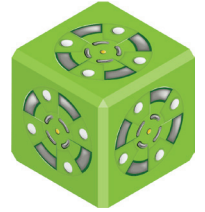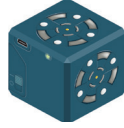# cubelets
ROBOT BLOCKS

Conversation Guide

The 1-Minute Demo

This is a Cubelet.

Each Cubelet **is a robot** with its own special, pre-programmed function.

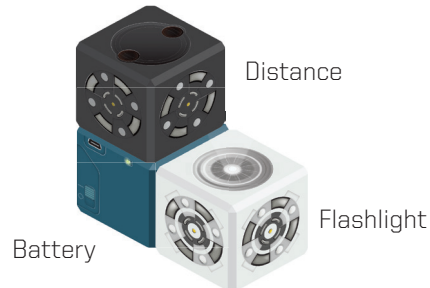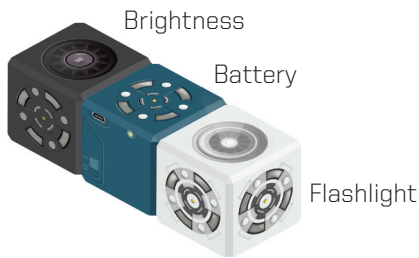**Black** Cubelets are **SENSE** blocks

Colorful Cubelets are **THINK** blocks

Clear Cubelets are **ACT** blocks

Switching and swapping blocks changes how a robot behaves.

With a Battery, a SENSE block, and an ACT block, kids as young as four can build robots and begin learning about complex systems.
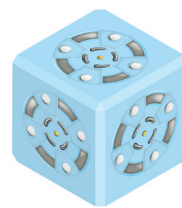
Brightness

Battery

Flashlight

Distance

Battery

Flashlight

Inverse

Brightness

Battery

Flashlight

With more blocks, robots and their behaviors become more complex.

Cubelets teach computational thinking* with no coding required!

*A powerful way to unpack and solve complex problems.

OR!

Add the Bluetooth block, and you can remote control or reprogram your robot, giving older students a bigger challenge.

Students of all ages practice and learn vital skills with Cubelets:

Pre-k - 2nd: Understanding of cause and effect, problem solving, Sense-Think-Act relationship, sequencing

3rd - 6th: Engineering, computational thinking, persistence in finding solutions to challenges, debugging, iterative designing

Higher grades: Introduction to computer science and data flow, Blockly (or C) programming, understanding complex systems and emergent behaviors

Engaging, intuitive, and scalable.

There is no other ed tech tool that makes learning about complexity and computational thinking so **easy and fun.** Cubelets are used by students of all ages, grades, and learning styles, making them a flexible, multi-use investment.
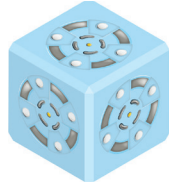
Cubelets are pre-programmed, which makes them perfect for student-led discovery in classrooms, makerspaces, libraries, and museums. The Bluetooth Cubelet takes learning to a new level, allowing students to remote control or reprogram their robots. **Cubelets can be coded using Blockly or C.** The Cubelets app is available for iOS and Android.

The beauty of Cubelets is that skills in computational thinking, design, and problem solving can be learned without any coding or screen time.

There are over 50 **free lesson plans** available at modrobotics.com, including introductory units for Pre-K to 12, an Introduction to Computer Science Unit, and even lessons connecting Cubelets to biology, ELA, and math! Plus, there are tons of **free downloadable resources, like the Cubelets Print & Fold Activity cards**.
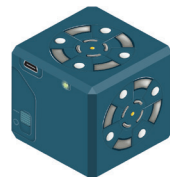
The only block you ever need to charge is the Battery Cubelet, which uses a **micro-USB**. It takes approximately an hour and a half to charge, but **will typically last for 5-6 hours.**

Cubelets encourage self-directed learning, making them easy to integrate into any educational space, even for educators with minimal STEM experience.
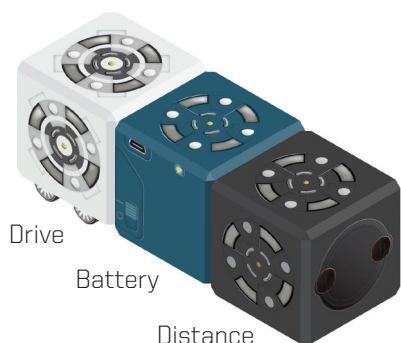
About Modular Robotics

Modular Robotics is headquartered in Boulder, Colorado.

Cubelets are the brainchild of CEO Eric Schweikardt, and were part of his PhD thesis at Carnegie Mellon University.

Modular Robotics was funded in part by grants from the National Science Foundation.

A basic Drive Bot

Drive

Battery

Distance

The Distance Cubelet means this bot will either follow or run away from your hand, depending on the orientation of the wheels.

Demo Tip: Flip the Drive Cubelet 180 degrees to switch which direction it rolls. To make it spin, turn it another 90 degrees.

A Flashlight Bot

The Brightness Cubelet and Flashlight Cubelet are a great way to demonstrate the cause and effect of SENSE and ACT.

Demo Tip: A flashlight that lights up when it's bright out isn't very useful! Use the red Inverse Cubelet between the Brightness and Flashlight (sense -> think -> act, just like humans) to invert the signal and make the flashlight light up when it's dark instead.

Brightness

Battery

Inverse

Flashlight

Brightness

Battery

Drive

Speaker

Flashlight
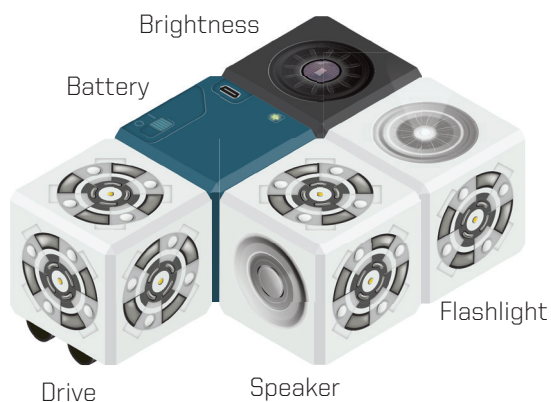
Does-All-The-Things Bot

This mish-mash of Cubelets isn't the prettiest of robots, but it does teach one key lesson: all of the ACT blocks are being controlled by a single SENSE block.

Demo Tip: This is a great way to introduce complexity into building with Cubelets. To reinforce the point, add a second SENSE block and watch the behaviors change. This is a great introduction to how design thinking and computational thinking factor into building with Cubelets.

More questions? Check out our Getting Started Guide!
Need guidance on which sets to recommend? Contact us at accounts@modrobotics.com

https://www.modrobotics.com/cubelets/cubelets-getting-started/