STEM STARTER KIT
Getting Started

Motors can drive cars and trucks and bikes, but they can also move bridges, open gates, help airplanes get off the ground, and do lots of other things! LEDs are super-bright lights used in flashlights, stop lights, screens, and more. They can make anything bright. Batteries are the power that make everything go and go.

In this booklet, you’ll find 10 fun projects to help you explore the Motor, LED, and Battery Circuit Cubes, from your first basic flashlight to a crazy Scribblebot. You’ll turn things on with the Battery Cube, make them move with the Motor Cube, and light the whole thing up with the LED Cube. They work together and separately, and the only limit is your imagination.

Once you’ve figured out all that Circuit Cubes can do, discover what you can do with Circuit Cubes!
M E E T T H E  C U B E S!  

These three Circuit Cubes are all you need for endless projects and hours of fun!

**Battery Cube**
Perfect for LEGO®'s, the rechargeable Battery Cube powers projects for up to an hour of active play time. If it’s green, it’s charged and ready to go; if it needs charging, plug it into a MicroUSB charger until the green light appears.

**Motor Cube**
A perfect fit for LEGO® gears and wheels, the Motor Cube can race in all directions! What can you create that doesn’t look like a car but moves? The Motor Cube is the one to use.

**LED Cube**
Snap this ultra-bright oversized LED onto LEGO® bricks and get thousands of hours of light to illuminate your builds, from easy flashlight set-ups to tricky projects.
P A R T S

Your STEM Starter Kit Contains These Parts:

+6 MYLAR DISCS (NOT PICTURED)
PROJECT #1

Test out your Cubes!

1 Turn on the Battery:
   Powers all your projects!
2 Connect the Battery + LED:
   Instant light!
3 Connect the Battery + Motor:
   Get things revving!
4 Connect the Battery + LED + Motor:
   Lights and action!
5 Connect the Motor + LED + Wheel:
   Turn the wheel to generate electricity!
6 Connect the Battery + Motor + Wheel + Wires: Your Circuit Cubes can take on anything!
PROJECT #2
Make a flashlight!

MATERIALS

1

2

3

PROJECT #3
Make a hand-crank flashlight!

MATERIALS

1

2

3
PROJECT #4
Make a GOBO flashlight!

MATERIALS

1. [Diagram of materials]

2. [Diagram of materials]

3. [Diagram of materials]

4. [Diagram of materials]

5. [Diagram of materials]

6. [Diagram of materials]
PROJECT #5
Make a 1-Marker Scribblebot!

MATERIALS

Step: 1

Step: 2

Step: 3

Step: 4

Materials
PROJECT #6
Make a 2-Marker Scribblebot!

MATERIALS

1. [Image of materials]

2. [Image of materials assembly]

3. [Image of materials assembly]

4. [Image of materials assembly]

5. [Image of assembled Scribblebot]
PROJECT #7
Make a 6-Marker Scribblebot!

MATERIALS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
Project #8
Build a chassis!

Materials List

Step: 1
BAD connection!

Step: 2

Step: 3
GOOD connection.
PROJECT #9

Hack your ride!

1. Start with the car chassis from the previous page.
2. Move Battery and connect wires for more versatility.
3. Stack the LED Cube on top, but be sure to rotate it 90 degrees!
4. Turn ON.

Motor and LED will start up.

To change the car's direction, simply swap the wires on the motor posts to reverse the polarity and have the motor spin in the opposite direction! The LED should still turn on since it is stacked on top of the battery.
PROJECT #10
Build a tower!

MATERIALS

Step: 1
Step: 2
Step: 3
Step: 4
Step: 5
Step: 6

GOOD connection. BAD connection!
WARNING This product contains chemicals known to the State of California to cause cancer and birth defects (or other reproductive harm). WARNING This product contains small magnets. Swallowed magnets can stick together across intestines causing serious injuries. Seek immediate medical attention if magnets are swallowed or inhaled. WARNING Choking hazard—small parts. Not for children under 3 years. WARNING Lithium-ion batteries may overheat, explode or ignite, and cause injury. Do not connect the positive terminal and negative terminal of the battery to each other with metal objects. Do not expose battery to water or allow the battery to get wet. WARNING The battery is non-replaceable. WARNING Circuit cubes are only intended to work with one battery cube in a circuit, parts may fail if you add multiple battery cubes in a circuit.

This toy shall only be used with a suitable transformer designated for toys having the following specifications: DC 5V and 500 mA charge rating. The transformer is not a toy. Toys liable to be cleaned with liquid are to be disconnected from the transformer before cleaning.

The toy is only to be connected to Class II equipment bearing the following symbol: Packaging has to be kept since it contains important information.