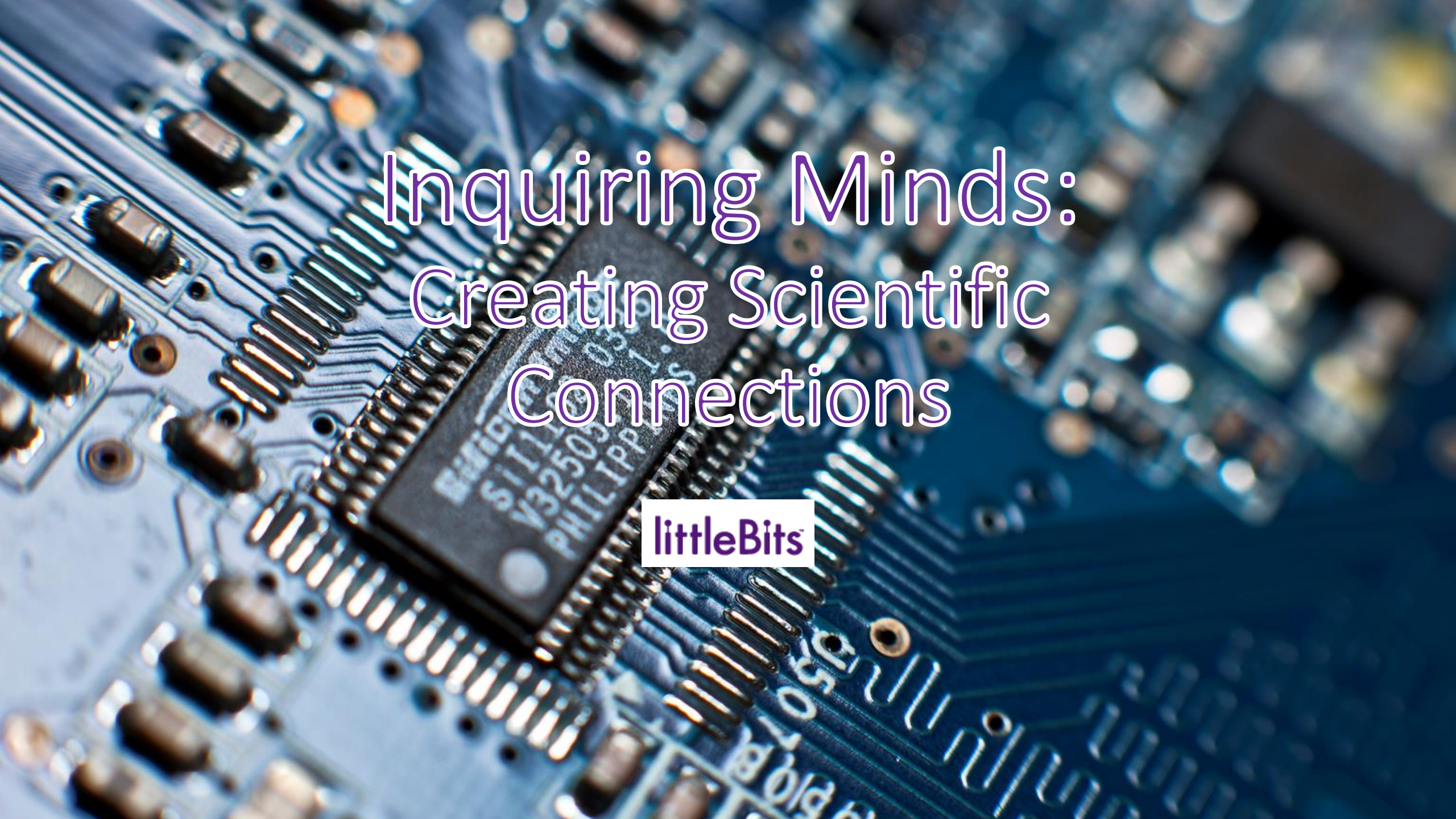


Inquiring Minds:
Creating Scientific Connections

littleBits

How do we use technology in our everyday lives?

Examples:

- Fridges
- Cell phones
- Computers
- Microwaves
- Dishwashers
- Cars
- Even pencils are a form of technology!

How would our lives be different without electronics?”

Disruptive Technology

The new technology disrupts the way we do something or accomplish a task. It finds a new and improved way of doing something.


CITY
OF
TORONTO
E.91

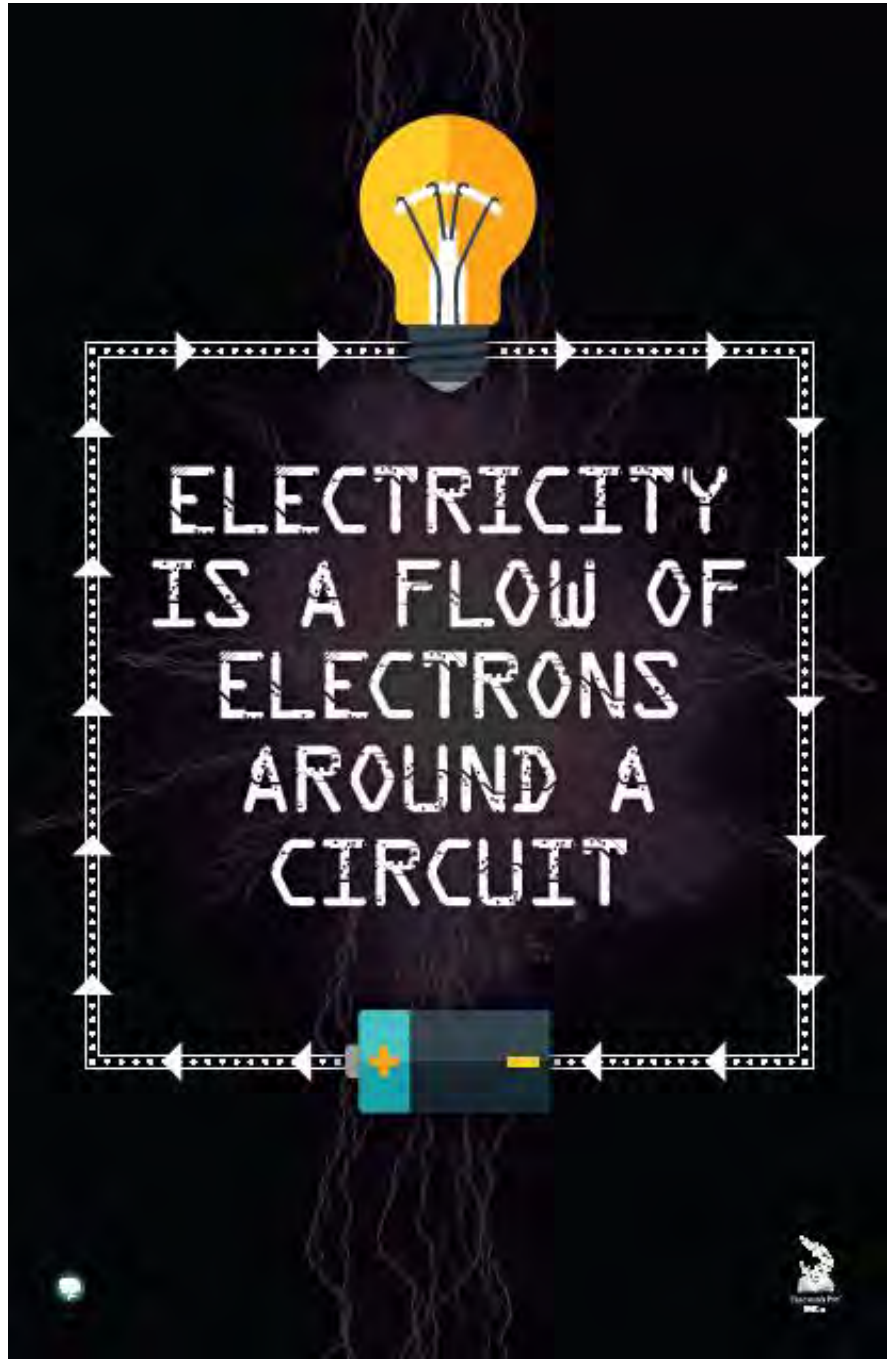

KIA
KIA


Dear Folks
San Diego Cal
apr. 17, 1908
SAN DIEGO
APR 11
1-M
Mrs. D. D. Willard
Bellefonte
Pa


1:50
1 2 3 4 5
6 7 8 9 0
WEI.DEFROST
JET DEFROST
TIME
POWER
MEMORY
PRE-SET
CLOCK
CANCEL

What is a circuit?

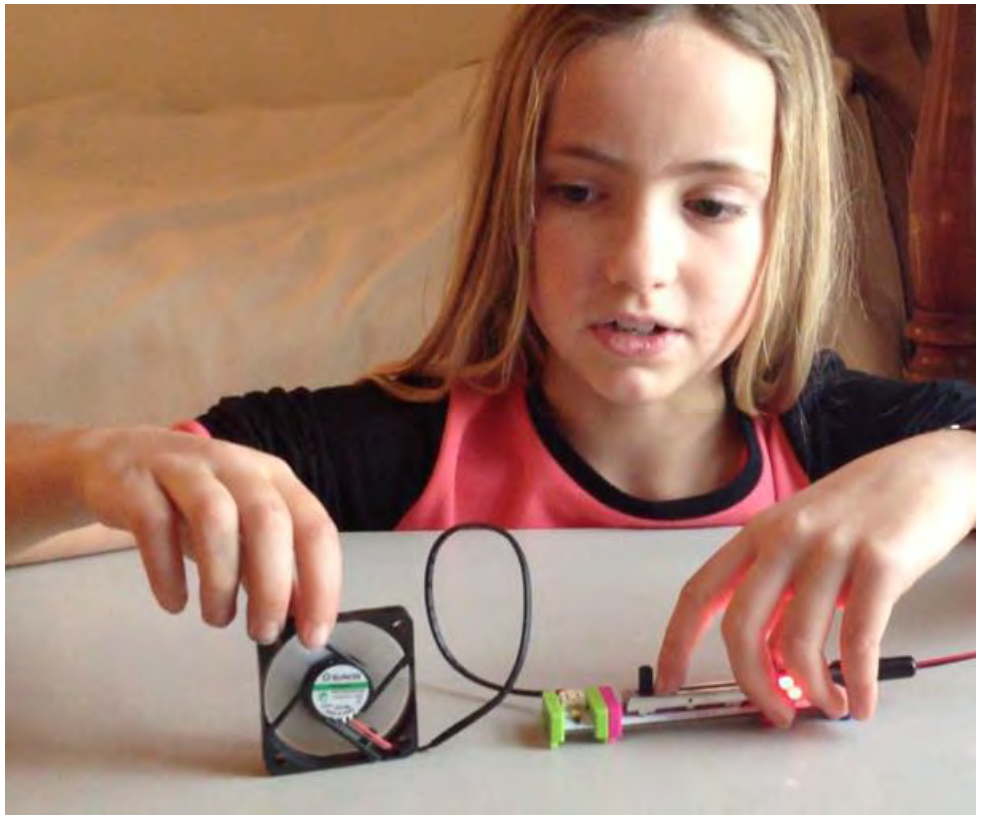
Electrons are tiny particles that march around paths. We call these paths “circuits”. Circuits carry electrical energy. This electrical energy allows machines to work and do things, as well as process information.


ELECTRICITY
IS A FLOW OF
ELECTRONS
AROUND A
CIRCUIT

Let’s make a circuit!

What are littleBits?

littleBits are easy-to-use electronic building blocks empowering everyone to create inventions, large and small. These electronic “bits” connect to each other to create a “circuit”.



A littleBits circuit needs power!

The blue bits give the circuit power

The pink bits are input bits

They control what you want the circuit to do

The GREEN bits are output bits

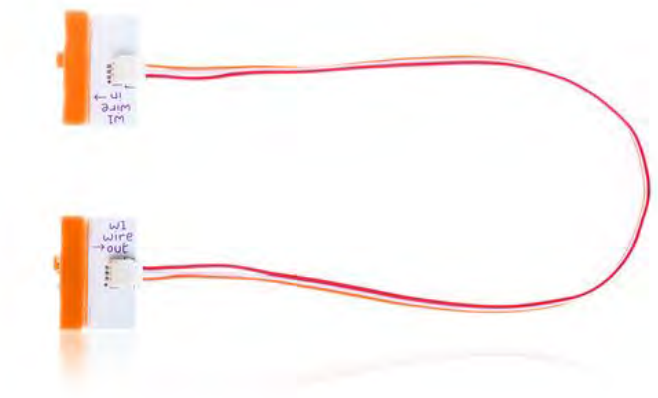
They perform the task you programed your circuit to do.
They do things!

Guidelines

-LittleBits are very delicate (they can break easily)

-Please do not drop them on the floor, if they fall off the table, please pick them up immediately

-Please do not force pieces together

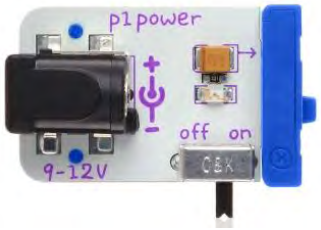


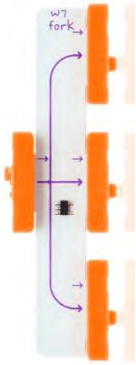
The orange bits are connector bits

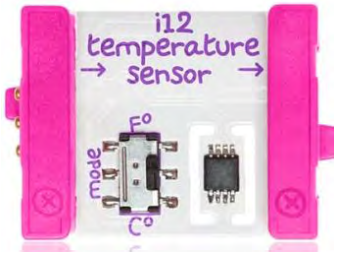
They extend your circuit or help it go in different directions

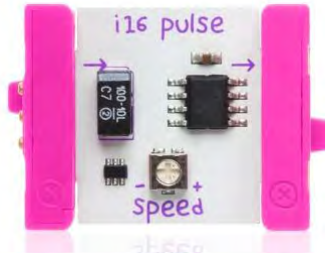
The different bits mimic technology we see and use in our everyday lives!

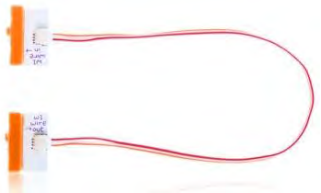
Under your kit you will see images of all of the Littlebits.
Please be sure to return each bit to its spot when you are not using it!

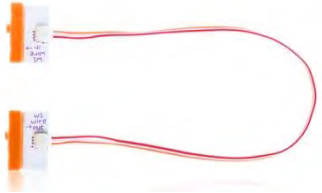












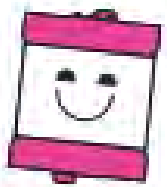
Challenge Time!

CHALLENGE 1

Let's start with a simple circuit. Find one of the lights in your collection (it will be green because it is an output) and snap it to a power module. *(Hint: Your power module will need to be connected to a 9V battery and turned on)*

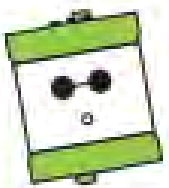
CHALLENGE 2

Imagine you want to create a flashlight. You don't want the light to be on all the time or the battery will run out. What input module would you add so that you could turn your flashlight on and off?



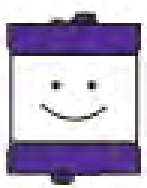
CHALLENGE 3

Now let's make a smart flashlight. What could you use to make your flashlight turn on automatically when it gets dark? *(Hint: you might need to change the mode or sensitivity of a module you add to your circuit)*



CHALLENGE 4

What other ways could you use this same circuit? If we put our circuit in a box, what would we need to change so that the light turns on whenever we open the box? *(Hint: we will need to change one of the little switches on one of the modules)*



CHALLENGE 5

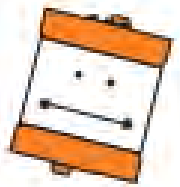
Now let's imagine we have something secret in the box, so we want to turn this circuit into an alarm. We already have it set up so that the light turns on when we open the box. What could we add so that instead of just turning on, the light flashes instead? What could we add so that people will notice the alarm even if they don't see the light?

CHALLENGE 6

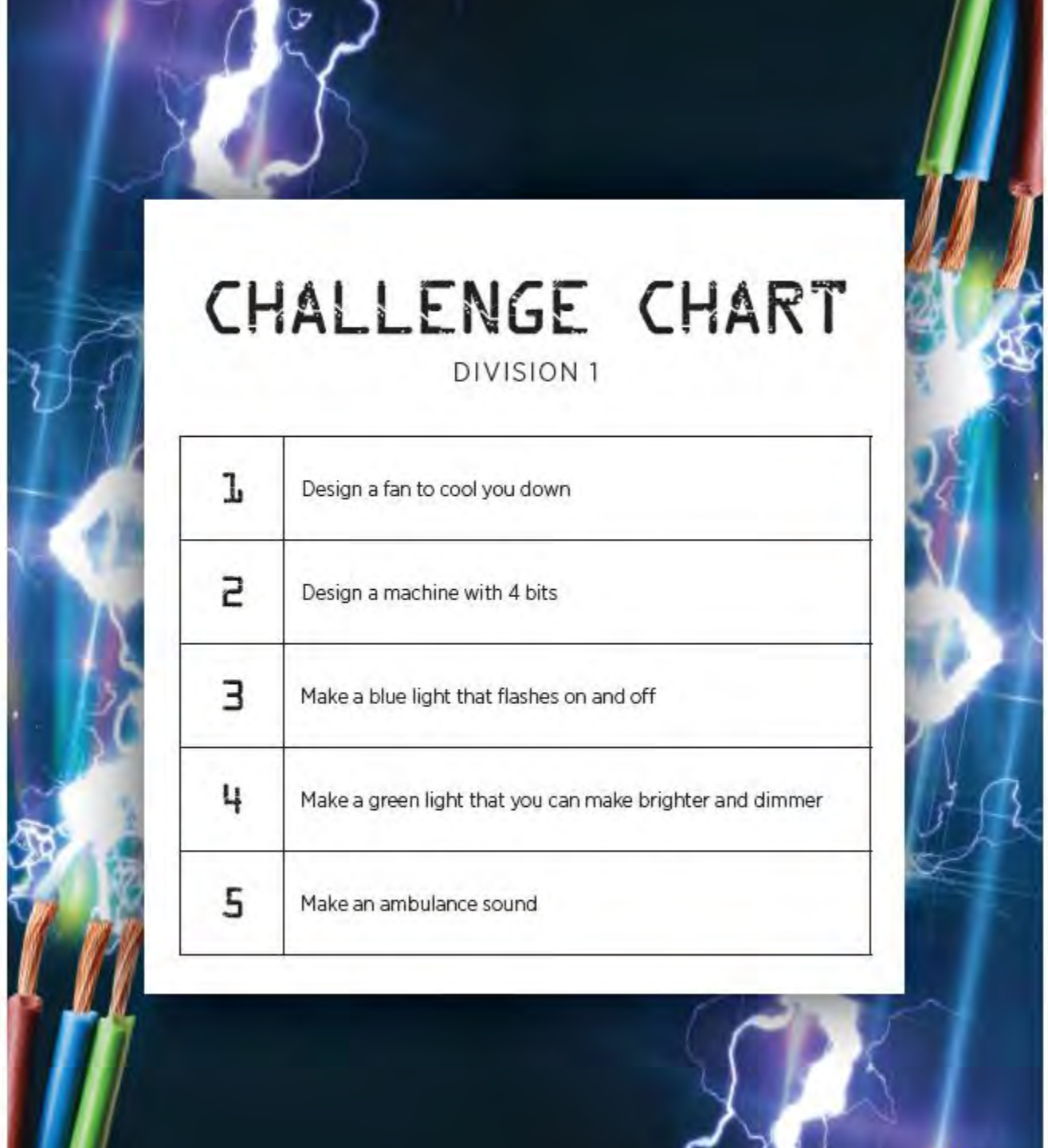
For our final challenge, let's change our circuit so we can run a little experiment. What if we don't want to have an alarm on our box, but we do want to know how many times it gets opened every day? The light sensor will tell us when the box is opened. What module could we add to count the number of times the light sensor is triggered?

CHALLENGE 7

For the final challenge, using the modules provided and your knowledge from the previous challenges, what else could you make with these modules? Use your imagination.



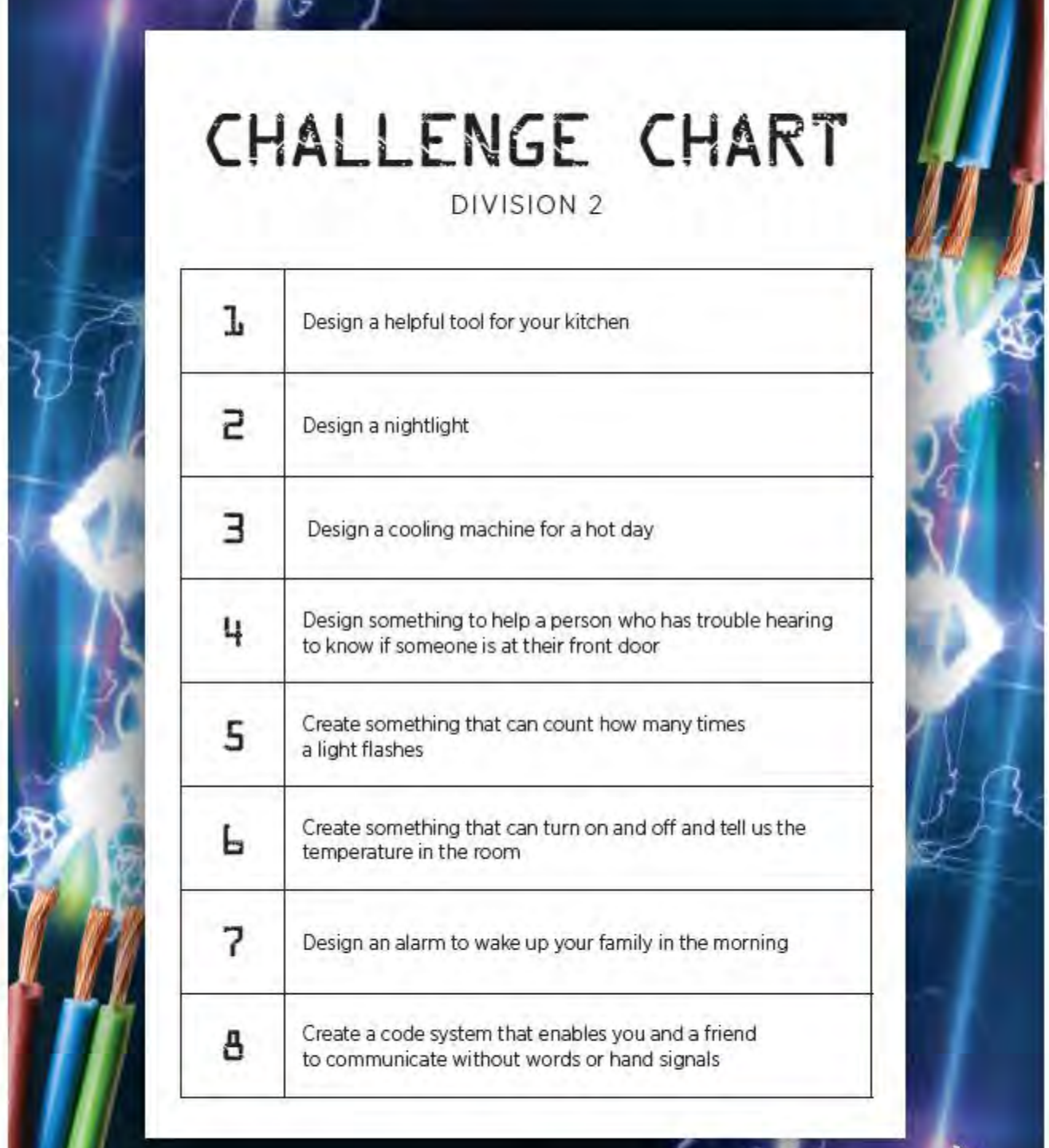

09 bargraph
littleBits v 0.3



CHALLENGE CHART

DIVISION 1

1	Design a fan to cool you down
2	Design a machine with 4 bits
3	Make a blue light that flashes on and off
4	Make a green light that you can make brighter and dimmer
5	Make an ambulance sound



CHALLENGE CHART

DIVISION 2

1	Design a helpful tool for your kitchen
2	Design a nightlight
3	Design a cooling machine for a hot day
4	Design something to help a person who has trouble hearing to know if someone is at their front door
5	Create something that can count how many times a light flashes
6	Create something that can turn on and off and tell us the temperature in the room
7	Design an alarm to wake up your family in the morning
8	Create a code system that enables you and a friend to communicate without words or hand signals