2022

iBlocks

Pathways

TEACHING THINGS™

The Complete Thought

A letter from our CLO

As a society, and as educators, we have an obligation to improve on formative education for the children of the current generation.

At Teaching Things, we have always understood that equipment is not the silver bullet, so why do K-12 institutions concentrate such a large portion of their budget on the latest shiny object? If the goal of education is to engage and impart knowledge and skills to our students, how does the purchase of equipment in and of itself accomplish that without addressing all the other elements that comprise our present-day learning experience?

Our philosophy, after years of observation, is to focus on outcomes. We have learned over our 47-year history how to design, create, and deliver the complete thought — a solid foundation for learning that includes tools, equipment, and instructional solutions that spark the mind.

Last year we created a custom educational experience called iBlocks. An iBlock is a collaborative effort between Teaching Things and our customers that creates an outcomes-driven, student-led, activity-rich approach to learning. It's driven by student achievement, and career readiness.

So in this catalog, rather than enticing you with products and gear, we ask that you consider your desired outcome. Then, allow us to consult with you on the appropriate instructional solution, equipment, and professional development needed to make the iBlock experience a success.

Our founder once said, "If we don't exceed our students' expectations, we're doing them a disservice." That's why we partner with you to build solutions that work.

Robert-Wayne Harris
Vice President and Chief Learning Officer

iBlocks Pathways

What is an **iBlock**?

Put the "wow" back into STEM learning with project-based activities that engage students in critical thinking, teamwork, and fun.

Easy lift, high reward
Because iBlocks are student-led and teacher-guided, they offer a robust and creative environment for everyone. Testing, grading, and formal evaluation are eliminated, and instead, students demonstrate mastery and learning through self-evaluation, discussion, and overall engagement with the project.

An enhancement to your existing curriculum
Enrich your existing curriculum with an iBlock, or use it to kick off a STEM initiative. An iBlock is designed to supplement your instruction with content that gives students a place to invent, explore, and take ownership of their learning.

An out-of-the-box solution
Each iBlock includes everything you need to implement it effectively in the classroom, from a framework that aligns to national standards, to student workbooks, a teacher's guide to help you facilitate, and even self-assessments to help students keep their learning on track.

Driven by design thinking
In each iBlock you'll see a strong focus on engineering design concepts like researching, constructing, testing, evaluating, and redesigning, since an iBlock teaches students that learning is a journey — not a straight line.

Built around a capstone project
Each iBlock culminates in a capstone project that brings together everything students have learned throughout their iBlock, from their earliest research to their latest redesign.

Essential iBlock Package

An Essential iBlock Package **contains everything you need to implement experiential, project-based learning in the classroom**, right out of the box. From skills and objectives to critical thinking and reflection, iBlocks are the complete thought. Let us provide you with everything you need for impactful learning experiences – all you have to handle are the logistics.

iBlock Support

Have an idea or need some additional support? We would love to collaborate with you. **We can work with your school to create customized iBlocks to suit your needs**. We also offer iBlock implementation and facilitation support through personalized professional development.

Build an iBlock Sequence

Because iBlocks grow with students, they are a great way to continue exploring skills and interests in a particular field.

Consider your school building, and the range of grades that it holds. With the option to build a multi-year sequence of iBlocks, you can provide PBL content that expands and connects student learning across your building.

Here are some sequences that we recommend:

Building Literacy series
Elementary to Middle to High School

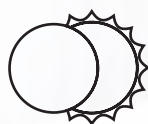Storytelling Through the Ages > Create a Short Story > Design a Comic Book > Develop a Play

Space Systems series
Elementary to Middle to High School

Light and Shadows > Create a Model of an Eclipse > Mars Colony: Engineering Expedition > Engineer a Telescope

Class Pet

DESCRIPTION:

Getting a class pet is an exciting event for students! In this iBlock, students will learn about class pets and decide which pet they should get based on research and suggestions. To make the best suggestion, students should research different animals, propose a good classroom home for it, and design a presentation to convince the class to vote for their idea. If students are convincing, their pet might even be selected!

FOCUS OF THE IBLOCK:

An iBlock provides a cross-curricular, holistic learning approach by structuring your learning content with a primary and secondary subject focus (see this in action below). But because iBlocks are also customizable and expandable, these foci can change to suit your school's needs, should you choose to tailor your iBlock.

Grade Band: Elementary

Primary Focus: Programming

Secondary Focus: Animal Biology, Ecology

Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: Kibo, Sphero, Ozobot, Wonder Workshop

Related Industry Sectors: Scientific Research & Engineering; Information & Communication Technologies; Manufacturing & Product Development

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample content standard for this iBlock: **Develop questions and participate in shared research and explorations to answer questions and to build knowledge. (Next Generation ELA Standards, 2W6)**

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:

K-2 STEM Bundle

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

KIBO Basics
OTISpd.com/events/view/13972

Clean Water and Sanitation

DESCRIPTION:

Across the globe, billions of people lack access to clean water. Among the United Nations' 17 Sustainable Development Goals, goal number six is to "ensure availability and sustainable management of water and sanitation for all." Throughout this iBlock, students will explore where drinking water comes from, identify contaminants, and ultimately design and engineer their own water filtration system.

FOCUS OF THE IBLOCK:

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Grade Band: Middle school

    Primary Focus: STEM, Science

    Secondary Focus: Math

    Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: 3D printer, Labdisc

Related Industry Sectors: Scientific Research & Engineering; Manufacturing & Product Development

Create a Model of an Eclipse

DESCRIPTION:

The Earth-Sun-Moon system has been studied for thousands of years. The interaction of these celestial bodies impacts our tides, seasons, and perceptions of time. In this iBlock, students explore the size and scale of our solar system and the phenomenon of eclipses. Then, students get to design and construct a model of our Earth-Sun-Moon system using 3D printers, and use that model to recreate a solar and lunar eclipse.

FOCUS OF THE IBLOCK:

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Grade Band: Middle school

Primary Focus: Astronomy, 3D Printing

Secondary Focus: Engineering

Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: 3D printer

Related Industry Sectors: Scientific Research & Engineering; Manufacturing & Product Development

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample content standard for this iBlock:

Develop and use a model of the Earth-Sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the Sun and moon, and seasons. (MS-ESS1-1)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:

Mobile STEM Bundle UMS3

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

Makey Makey Circuits
OTISpd.com/events/view/14222

www.iBlocks.com

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Create a Video Game

Within the last 40 years, video games have been an essential part of our media entertainment. From arcades to home consoles, and now to our smartphones, video games have found many outlets in which new audiences can be reached. In this iBlock, students will create their own compelling video game from start to finish using Bloxels, and then create their own official video game reviews.

FOCUS OF THE IBLOCK:

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Grade Band: High school

Primary Focus: Literacy

Secondary Focus: Engineering Design

Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: Bloxels, Makey Makey

Related Industry Sectors: Arts, Media, & Entertainment

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample content standard for this iBlock: **Determine the key ideas or conclusions of a source; trace the source's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the source. (NYS Next Generation ELA Standards, 9-10RST2)**

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:

- Mobile STEM Bundle UMS3
  - 9-12 Maker Bundle

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

Bloxels Basics
OTISpd.com/events view/14181

www.iBlocks.com

Designing a Board Game

DESCRIPTION:

Board games are experiencing a tremendous revival, fueled by new styles of gaming. A shift from luck and conflict to strategy and cooperation has brought new players into the genre. In this iBlock, students will plan a game, research game mechanics, design their play area and pieces, and then determine how to play-test their creation. Finally, they'll examine how to package and publicize their game, and maybe even present a sales pitch to interested buyers.

FOCUS OF THE IBLOCK:

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Grade Band: Middle school

   Primary Focus: ELA, Engineering

   Secondary Focus: Art, Marketing

   Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: 3D printer

Related Industry Sectors: Arts, Media, & Entertainment; Marketing, Sales, & Services

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample content standard for this iBlock:

Demonstrate persistence in developing skills with various materials, methods, and artmaking approaches in creating works of art or design. (Learning Standards for the Arts, VA. Cr2.1.7a.)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:

Mobile STEM Bundle UMS3

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

Facilitating a Design Challenge with Tinkercad

OTISpd.com/events/view/13896

www.iBlocks.com

Engineering an Assistive Game Controller

DESCRIPTION:

In this iBlock, students will learn about inclusivity, game controller design, and the gaming industry. Then, they'll work towards creating a game controller for a gamer with disabilities to use with a simple coded video game. This iBlock takes students through the Engineering Design Process from research on disabilities and the history of the game controller, to designing and building an assistive controller and simple game, to improving their device and hosting an arcade event!

FOCUS OF THE IBLOCK:

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Grade Band: Elementary school, Middle school, High school

Primary Focus: Engineering, Programming

Secondary Focus: ELA, Communication

Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: littleBits, Sparkfun, Makey Makey, 3D printer

Related Industry Sectors: Scientific Research & Engineering; Manufacturing & Product Development

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample content standard for this iBlock:

Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. (MS-ETS1-2)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:

- 3-5 Maker Bundle
- 6-8 Coder Bundle
- 6-8 Maker Bundle
- 9-12 MakerBundle

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

Design Challenges with littleBits
OTISpd.com/events/view/14139

www.iBlocks.com

Engineer a Telescope

DESCRIPTION:

Scientists have been trying to see and explore the mysteries of the universe for centuries. Over time, our understanding of space and the technology available to view the mysteries found there has evolved. In this iBlock, students will learn about the evolution of the telescope and the optical science that makes them work. Using their new or expanded knowledge, students will design and build a telescope, using 3D printed materials and other consumables, to make their own observations about space!

FOCUS OF THE IBLOCK:

An iBlock provides a cross-curricular, holistic learning approach by structuring your learning content with a primary and secondary subject focus (see this in action below). But because iBlocks are also customizable and expandable, these foci can change to suit your school's needs, should you choose to tailor your iBlock.

Grade Band: High school

    Primary Focus: Astronomy, 3D Printing

    Secondary Focus: Engineering

    Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: 3D printer

Related Industry Sectors: Scientific Research & Engineering

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample content standard for this iBlock:

Use mathematical or computational representations to predict themotion of orbiting objects in the solar system. (HS-ESS1-4)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:
Mobile STEM Bundle UMS3

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

Ultimaker: Optimizing Your 3D Print

OTISpd.com/events/view/13921

www.iBlocks.com

Engineering for Hazardous Weather: Taking Flood Control to New Heights

DESCRIPTION:

When most people think about weather and climate, they immediately check the news or their favorite weather app. Is it going to rain today? Will there be flooding? With the threat of severe or hazardous weather, it is important to consider what we can do to protect ourselves, our homes, and our communities. With a focus on flooding, it is our mission to determine how best to protect and preserve resources, people, and communities during times of severe weather. How would you tackle the threat of a flood? In this iBlock, students will consider how and why floods form as well as specific areas of concern. Students will then engineer a lifted house or system to best prepare for, and protect people during severe flooding conditions.

FOCUS OF THE IBLOCK:

An iBlock provides a cross-curricular, holistic learning approach by structuring your learning content with a primary and secondary subject focus (see this in action below). But because iBlocks are also customizable and expandable, these foci can change to suit your school's needs, should you choose to tailor your iBlock.

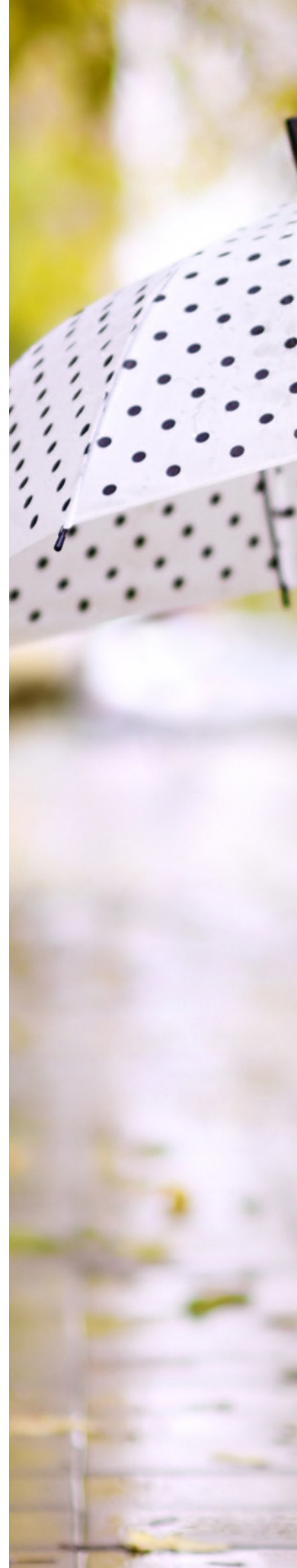**Grade Band:** Elementary

    Primary Focus: Weather

    Secondary Focus: Engineering

    Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: 3D Printer

Related Industry Sectors: Engineering & Architecture

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample content standard for this iBlock:

Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard. (3-ESS3-1)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:
K-2 STEM Bundle

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

Intro to Design Challenges
OTISpd.com/events/view/13894

www.iBlocks.com

Engineering 3D Printed Instruments

DESCRIPTION:

The sound an instrument produces has a lot to do with the materials that it's made of. An instrument made of wood has a very different sound than one made of brass. What about a plastic instrument? In this iBlock, students will investigate the science of sound, how instruments produce sound, and the difference materials can make in producing that sound. In addition, students will explore the anatomy of particular instruments, and become familiar with the foundations of music composition and 3D design.

FOCUS OF THE IBLOCK:

An iBlock provides a cross-curricular, holistic learning approach by structuring your learning content with a primary and secondary subject focus (see this in action below). But because iBlocks are also customizable and expandable, these foci can change to suit your school's needs, should you choose to tailor your iBlock.

Grade Band: Middle

Primary Focus: Musical Instruments, Sound Engineering

Secondary Focus: Music

Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: 3D Printers, Makey Makey

Related Industry Sectors: Scientific Research & Engineering; Manufacturing & Product Development; Arts, A/V Technology & Communication
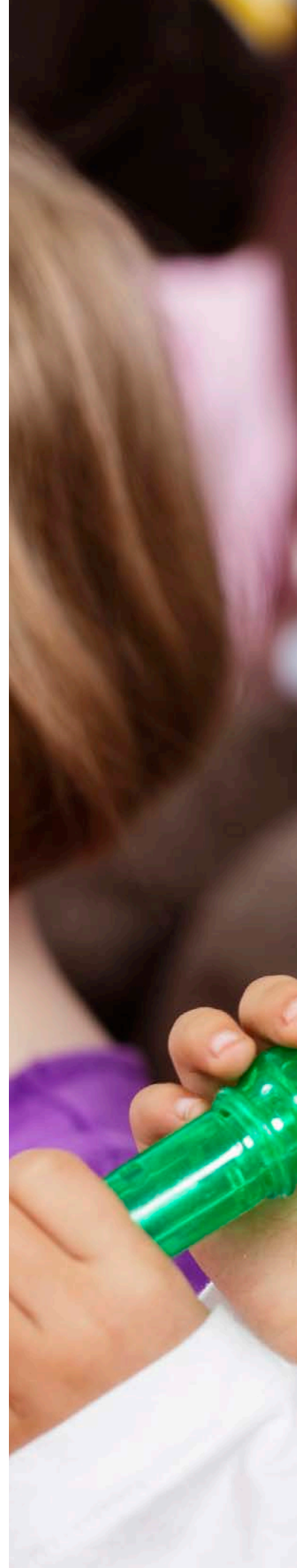
An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample content standard for this iBlock:

Generate and compare multiple solutions that use patterns to transfer information. (4-PS4-3)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:

Mobile STEM Bundle UMS3

www.mobilestembundles.com

www.iBlocks.com

Fashion for Function: Smart Wearables

DESCRIPTION:

Wearable technology has changed quite drastically since the first items hit stores. Some of the most drastic changes and innovations in "smart" wearables have been focused on making them aesthetically pleasing while also serving a purpose, whether that's fashion, health, or entertainment. In this iBlock, students will design a unique piece of wearable technology that fulfills a function. Who knows — maybe one day it will climb to the top of gift idea lists!

FOCUS OF THE IBLOCK:

An iBlock provides a cross-curricular, holistic learning approach by structuring your learning content with a primary and secondary subject focus (see this in action below). But because iBlocks are also customizable and expandable, these foci can change to suit your school's needs, should you choose to tailor your iBlock.
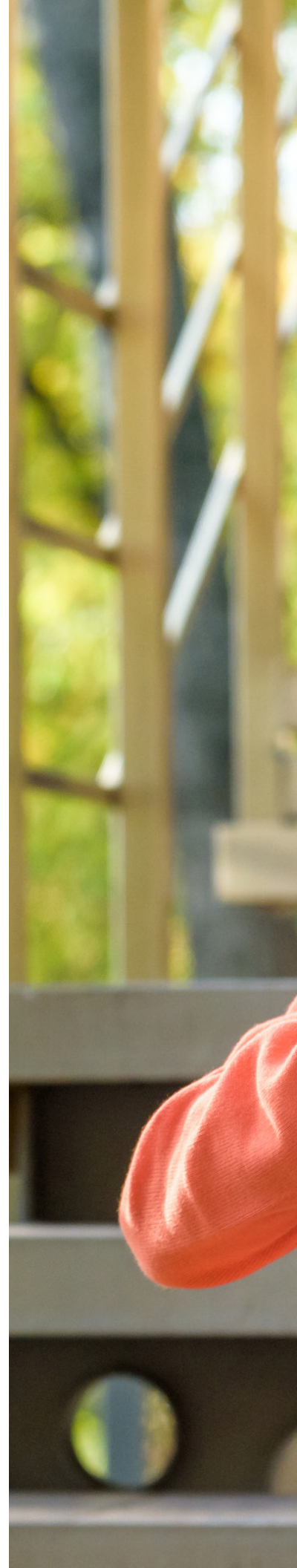
Grade Band: Middle

    Primary Focus: Design, Fabrication, and Engineering

    Secondary Focus: ELA and Marketing

    Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: micro:bit, Makey Makey

Related Industry Sectors: Fashion & Interior Design; Marketing, Sales, & Services

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample content standard for this iBlock:

Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. (Next Generation Science Standards, MS-ETS1-2)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:

Mobile STEM Bundle UMS3

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

Intro to micro:bit
OTISpd.com/events/view/13954

www.iBlocks.com

Geometric Self-Watering Planter

Are you looking for a creative, project-based way to teach your students about computer-aided design? In this iBlock, students will construct a geometric self-watering planter in Tinkercad. This project will utilize advanced skills in CAD software and challenge students to think mathematically while designing.

FOCUS OF THE IBLOCK:

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Grade Band: Middle school

Primary Focus: CAD

Secondary Focus: Geometry

Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: 3D printer, laser cutter, micro:bit soil moisture sensor

Related Industry Sectors: Agriculture, Food, & Natural Resources; Marketing, Sales, & Services

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample NGSS standard for this iBlock:

Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem (MS-ETS1-2)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:

Mobile STEM Bundle UMS3

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

Math-Infused 3D Design
OTISpd.com/events/view/14213

www.iBlocks.com

Growing a Hydroponic Garden

DESCRIPTION:

Agriculture has always been one of the building blocks of human civilization. Humanity has changed a lot since civilization first began, and that includes the way we grow our plants. In this iBlock, students will explore different agricultural structures and incorporate emerging resources to cultivate a technologically-enhanced botanical space. Students will also tackle challenges like growing plants in space-conscious environments for a rapidly growing population, and together discover the future of sustainable gardening.

FOCUS OF THE IBLOCK:

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Grade Band: High school

Primary Focus: Ecology, Programming

Secondary Focus: Engineering, Botany

Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: Farmshelf, pi-top 4

Related Industry Sectors: Agriculture, Food & Natural Resources

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample content standard for this iBlock:

Evaluate or refine a technological solution that reduces impacts of human activities on natural systems. (HS-ESS3-4)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:
9-12 Maker Bundle

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

Intro to micro:bit
OTISpd.com/events/view/13954

www.iBlocks.com

Mars Colony: Engineering Expedition

DESCRIPTION:

The year is 2050 and humankind is getting ready to take the next great step in space exploration - a colony on Mars! Intrepid individuals with skills in various STEAM areas are called to assist in planning and building the future colony and the most daring of them will live there as the very first Martians! In this iBlock, students will research space exploration, Mars, and survival essentials before planning for an historic trip to populate a new planet. Students will need to plan and build solutions for the essentials - food, transport, communication and more. Together, we can bring humanity to the next stage of its development.

FOCUS OF THE IBLOCK:

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Grade Band: Middle school

Primary Focus: Engineering, Social Studies

Secondary Focus: Biology, ELA

Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: Sphero RVR, littleBits, Sparkfun, SAM Labs

Related Industry Sectors: Scientific Research & Engineering; Information & Communication Technology; Transportation

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample NGSS standard for this iBlock:

Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. (MS-ETS1-1.)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:

- MS Maker Bundle
- MS Code Bundle

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

Using Sphero to Enhance MS Science Lessons
Become an Inventor with littleBits

OTISpd.com/events/view/14092

www.iBlocks.com

No Poverty and Zero Hunger

When the United Nations created its Sustainable Development Goals in 2015, they stressed the importance of addressing world poverty and hunger. The first goal aims to eliminate poverty, while the second goal aims to end hunger, achieve food security, and promote sustainable agriculture. In this iBlock, students will work to help the UN achieve these goals by designing a window planter that will produce low-cost, high-yield crops in the most efficient manner possible.

FOCUS OF THE IBLOCK:

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Grade Band: Middle school

Primary Focus: STEM

Secondary Focus: Math

Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: 3D printer, Labdisc

Related Industry Sectors: Agriculture, Food & Natural Resources

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample content standard for this iBlock:

Changes in biodiversity can influence humans' resources, such as food, energy, and medicines, as well as ecosystem services that humans rely on— for example, water purification and recycling. (Next Generation Science Standards, MS-LS2-5)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:

Mobile STEM Bundle UMS3

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

Representing Data in Charts
OTISpd.com/events/view/13900

www.iBlocks.com

Programming a Classification System

It's crucial that today's students become fluent in Computer Science skills and concepts. In this iBlock, students will build their Computer Science fluency as they conduct research on a topic of their choosing, and develop a fully-functional coding application to help them gain a better understanding of their research. Students will utilize computer programming software to go through the process of finding, organizing, classifying, and presenting research. In addition, students will create a visual and written plan for the logic of their program, and create a fully-functional program that takes user input and answers the student's original question.

FOCUS OF THE IBLOCK:

An iBlock provides a cross-curricular, holistic learning approach by structuring your learning content with a primary and secondary subject focus (see this in action below). But because iBlocks are also customizable and expandable, these foci can change to suit your school's needs, should you choose to tailor your iBlock.

Grade Band:

Elementary school: Coding and Classifying: Ready, Set, Sort!

Middle school: Super Sort: Classifying with Code!

High school: Coding a Classification System

Primary Focus: Physical Computing and Computer Programming

Secondary Focus: Critical Thinking and Problem Solving

Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: Piper, pi-top

Related Industry Sectors: Information & Communication Technologies

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample NGSS standard for this iBlock:

Design a solution to a complex real-world problem by breaking itdown into smaller, more manageable problems that can be solved through engineering. (HS-ETS1-2)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:
- 3-5 Coding Bundle (WW/S/OZ)
- 6-8 Coding Bundle
- 9-12 Coder Bundle
- 9-12 Maker Bundle

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

Learning Python with pi-top: Data Types

OTISpd.com/events/view/13983

www.iBlocks.com

Reimagining Public Transportation

DESCRIPTION:

Millions of people around the United States take a train to work each day. Some of these commuters live a short distance from their destination, but many travel over an hour just to get to work! Can you imagine a workweek where a minimum of 2 hours each day is spent commuting? As the number of people commuting only continues to grow, innovators are continually seeking to make transportation more efficient by building faster trains that can carry more passengers. In this iBlock, students will develop an understanding of efficiency by building their own model train, capable of either going faster, or carrying more weight than their peers.

FOCUS OF THE IBLOCK:

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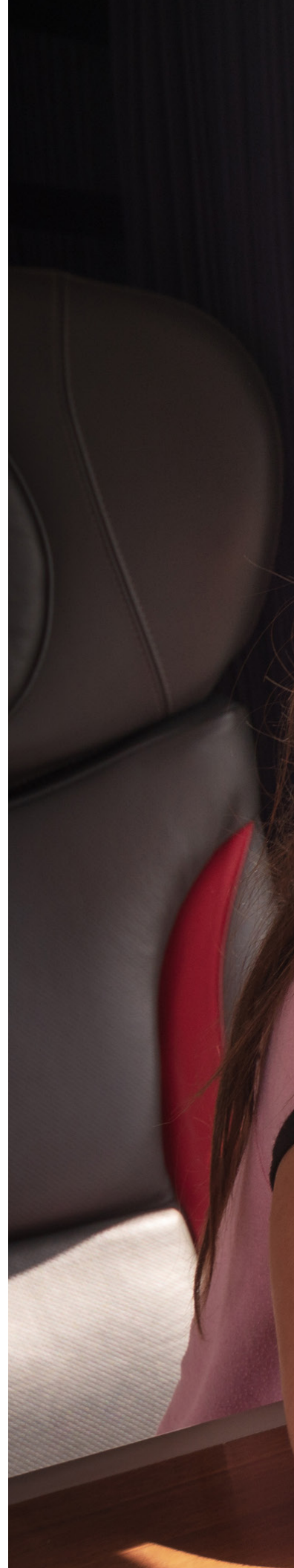
Grade Band: Elementary

Primary Focus: Forces and Interactions

Secondary Focus: Engineering

Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: littleBits, Sphero, 3D printer

Related Industry Sectors: Transportation

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample content standard for this iBlock: **Plan and conduct an investigation to provide evidence of the effects of balance and unbalanced forces on the motion of an object. (3-PS2-1)**

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:

3-5 Maker Bundle

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

Let's Get Rolling with littleBits
OTISpd.com/events/view/14186

www.iBlocks.com

River Management: Assessing Health

DESCRIPTION:

What's in the water? The world's rivers and streams are a priceless resource, but various forms of pollution pose a threat to water quality. Scientists carry out studies to determine physical, chemical and biological characteristics of water to get an accurate understanding of water quality. It's critical that we know the current status of water-quality conditions and how and why those conditions have been changing over time. With a better understanding of water quality, the growing need to protect the world's water resources may be better understood. So how do scientists assess whether river ecosystems are being protected? What does it entail to study a river's "health"? In this iBlock, students will engineer a device or system that will sample an environmental parameter that indicates water health.

FOCUS OF THE IBLOCK:

An iBlock provides a cross-curricular, holistic learning approach by structuring your learning content with a primary and secondary subject focus (see this in action below). But because iBlocks are also customizable and expandable, these foci can change to suit your school's needs, should you choose to tailor your iBlock.

Grade Band: Elementary

Primary Focus: Science

Secondary Focus: Social Studies

Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: Labdisc

Related Industry Sectors: Scientific Research & Engineering; Agriculture & Natural Resources; Energy, Environment, & Utilities

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample content standard for this iBlock:

Obtain and combine information about ways individual communities use science ideas to protect Earth's resources and environment. (5-ESS3-1)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:

Mobile STEM Bundle UMS3

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

PBL with Google for the Science Classroom

OTISpd.com/events/view/13213

www.iBlocks.com

Robotic Amusement Park

DESCRIPTION:

For over 100 years, amusement parks have garnered the love of many families through their incredible rides. In this iBlock, students will research various amusement park rides so that they can design and build their own dream ride. Along the way, they'll test their design and make improvements. Finally, the students will get their creations ready for their grand debut, and even bring their rides together to create a class theme park.

FOCUS OF THE IBLOCK:

An iBlock provides a cross-curricular, holistic learning approach by structuring your learning content with a primary and secondary subject focus (see this in action below). But because iBlocks are also customizable and expandable, these foci can change to suit your school's needs, should you choose to tailor your iBlock.

Grade Band: Middle school

Primary Focus: STEM

Secondary Focus: Physics

Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: littleBits, Ozobot, Sparkfun, Sphero

Related Industry Sectors: Scientific Research & Engineering; Information Technology; Manufacturing & Product Development

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample content standard for this iBlock:

A solution needs to be tested, and then modified on the basis of the test results, in order to improve it. (Next Generation Science Standards, MS-ETS1-4)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:

- 6-8 Robotics Bundle
- Robotis DREAM Classroom Bundle

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

ROBOTIS: DREAM Series
OTISpd.com/events/view/14022

www.iBlocks.com

Robotic Assembly Line

DESCRIPTION:

During the Industrial Revolution, assembly lines greatly improved manufacturing efficiency and in turn, production capacity. We are now in a new age of advanced technology and once again manufacturing is changing — but this time because of robotics, not a new manufacturing framework. In this iBlock, students will learn about the history of assembly lines, the future of assembly lines, and then build a robot to function in an assembly line environment.

FOCUS OF THE IBLOCK:

An iBlock provides a cross-curricular, holistic learning approach by structuring your learning content with a primary and secondary subject focus (see this in action below). But because iBlocks are also customizable and expandable, these foci can change to suit your school's needs, should you choose to tailor your iBlock.

Grade Band: High school

   Primary Focus: Robotics

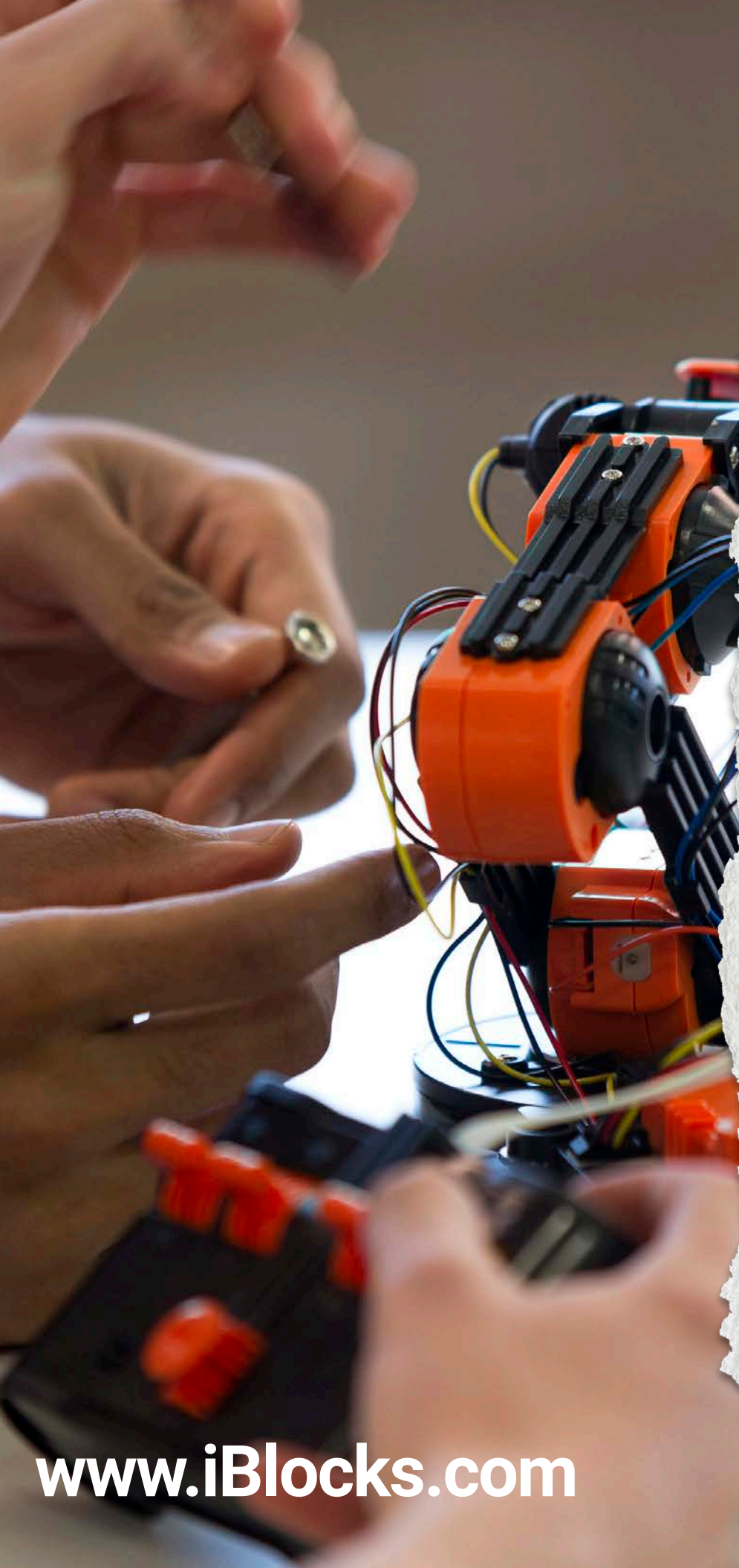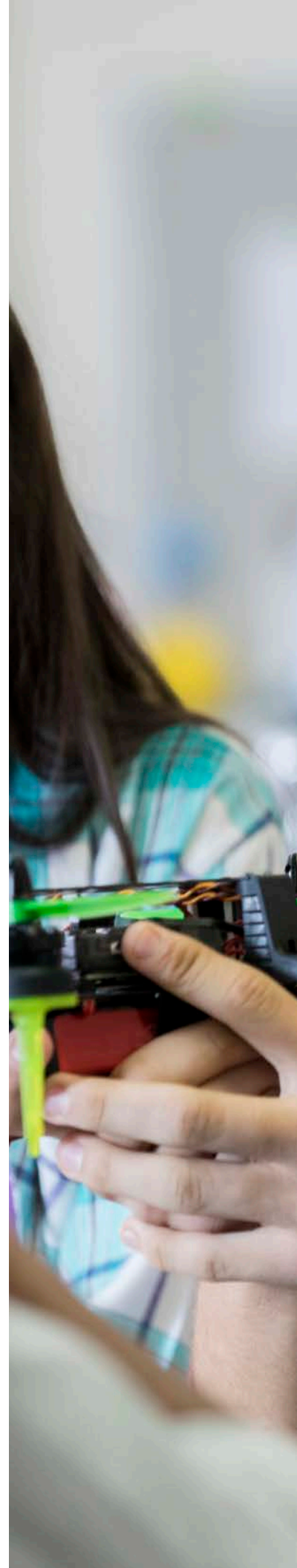   **Secondary Focus:** Engineering

   Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: ROBOTIS STEM, Sparkfun, Sphero RVR, UBTECH

Related Industry Sectors: Scientific Research & Engineering; Manufacturing & Product Development
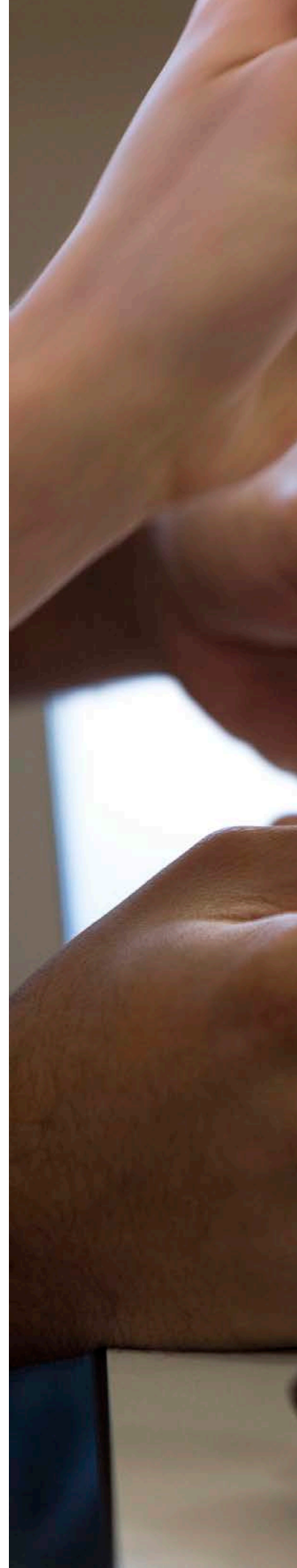
An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample K12 CSTA COMPUTER SCIENCE standard for this iBlock:

Modify, remix, or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features. (1B-AP-12)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:

- 6-8 Robotics Bundle
- Robotis DREAM Classroom Bundle

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

ROBOTIS: DREAM Series
OTISpd.com/events/view/14022

www.iBlocks.com

Robotic Field Day

In our technologically advanced society, we can now program robots to compete for us! Students will show off the very best of this new age of technology while learning about the importance of the past. In this iBlock, students will research the history of sporting events and create robots to compete in specific games for their very own futuristic robotic field day!

FOCUS OF THE IBLOCK:

An iBlock provides a cross-curricular, holistic learning approach by structuring your learning content with a primary and secondary subject focus (see this in action below). But because iBlocks are also customizable and expandable, these foci can change to suit your school's needs, should you choose to tailor your iBlock.

Grade Band: Elementary school, Middle school, High school

Primary Focus: Robotics

Secondary Focus: Engineering

Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: ROBOTIS Kits, UBTECH, 3D printer

Related Industry Sectors: Scientific Research & Engineering; Information & Communication Technologies; Hospitality, Tourism, & Recreation

www.iBlocks.com

Rube Goldberg Machines

DESCRIPTION:

Rube Goldberg Machines accomplish a simple task through an elaborately humorous and overcomplicated method. In this iBlock, challenge your students to think outside the box and discover the unexpected kinetic properties in everyday objects as they design their own Rube Goldberg Machine. In order to build their contraption, students will research simple machines and chain reactions and how they both relate to the world around them. From ideation to interaction, students will engage in creative thinking, critical reasoning, and teamwork as they engineer these truly unique machines.

FOCUS OF THE IBLOCK:

An iBlock provides a cross-curricular, holistic learning approach by structuring your learning content with a primary and secondary subject focus (see this in action below). But because iBlocks are also customizable and expandable, these foci can change to suit your school's needs, should you choose to tailor your iBlock.

**Grade Band:** Elementary school, Middle school, High school

Primary Focus: Problem Solving and Engineering (ES, MS) / Engineering and Physics (HS)

Secondary Focus: Design and ELA (ES, MS) / ELA and Business (HS)

Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: littleBits, Cubelets, Sphero, 3D printer, etc.

Related Industry Sectors: Scientific Research & Engineering; Arts, Media, & Entertainment
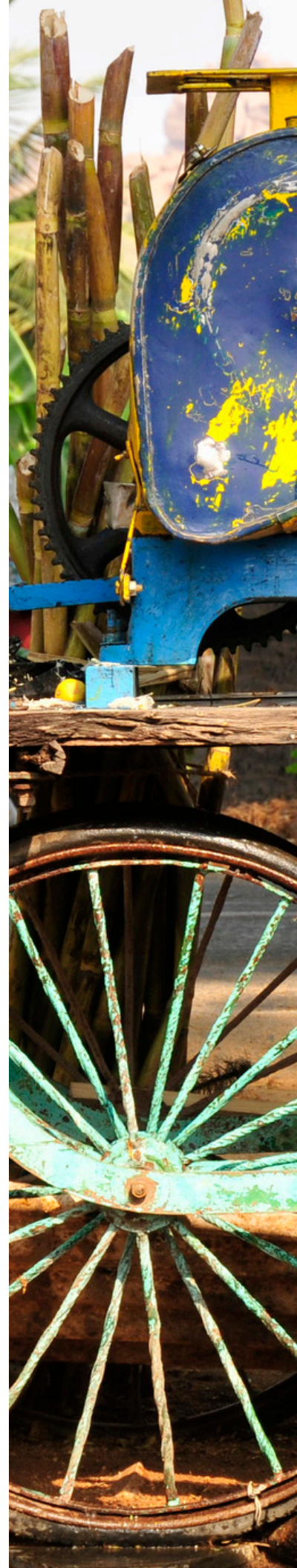
An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample content standard for this iBlock:

Make observations to provide evidence that energy is conserved as it is transferred and/or converted from one form to another. (4-PS3-2.)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:

- 3-5 Maker Bundle
- K-5 Robotics Bundle

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

Creative Prompts with Cubelets
OTISpd.com/events/view/14133

www.iBlocks.com
www.rubegoldberg.com

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Space Systems: Light and Shadows

DESCRIPTION:

The Earth-Sun-Moon system impacts our tides, seasons, and perceptions of time. In ancient times, engineers created some of the very first tools to measure time, including the sundial. In this iBlock, students will be challenged to design their own device to track time. Using CAD software, they will first design, and then 3D print, their device.

FOCUS OF THE IBLOCK:

An iBlock provides a cross-curricular, holistic learning approach by structuring your learning content with a primary and secondary subject focus (see this in action below). But because iBlocks are also customizable and expandable, these foci can change to suit your school's needs, should you choose to tailor your iBlock.

Grade Band: Elementary school

Primary Focus: Astronomy, 3D Printing

Secondary Focus: Engineering

Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: 3D printer, Labdisc

Related Industry Sectors: Scientific Research & Engineering

**An iBlock matches skills to standards (like Common Core or NGSS).**

Here is a sample content standard for this iBlock:

Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and theseasonal appearance of some stars in the night sky. (5-ESS1-2)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:

Mobile STEM Bundle MB
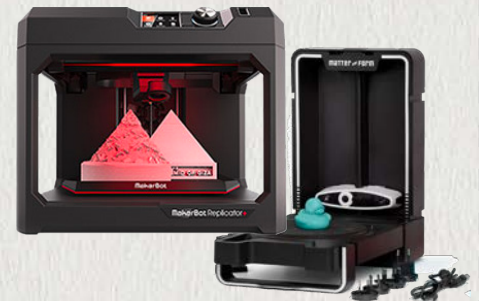
www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

MakerBot Replicator+ Basics
OTISpd.com/events/view/13953

www.iBlocks.com

Storytelling Through the Ages

Storytelling has been around for centuries — it is a fundamental part of being human and an essential learning tool. Our ancestors would tell stories that were passed down from generation to generation with nothing more than their imaginations. Now, we are still telling the same stories, but in new and innovative ways that speak both to our past and look forward to the future. In this iBlock, students will develop a new story using their knowledge of current storytelling techniques and work through the process of storyline creation that includes character development, narrative arc, developing props and visuals, and presenting their final product.

FOCUS OF THE IBLOCK:

An iBlock provides a cross-curricular, holistic learning approach by structuring your learning content with a primary and secondary subject focus (see this in action below). But because iBlocks are also customizable and expandable, these foci can change to suit your school's needs, should you choose to tailor your iBlock.

Grade Band: Elementary

   Primary Focus: ELA, Writing

   Secondary Focus: Computer Science/Coding; Art

   Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: Sphero Bolt, Wonder Workshop (Dash and Dot)

Related Industry Sectors: Arts, Media, & Entertainment; Information Technology

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample content standard for this iBlock:

Engage effectively in a range of collaborative discussions with diverse partners; express ideas clearly and persuasively, and build on those of others. (Next Generation ELA Standards, 3-5SL1.)

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:
- 3-5 Coding Bundle WW
- 3-5 Coding Bundle S

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

Digital Storytelling Around the Campfire with Sphero
OTISpd.com/events/view/14184

www.iBlocks.com

Tiny Houses

With the world population estimated at around 7.7 billion, concerns rise over issues like housing, natural resource use, and environmental impact. Tiny houses have emerged as a movement and potential solution to mitigate our demands on energy consumption and our lifestyle footprint. Throughout this iBlock, students will explore energy consumption and efficiency, identify ways in which tiny homes can address efficiency concerns, design and engineer a tiny home solution model, and present their models at their very own home show.

FOCUS OF THE IBLOCK:

An iBlock provides a cross-curricular, holistic learning approach by structuring your learning content with a primary and secondary subject focus (see this in action below). But because iBlocks are also customizable and expandable, these foci can change to suit your school's needs, should you choose to tailor your iBlock.

Grade Band: Elementary, Middle

Primary Focus: Science (ES), STEM (MS)

Secondary Focus: Math and Engineering (ES), Human Impacts and Engineering (MS)

Additional Foci: Advanced Literacy, Transferable Skills, Social and Emotional Learning

Possible Suggested Technologies: littleBits STEAM Kit, 3Doodler, Squishy Circuits

Related Industry Sectors: Engineering & Architecture; Marketing, Sales, & Services

An iBlock matches skills to standards (like Common Core or NGSS).

Here is a sample standard for this iBlock:

Obtain and combine information from books and other reliable media to explain phenomena [4-ESS3-1].

Pair your iBlock with the companion **STEM product bundle** to ensure you have what you need to effectively implement your iBlock:

STEM Bundle:

Mobile STEM Bundle UMS3

www.mobilestembundles.com

Need reinforcement? Subscribe to our online platform **OTIS for educators (OTISpd.com).**

Teaching with Tinkercad
OTISpd.com/events/view/13883

www.iBlocks.com

STEM Alignment

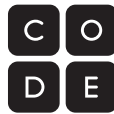Teaching Things' instructional solutions align to important programs and initiatives like these.

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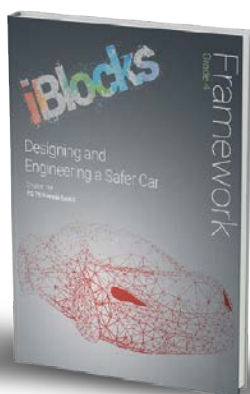
Meet the team at **www.teachingthings.com/pd-bios**

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Call us at 844.414.1851

or

Email us at **iBlocks@teachingthings.com**

SCAN ME