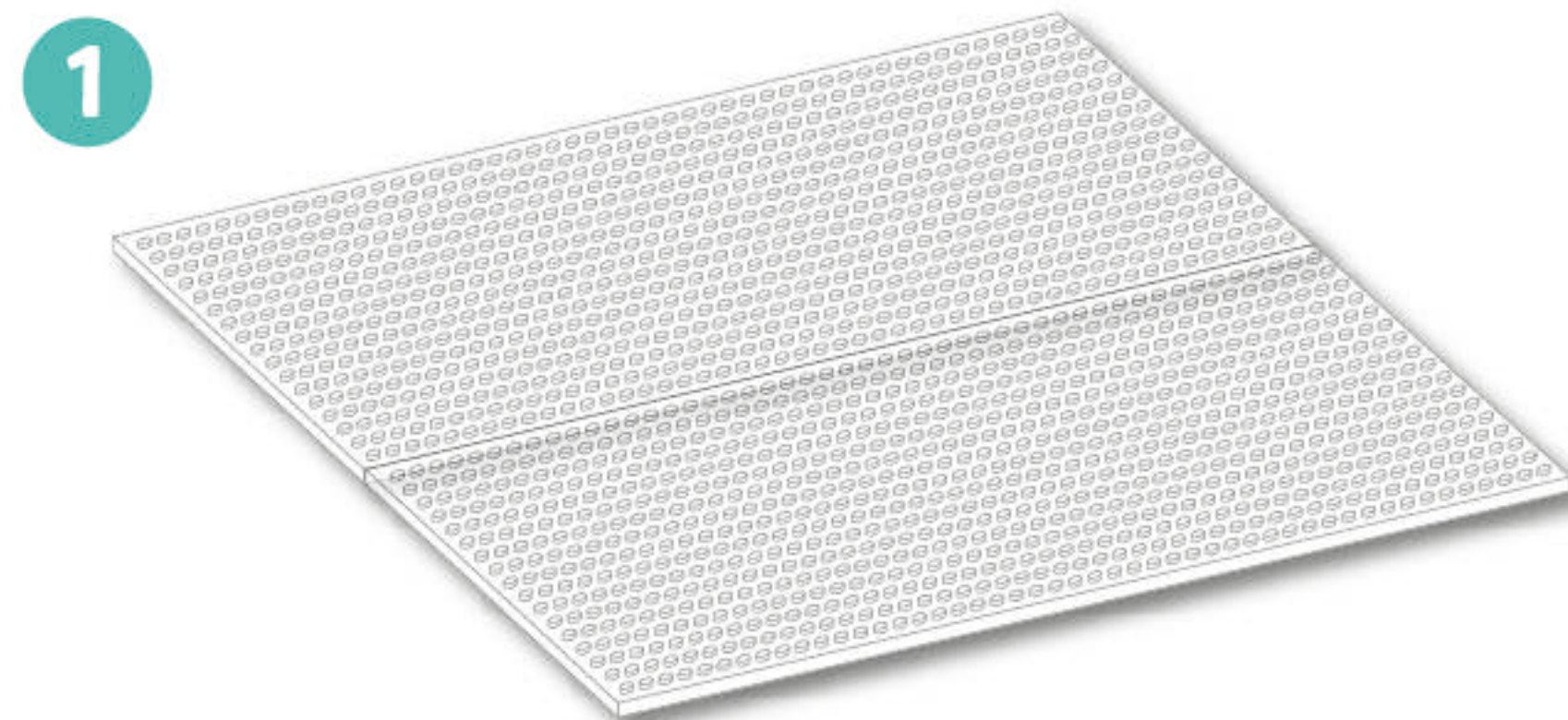


Switch



ASSEMBLY STEPS

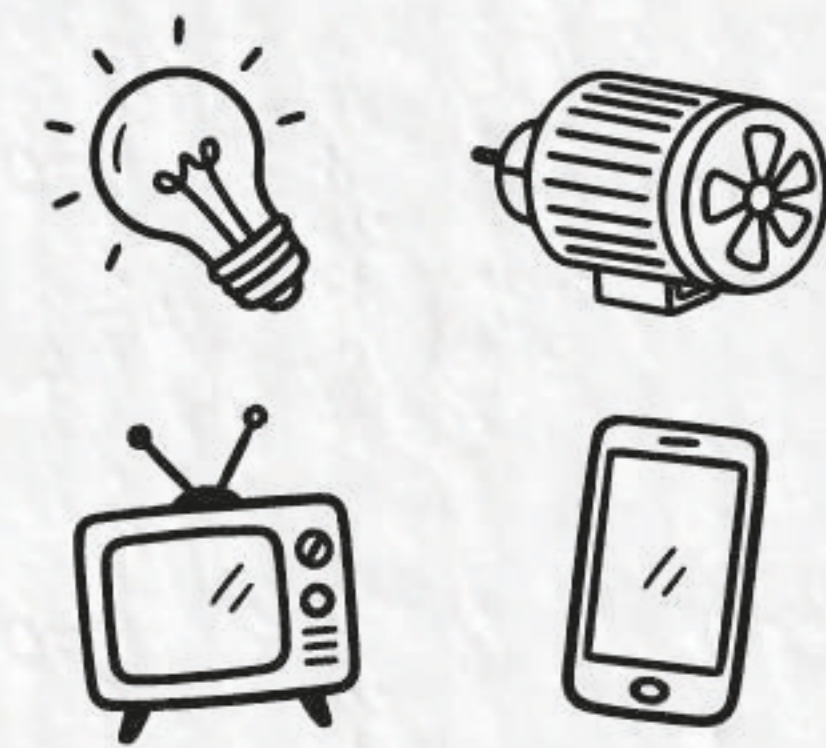
- 1 Start by placing the mounting base.
- 2 For larger circuits, use two bases and connect them with the block connectors.
- 3 Next, install the circuit modules in order.
- 4 Finally, connect the modules with the wires.





WHAT IS ELECTRICITY?

Electricity is a form of energy that is invisible but very powerful, which allows us to operate many things around us: **lamps, motors, televisions, telephones...**



But how does it work?

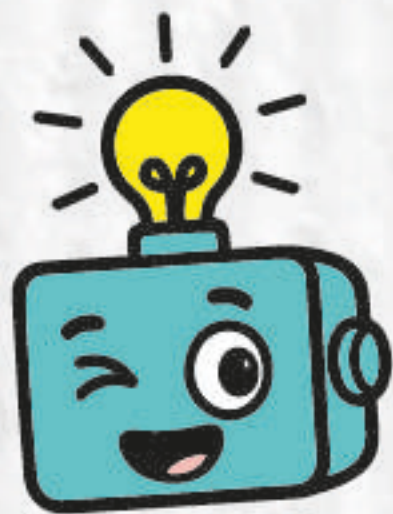
Electricity is a current that flows through a wire, much like water flowing through a pipe.

For this current to flow, it needs a complete path, called a circuit.

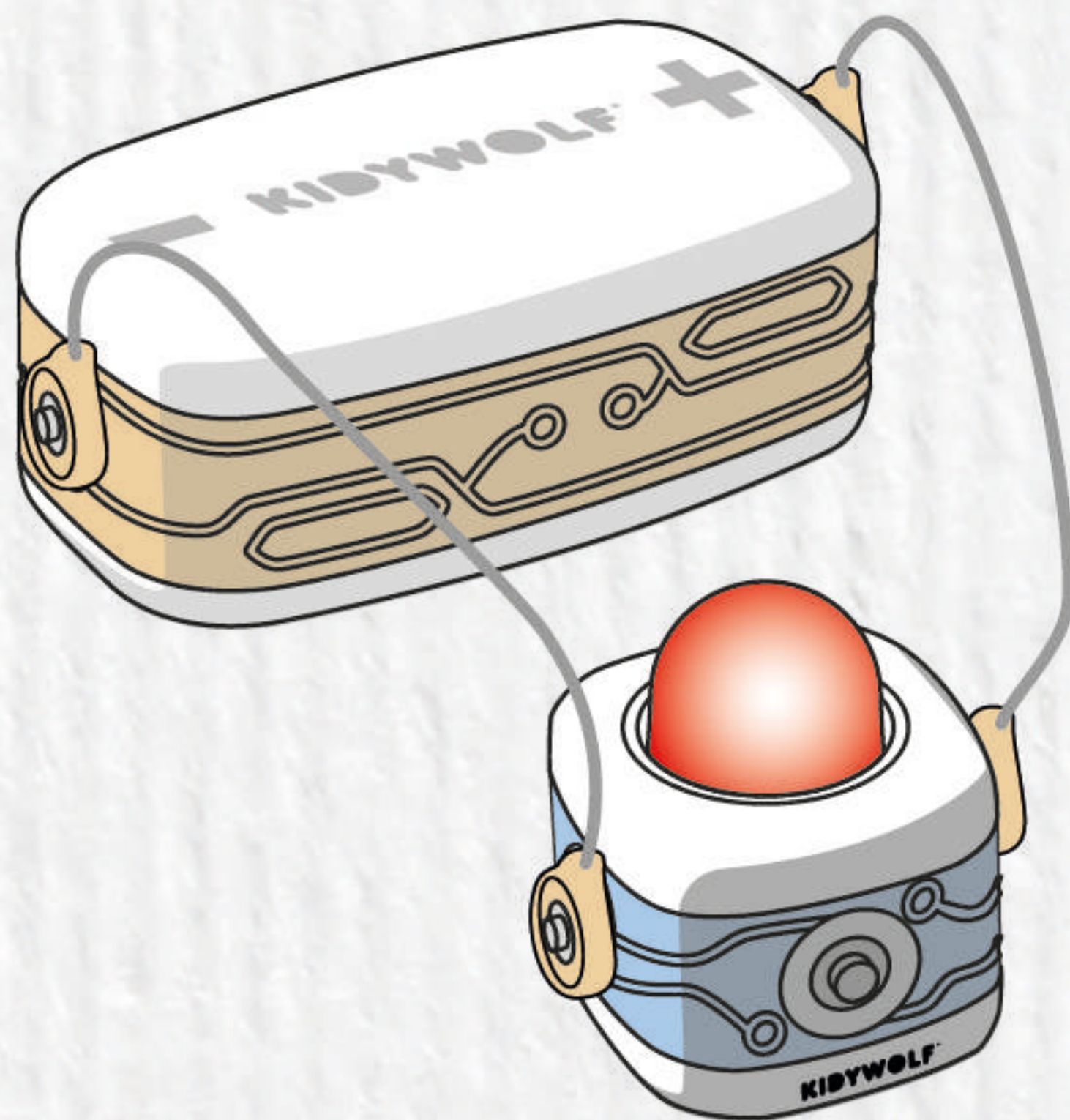
An electrical circuit is like a loop. The current must start at one point (the +), pass through objects (such as an LED or a motor) and return to its starting point (the -).

For this to work:

- 1 Connect the + of the battery to the + of the component
- 2 The current flows through the component
- 3 You finish by connecting the - of the component to the - of the battery

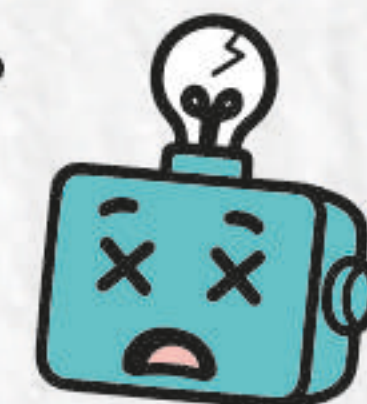


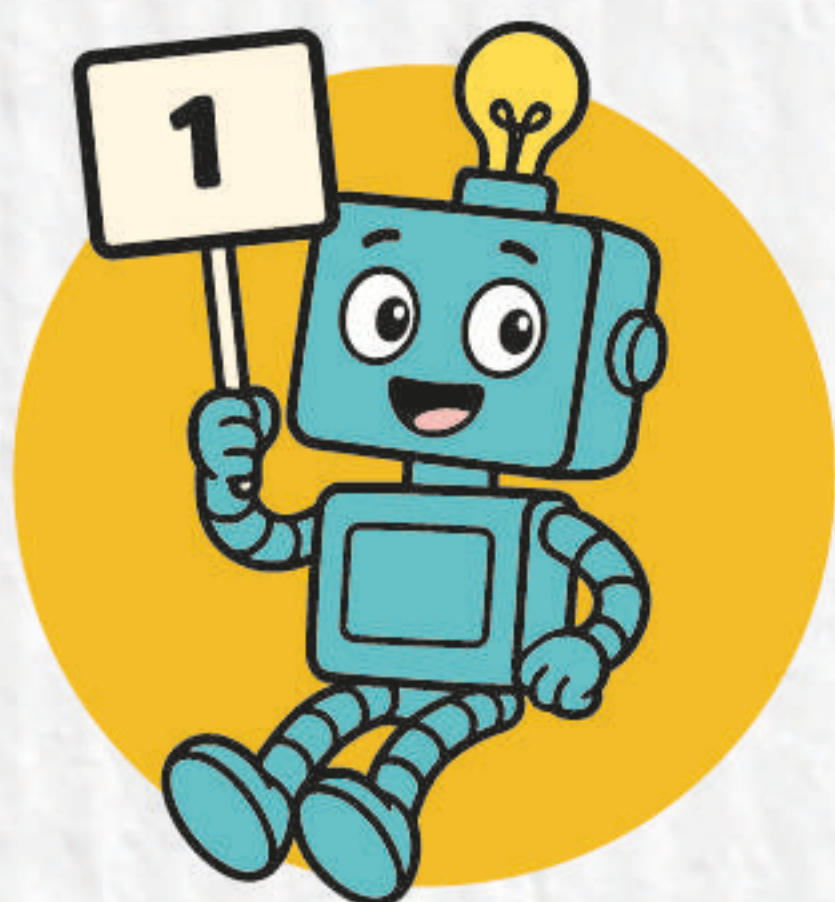
If everything is connected correctly,
your component will light up, turn or make a noise!



**Be careful of
short circuits!**

Never connect the + and -
directly without going through a
component: **this can overheat
or break your circuit.**





FIRST EXPERIMENT

LIGHTING A BULB

Let's start with something simple and magical:
making a light bulb shine!

What you need:

- 1 battery (or battery holder)
- 1 light bulb
- 2 connecting wires

Steps to follow:

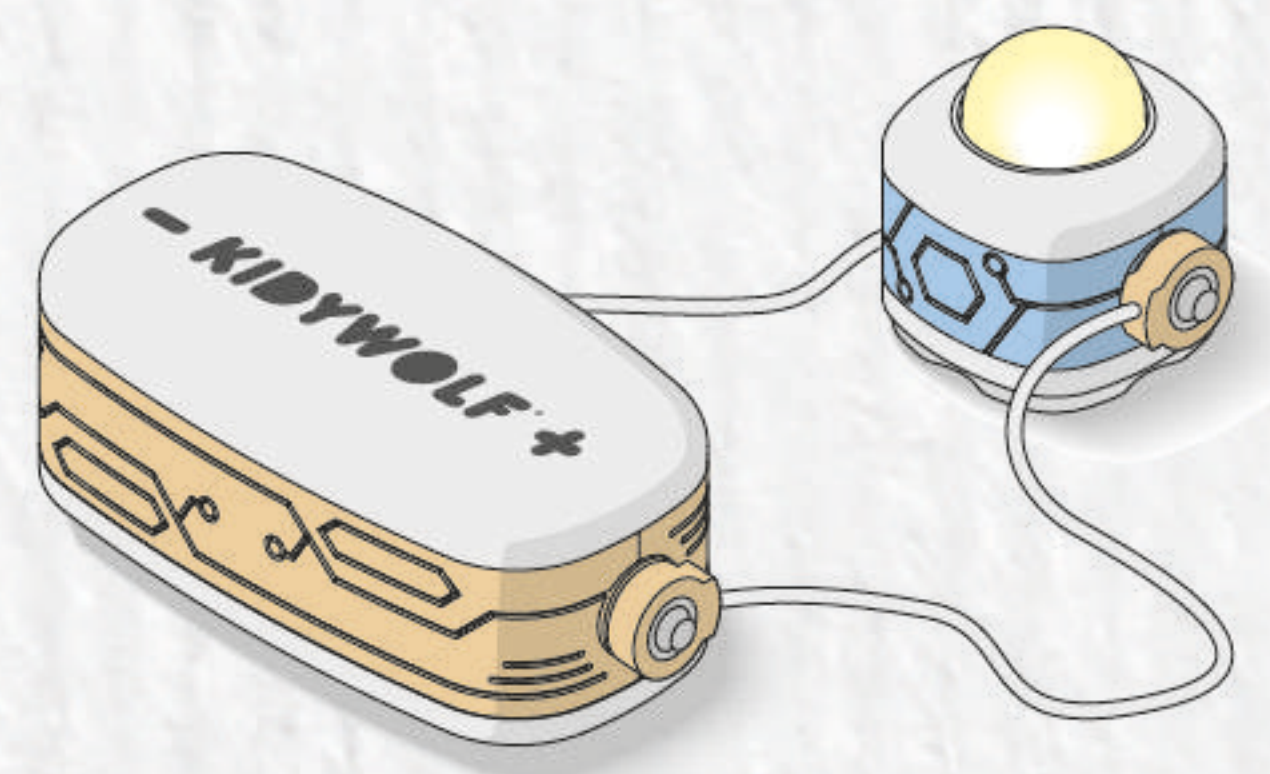
- 1 Connect one wire between the positive terminal of the battery and one side of the light bulb.
- 2 Connect another wire between the other side of the light bulb and the negative terminal of the battery.
- 3 Observe... **The light bulb lights up!**

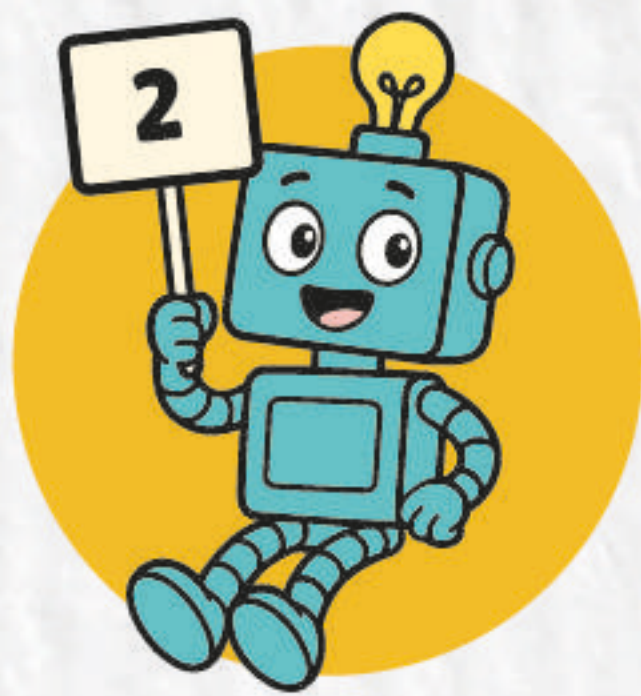
Why does it work?

The electricity flows from the positive terminal of the battery, passes through the filament of the light bulb, and returns to the negative terminal.

The filament heats up very strongly (over 2000°C!) and produces light.

This is called: the thermal effect of current.





EXPERIMENT 2

ADD A SWITCH

The switch is like a tap for electric current:

- ✓ When it is closed > the current flows
- ✗ When it is open > the current is blocked

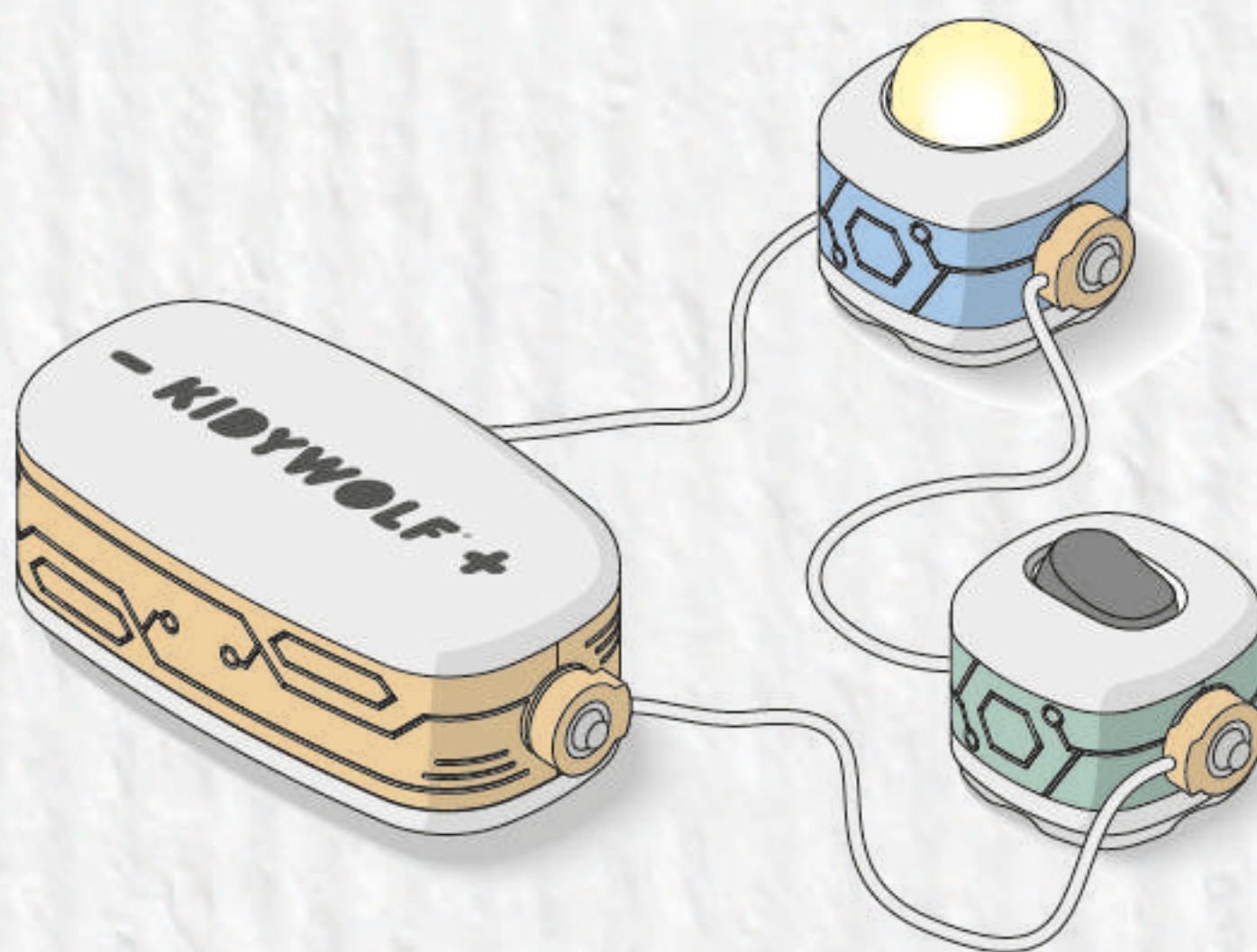
Now you will learn how to turn your LED or light bulb on and off whenever you want!

What you need:

- 1 battery
- 1 switch
- 1 LED or 1 light bulb
- 3 wires

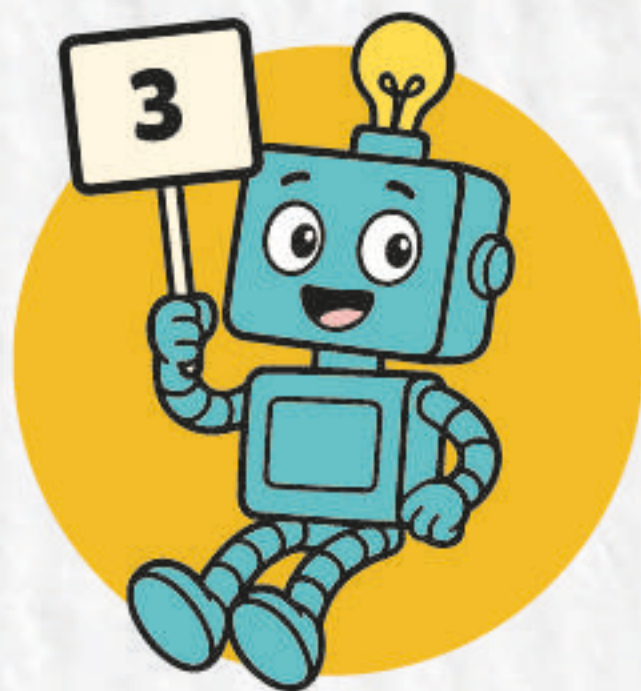
Steps to follow:

- 1 What you need: Connect the + of the battery to one side of the switch.
- 2 Connect the other side of the switch to the + of the LED (or light bulb).
- 3 Connect the negative terminal of the LED to the negative terminal of the battery.
 - > When you press the switch, the LED turns on or off.
 - > You have just controlled electricity with a button!



Things to remember:

- A switch in a series circuit cuts off the current everywhere.
- You can do the same thing with the push button.



EXPERIMENT 3

THE FIBER OPTIC TREE & THE LIGHTING STREET LAMP

How about sending light traveling through small transparent wires? Using fiber optics, you can create pretty colored light, like in a magical Christmas tree or a designer lamp!

What you need:

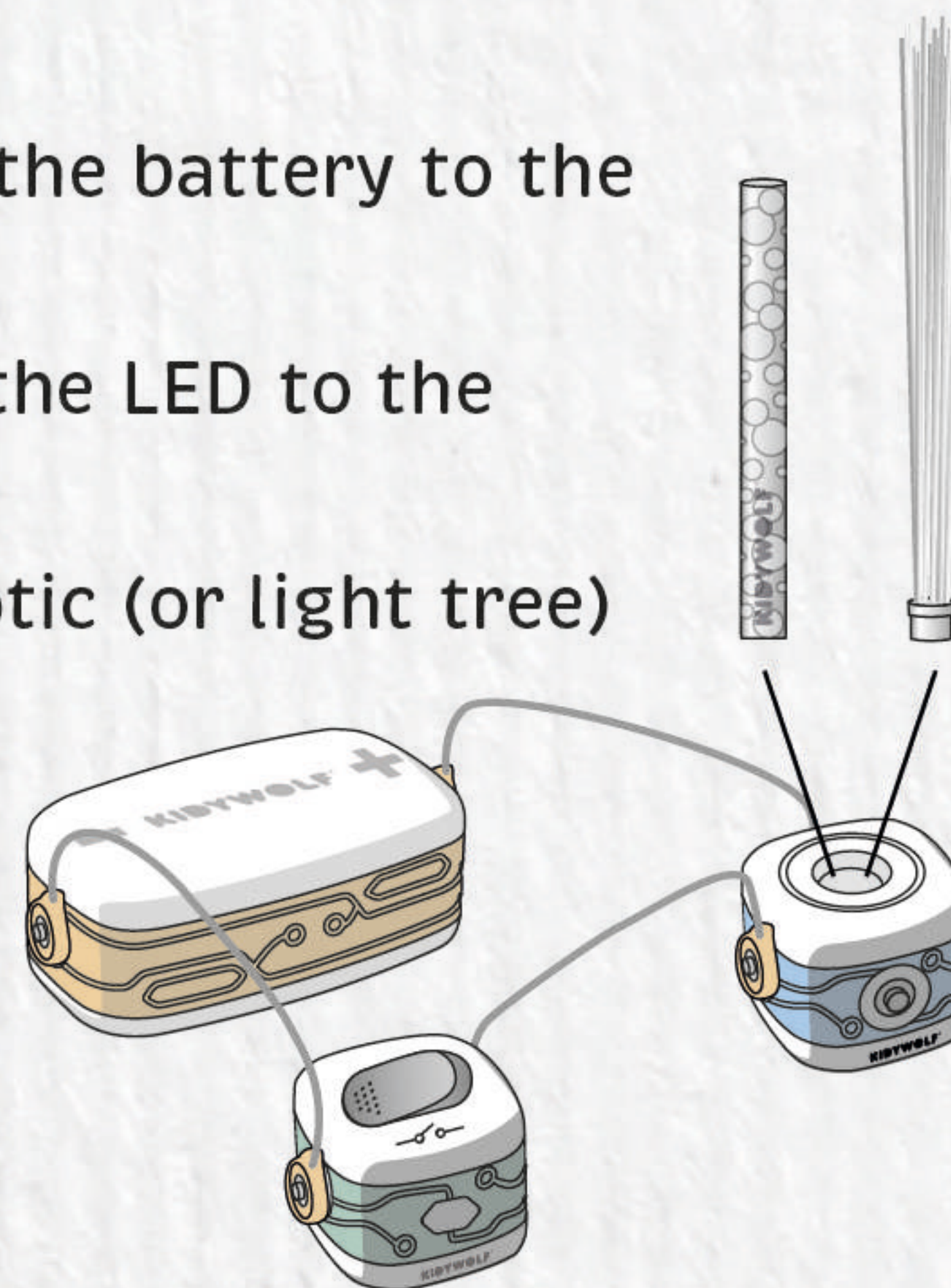
- 1 battery
- 1 LED
- 1 special base for fiber optics or lamp
- 1 fiber optic or “light tree”
- 3 wires

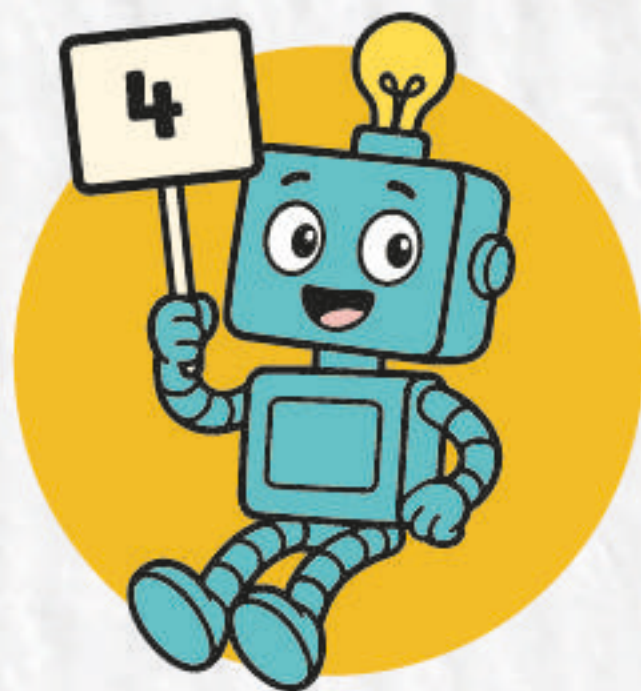
Steps to follow:

- 1 Install the LED in the base provided (fiber or lamp).
- 2 Connect the + of the battery to the + of the LED.
- 3 Connect the - of the LED to the - of the battery.
- 4 Place the fiber optic (or light tree) on the LED.

Why does it work?

light from one end to the other, like a tunnel.
It's the same principle used for high-speed Internet !
Observe the light passing through the transparent fibers





EXPERIMENT 4

THE ELECTRIC MOTOR

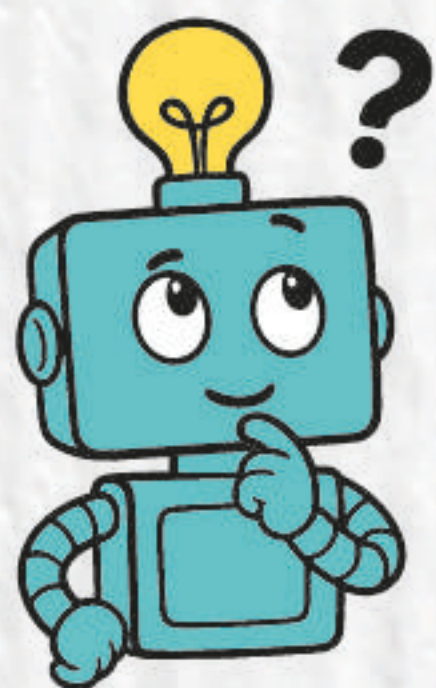
What if you could make a fan spin using electricity? Thanks to the motor, you can transform electrical current into movement! This is the basis for many everyday objects: **cars, hair dryers, toys, robots...**

What you need:

- 1 battery
- 1 motor
- 1 propeller or fan blade
- 2 wires

Steps to follow:

- 1 Connect the + of the battery to one side of the push button.
- 2 Connect the other side of the push button to the + of the motor
- 3 Connect the - of the LED to the - of the battery.
 - > When you press the button, the motor turns on
 - > Release the button and the motor goes out.



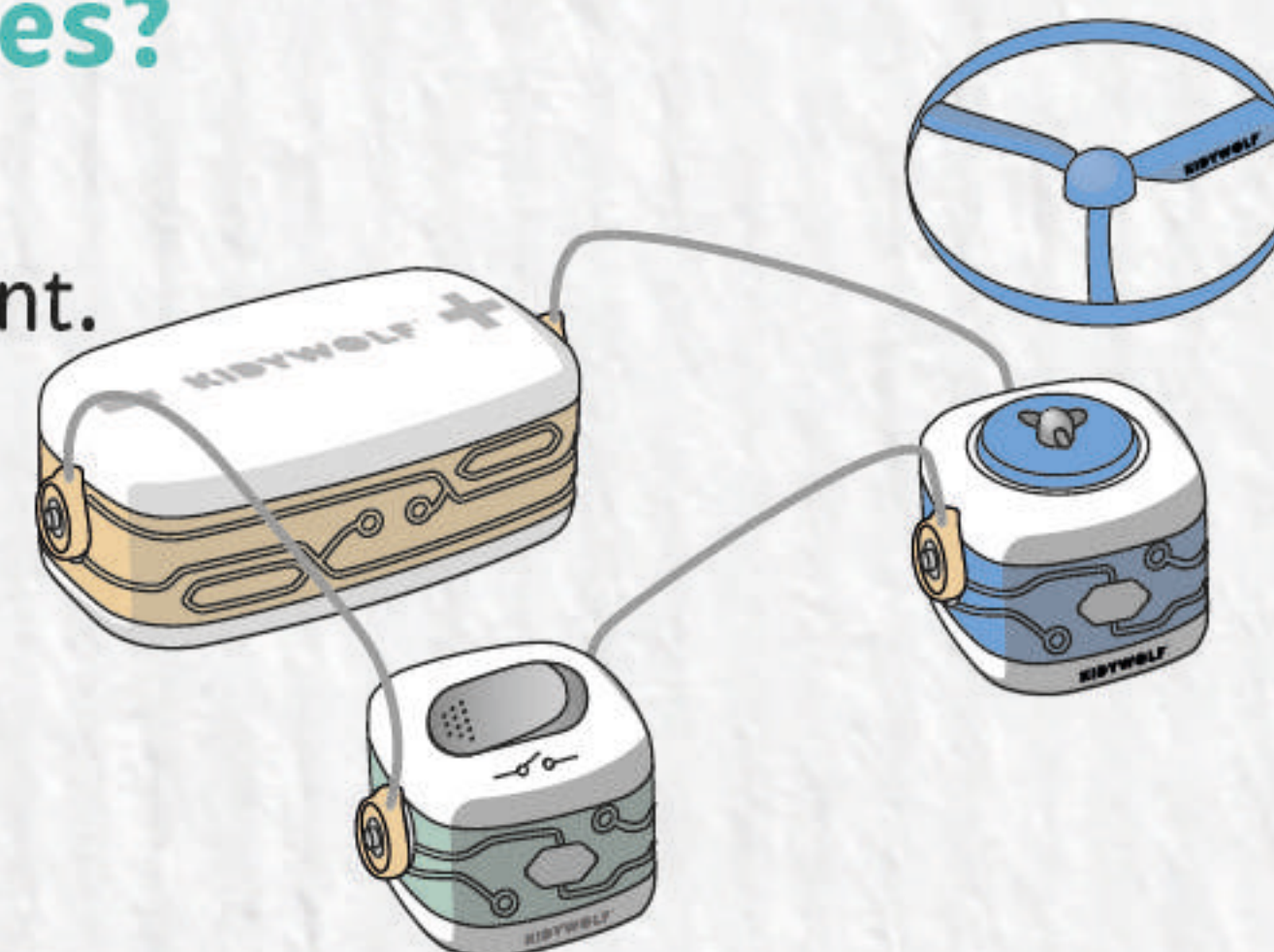
What happens if you reverse the wires?

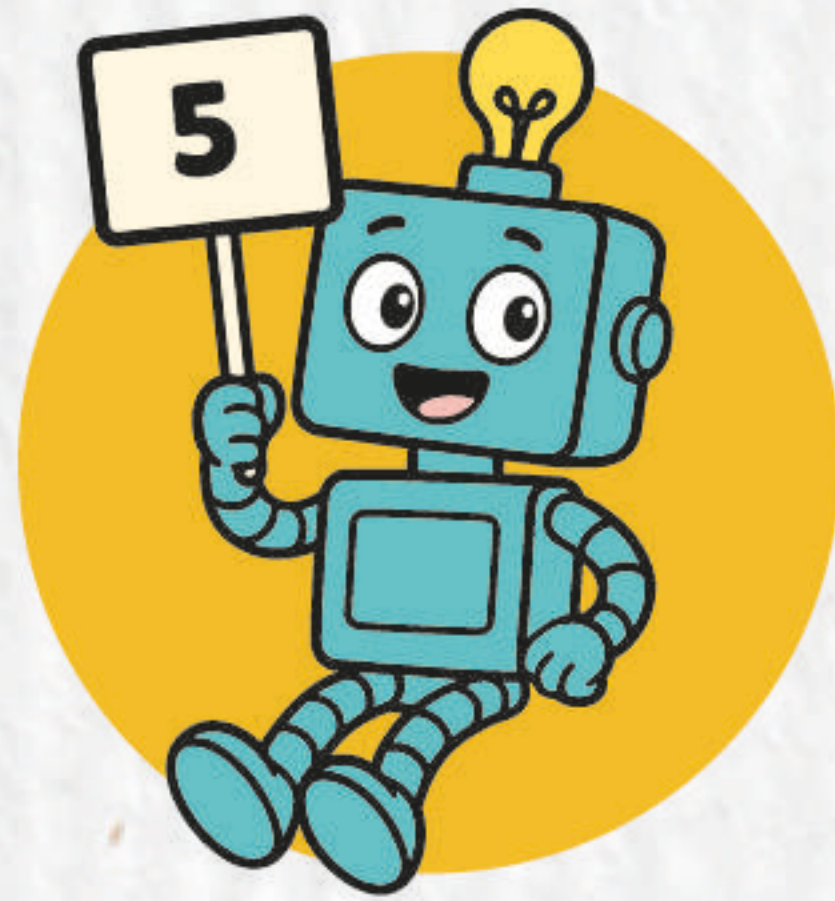
> The motor is turning in the opposite direction because you have reversed the direction of the current.



Attention :

- ✗ Do not touch the propeller when it is spinning
- ✗ Do not leave the motor plugged in for too long without supervision





EXPERIMENT 5

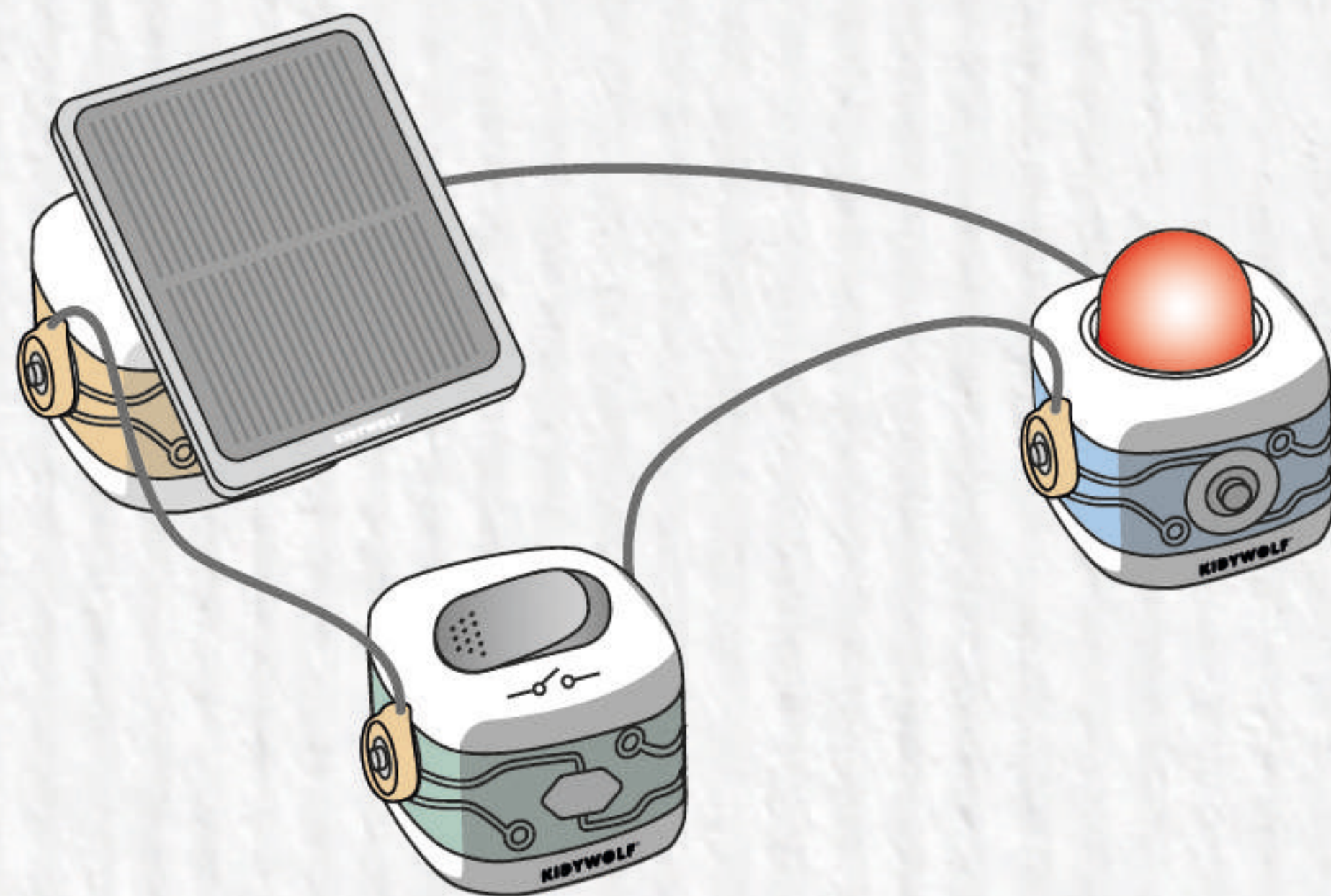
THE SOLAR CELL

What you need:

- 1 solar cell • 1 red LED • 1 buzzer (optional) • 2 wires
- sunlight or a very powerful lamp (50W minimum)

Steps to follow:

- 1 Connect the solar cell to the buzzer and the LED as shown in the diagram.
- 2 Point the solar cell towards a strong light source (sun or incandescent lamp).
- 3 Turn on the circuit: the LED will light up and the buzzer may sound!



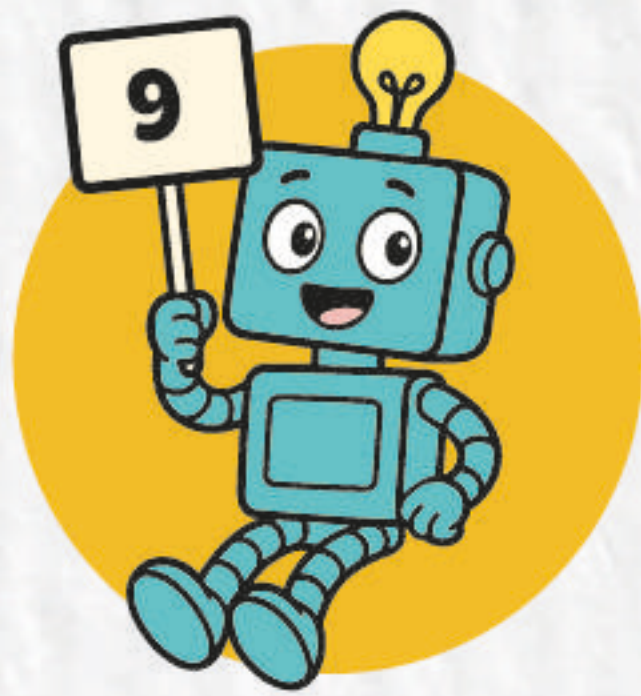
Did you know?

- Solar cells do not store energy.
- They only produce electricity when there is light.
- They are perfect for powering small components such as LEDs or buzzers, but not powerful light bulbs

Message from KIDY

“Well done, you are now using energy from the sun! It is clean, free and great for inventing lots of things!”

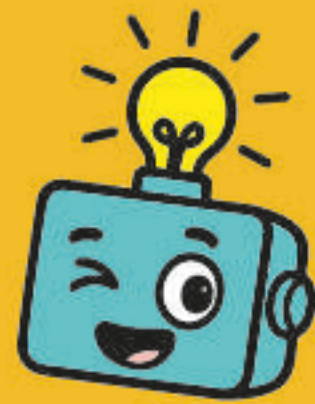




EXPERIMENT 6

THE ELECTRIC HAND CRANK

WHY IS IT AWESOME?



- You create electricity with your own hands!
- The generator transforms your mechanical energy (by turning) into electrical energy

Steps to follow:

When turning clockwise:

Point A becomes +, point B becomes -

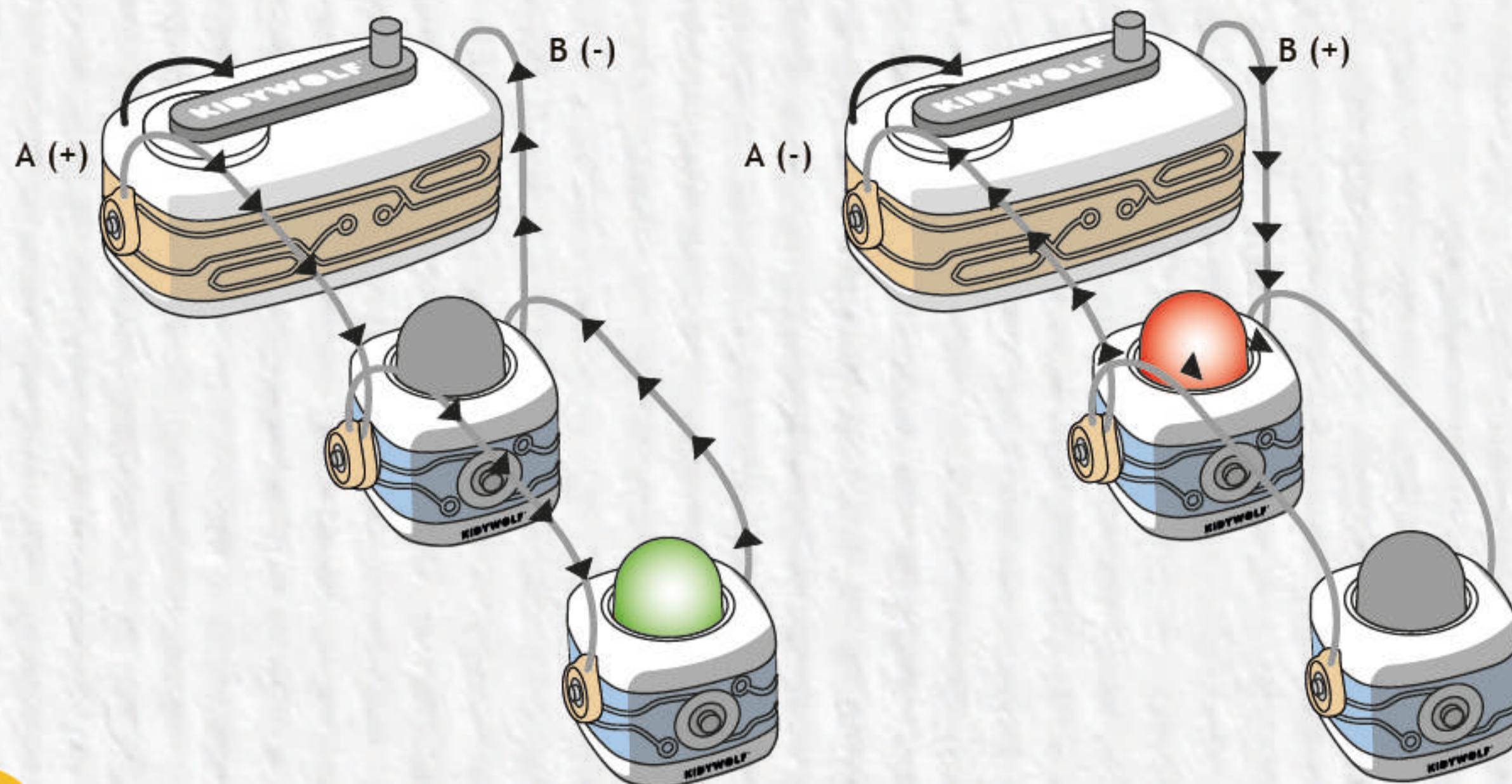
The current starts at A, passes through the LED, and returns to B > The green LED lights up!

When turning in the other direction (counterclockwise):

Point B becomes the +, point A the -

The current flows in the other direction

> The red LED lights up, but the current is reversed!



What you need:

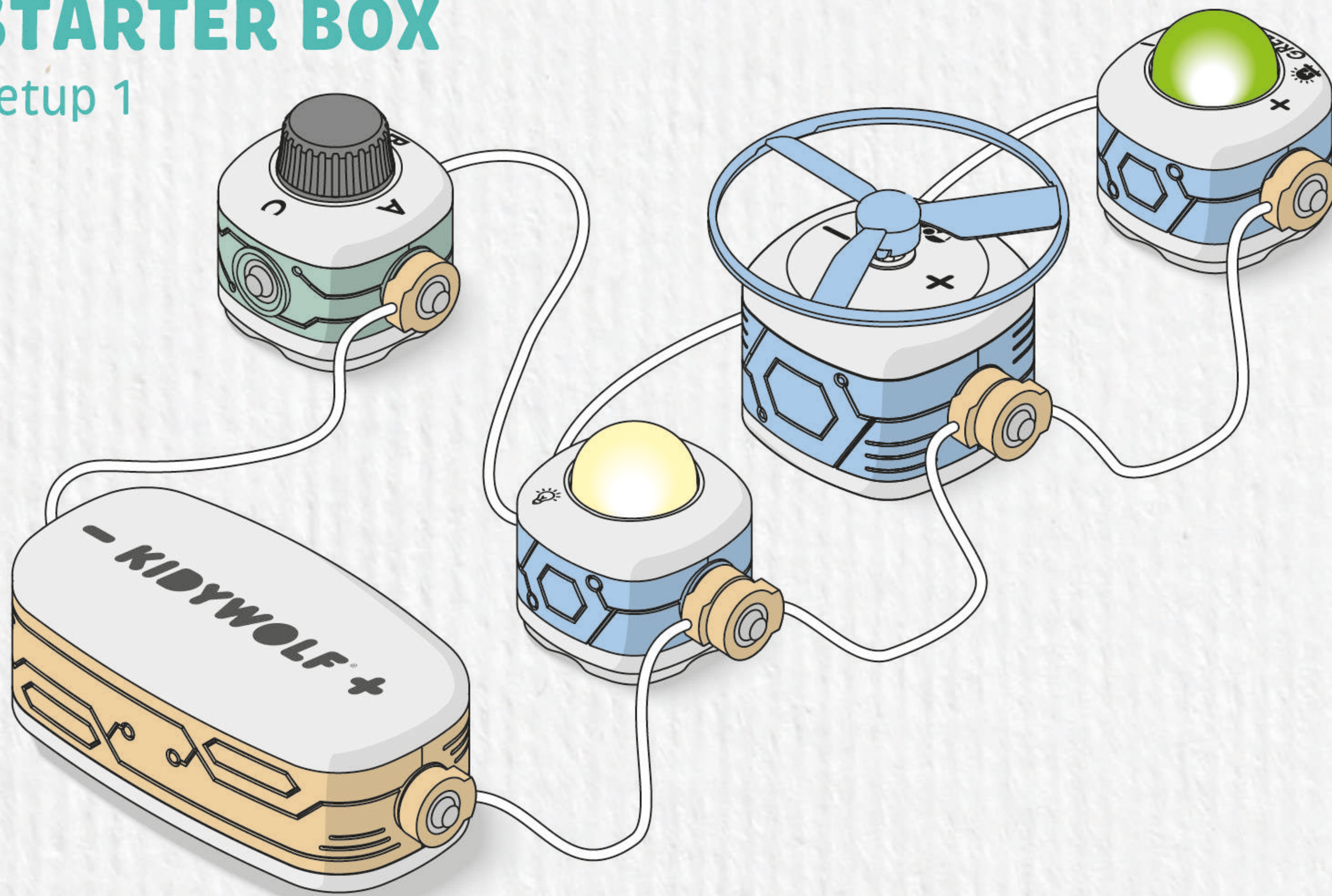
- 1 hand-crank generator
- 1 red LED
- 1 green LED
- 4 wires



Here are some examples of fun circuits to try.
Look closely at each diagram and always follow
the + and - signs to make sure it works!

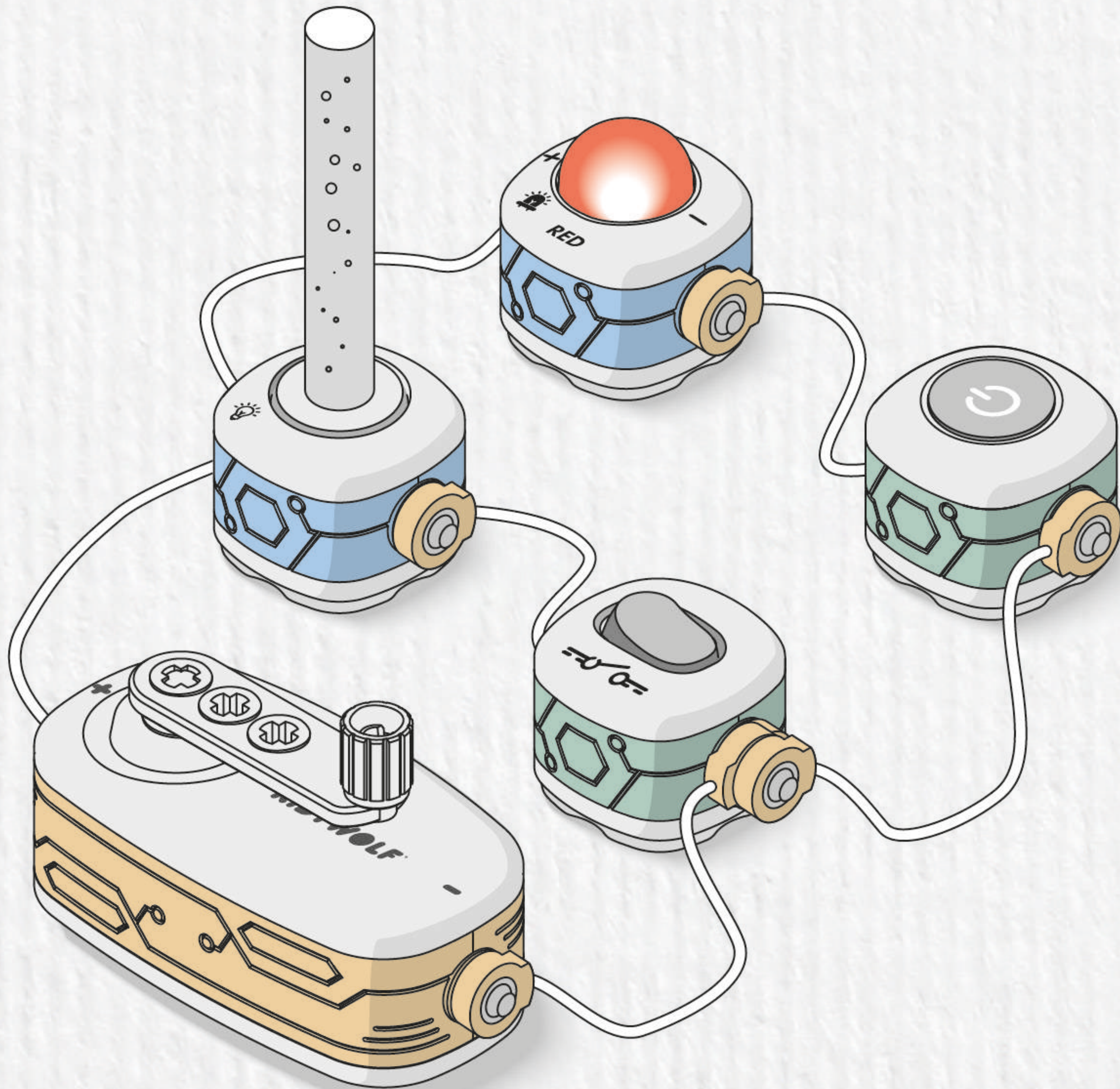
STARTER BOX

Setup 1



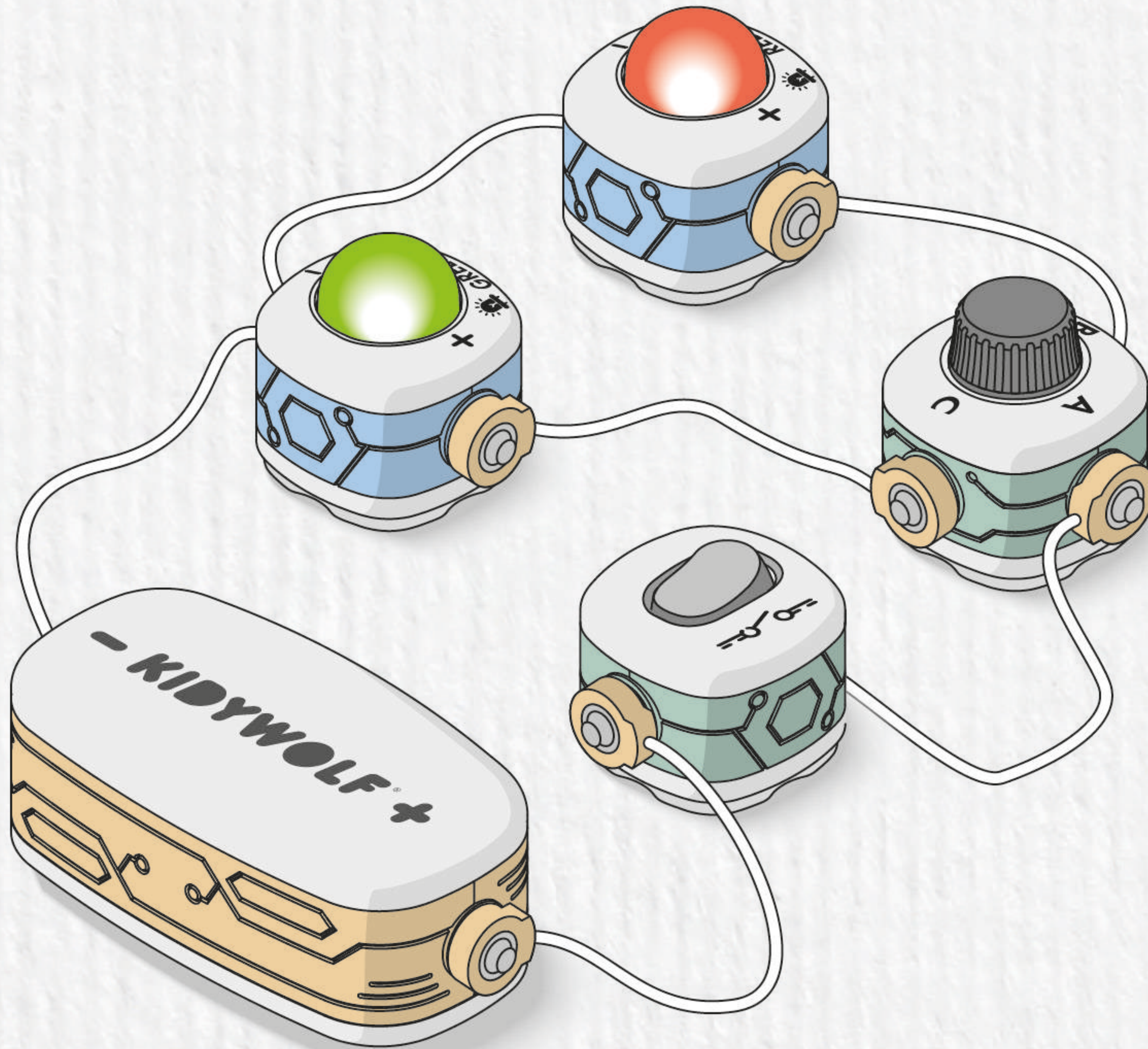
STARTER BOX

Setup 2



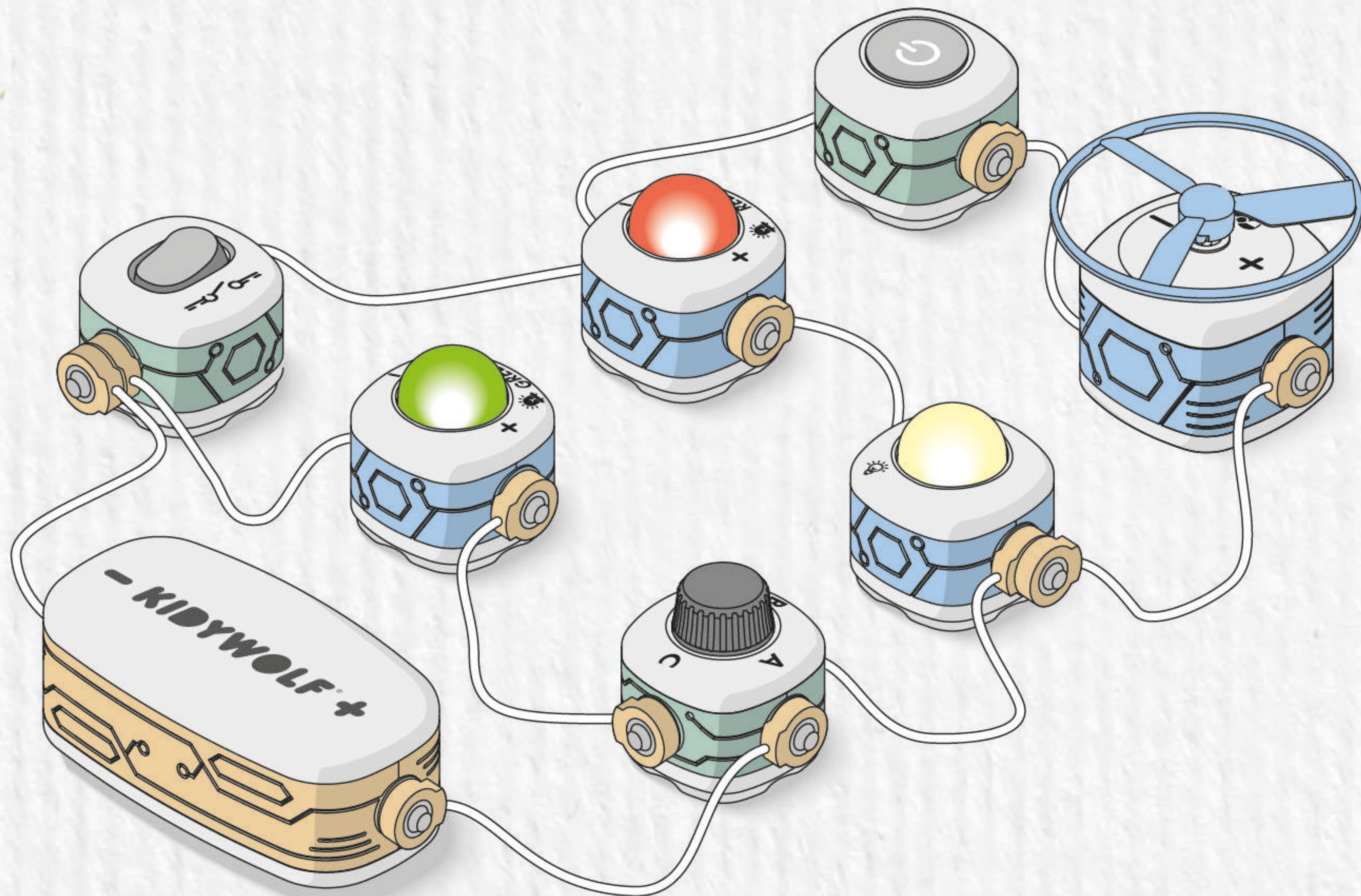
STARTER BOX

Setup 3



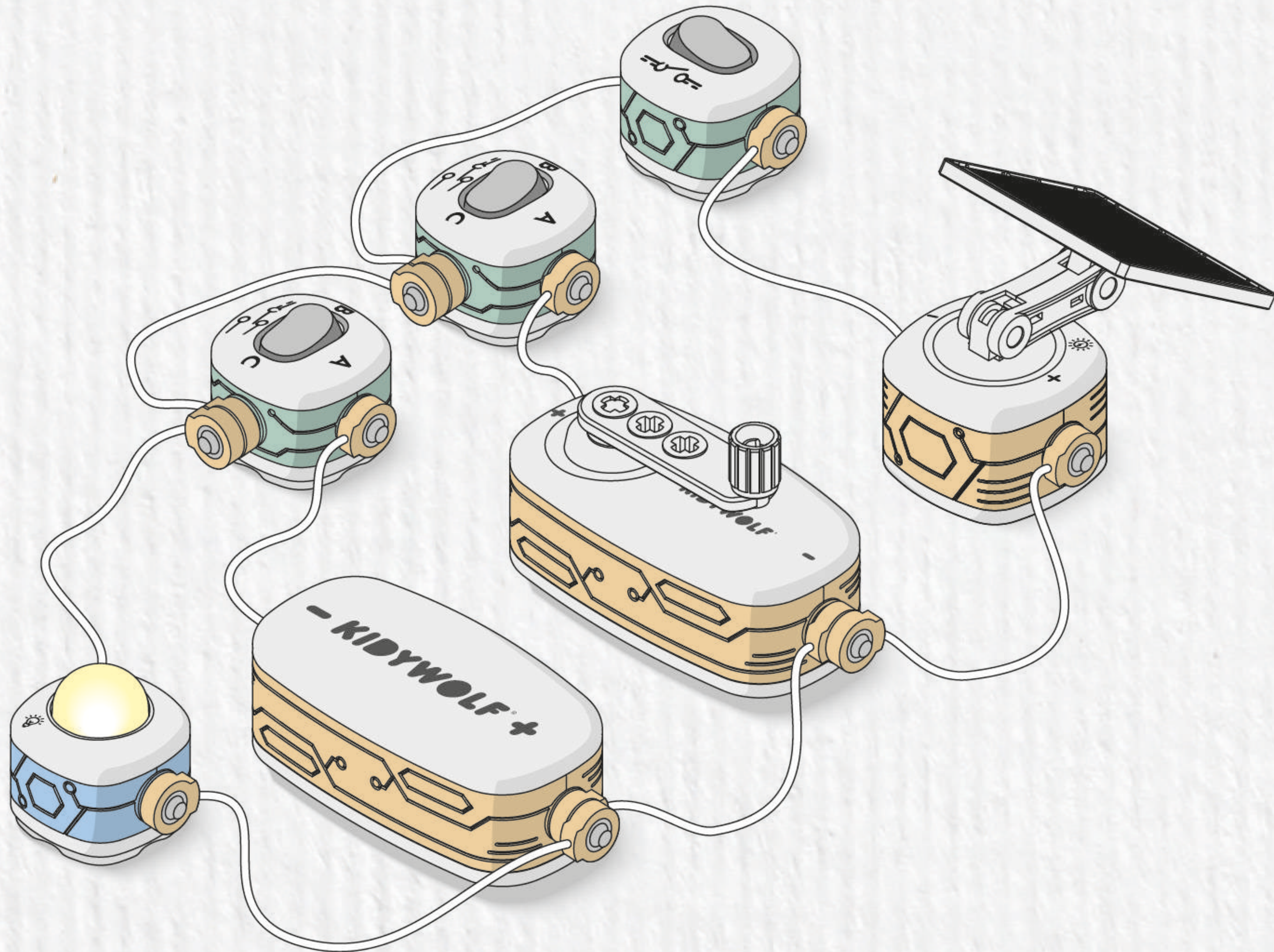
STARTER BOX

Setup 4



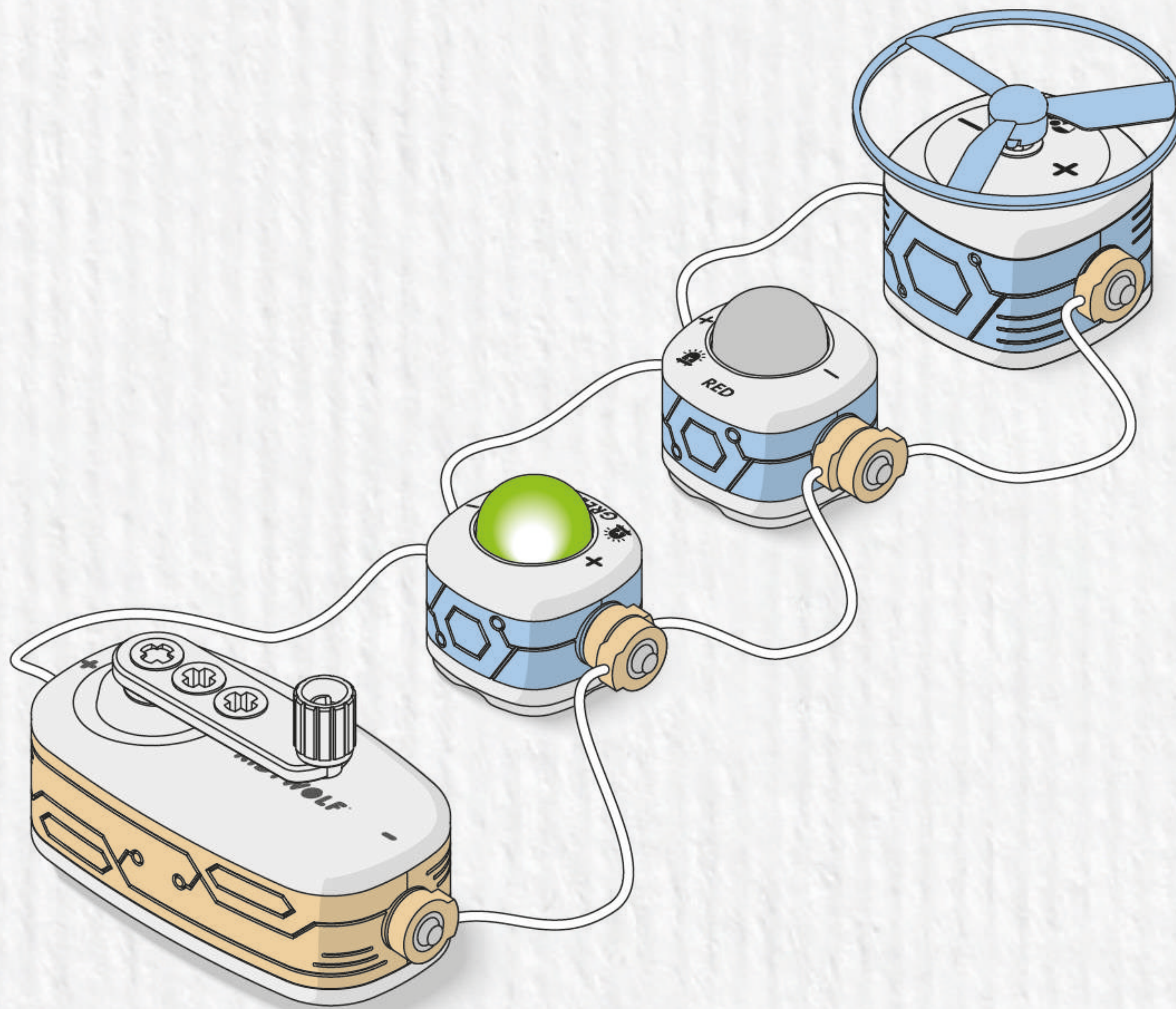
EXPERT BOX

Setup 1



EXPERT BOX

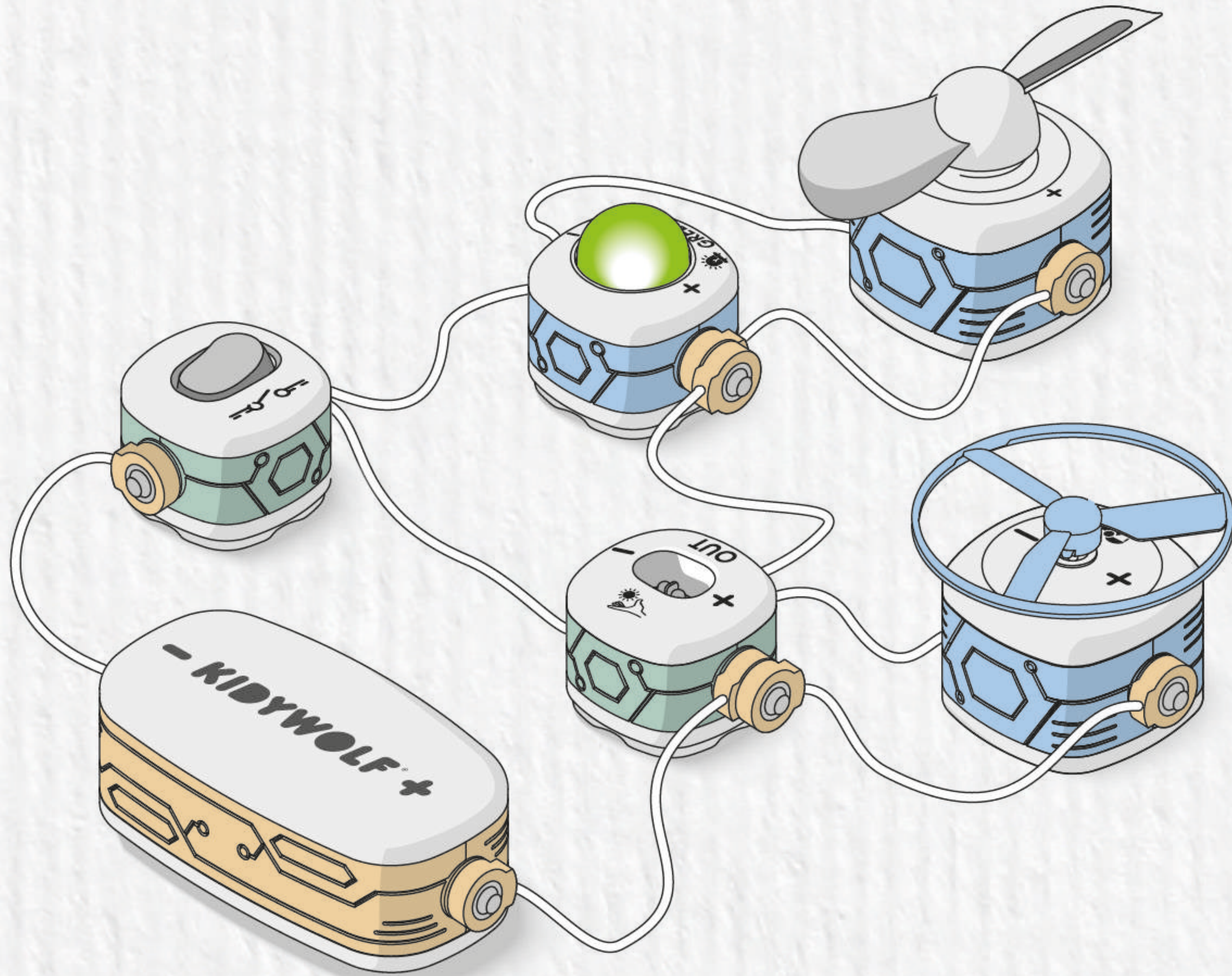
Setup 2



When you turn the crank, the green LED lights up and the motor starts. When you turn the crank in the opposite direction, the red LED lights up and the motor runs in the other direction.

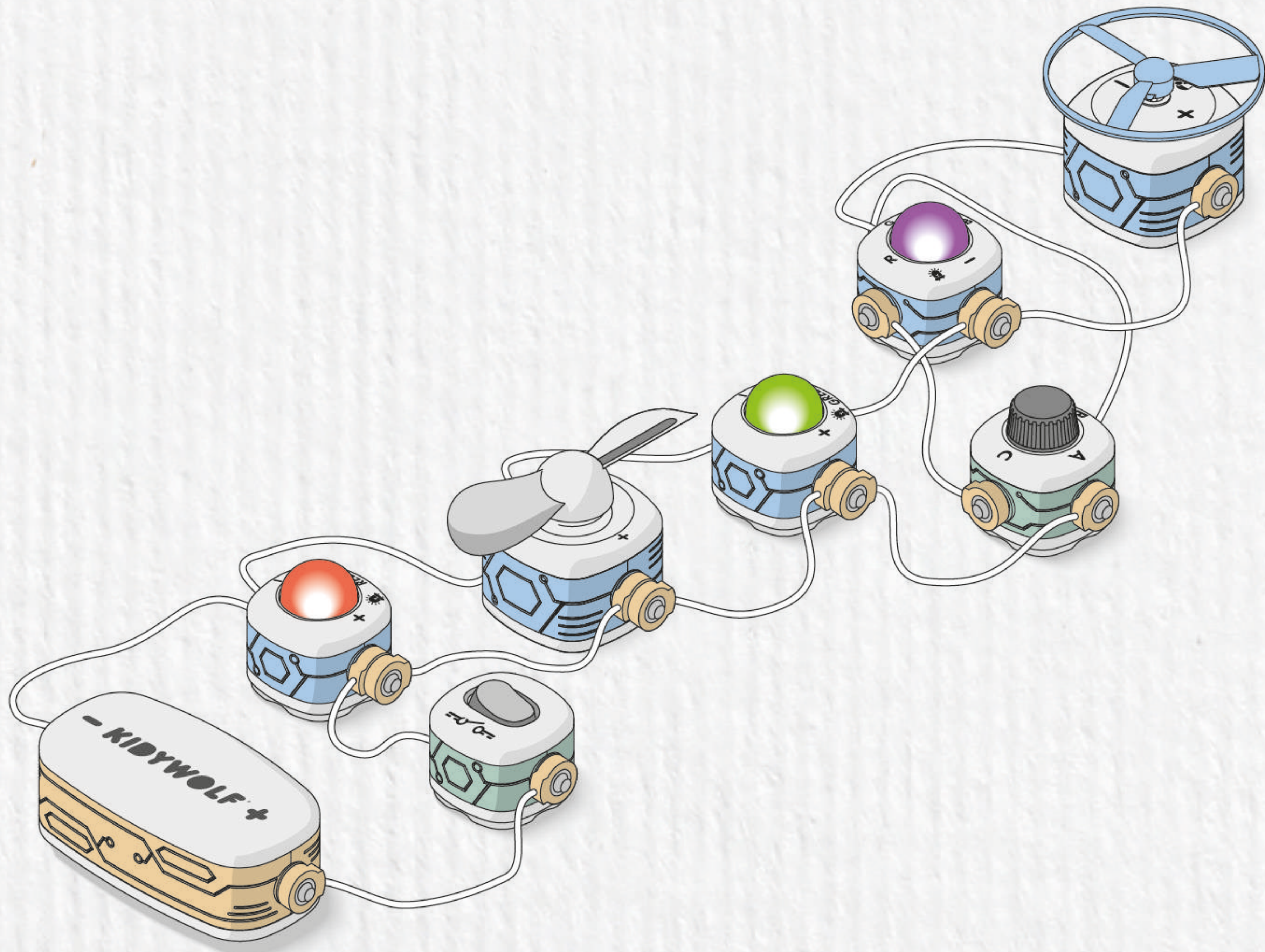
EXPERT BOX

Setup 3



EXPERT BOX

Setup 4



... and now?

- Invent your own assemblies
- Share your experiments with your family!

KIDY's challenge: Imagine a fun electrical invention and build it.

**See you soon with KIDYWOLF...
and new electrical adventures!...**



KIDYWOLF®
PLAY TO GROW

MY FIRST ELECTRICAL LAB



Ready to become a real little electrical genius? This kit lets you build, test, and understand how an electrical circuit works... while having fun! Thanks to this illustrated manual, you'll follow simple, clear steps to carry out surprising experiments in complete safety.

KIDYELEC

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