

iBlocks®

Project-Based Learning



2026

Spark Creativity

Teq®

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Project Based Learning

Spark inspiration with iBlocks – experiential project based learning activities that engage students in critical thinking, teamwork, and fun!



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Introduction to iBlocks

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.

THE ESSENTIAL IBLOCK PACKAGE



An Essential iBlock Package contains everything you need to implement experiential, project-based learning in the classroom. 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.

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(s) and the range of grades that they hold. 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:



iBlocks series: Building Literacy

Literacy is an essential skill to have, regardless of what your future goals are, what field you plan to work in, or even what subjects interest you. In our Building Literacy series, we cover storytelling, sequencing, creative expression, vocabulary & language development, and fiction & non-fiction appreciation.

Each iBlock is designed to spark interest and inspire creativity for hands-on literacy that gives students an authentic and meaningful experience with the written word.



iBlocks series: Robotics

In this sequence, students will get to explore, invent, and innovate with classroom robots. iBlocks in this series work on a variety of skills such as design thinking, iterative processes, coding and debugging, and more. As we move forward into a technologically advanced future, skills such as these will

be essential and required for careers in computer science, robotics, and research & development. Give your students a leg up with these fun, experiential projects that build and advance student skills from elementary through high school.



iBlocks series: Space Systems

The final frontier is a source of endless fascination for students and scientists alike. Give your class a thrilling out of this world experience while also building skills and learning important scientific concepts. From our solar system to the furthest reaches of the observable universe, this series of iBlocks will

challenge your students in ways they never imagined and expose them to concepts such as the engineering design process, communication systems, and appreciation for scientific discoveries.



Introducing iBlocks Online

We're excited to announce the arrival of iBlocks Online! All the things you love about iBlocks PBL, now even better with our dynamic digital platform.

EASY ACCESS TO PBL

iBlocks Online is the digital companion to our original iBlocks PBL workbooks. It's an easy-to-use platform that allows students, teachers, and administrators to implement unforgettable project-based learning experiences.



FOR TEACHERS

iBlocks save teachers time by taking the guess work out of planning and implementing complex projects. Follow your students' progress, leave feedback, and help where necessary.

- Control lesson pacing through content access management
- Easily manage classes, sections, and students from the dashboard
- See all your available iBlocks in one convenient place
- Get notified when a student needs help
- See student work and give individual feedback



FOR STUDENTS

The platform makes it easy for students to record information, iterate ideas, log progress, interact with their teacher, and more.

- Get creative with sketching and drawing features
- Attach links to research, images, and video clips
- Record information, brainstorm, iterate ideas, log progress, and reflect



Elementary School





Class Pet

DESCRIPTION:

Getting a class pet is an exciting event for students! In this iBlock, students will learn about different class pets, then choose a robot to represent a particular pet. They will also 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:

Grade Bands: K-2, 3-5

Primary Focus: Programming

Secondary Focus: Animal Biology, Ecology

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters)", AR/VR, Pre-built Coding Robots, Buildable Robots & Kits, Electronics/Circuitry Kits

Academic Alignment: Scientific Research & Engineering; Information & Communication Technologies; Manufacturing & Product Development

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)

Suggested Technology Offerings (from Teq):

- Cricut
- BirdBrain Finch Robot
- KIBO
- KUBO
- Ozobot
- BirdBrain Hummingbird Robotics Kit
- Modular Robotics (Cubelets & Dexter)
- LEGO
- UBTECH
- Wonder Workshop (Dash)

CTE Alignment:

- Advanced Manufacturing



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



KIBO BASICS

OTISpd.com/events/view/13972



Designing a Specialty Truck

DESCRIPTION:

When we think about trucks, we often think of fire trucks or pickup trucks, but there are so many other trucks to explore! In this iBlock, students will learn about different types of trucks as well as their unique functions. Students will research the specific uses for each truck and the impact that these trucks may have on a community. After the research process, students will choose a type of truck to design and utilize STEM and/or consumable materials to assemble the truck and have it perform the intended tasks. To make their truck roadworthy, students should work with peers, repair the truck as needed, and design a presentation to show off their auto creations!

FOCUS OF THE IBLOCK:

Grade Bands: K-2

Primary Focus: STEM

Secondary Focus: Engineering

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

Suggested Product Category: Pre-built Coding Robots, Buildable Robots & Kits, Electronics/Circuitry Kits

Academic Alignment: Coding, Engineering, Robotics, Science, STEM

Here is a sample content standard for this iBlock:

Develop a simple model based on evidence to represent a proposed object or tool. (K-2-ETS1-2.)

Suggested Technology Offerings (from Teq):

- BirdBrain Finch Robot
- KIBO
- KUBO
- Wonder Workshop (Dash)
- Modular Robotics (Cubelets & Dexter)
- LEGO
- UBTECH

CTE Alignment:

- Supply Chain & Transportation, Advanced Manufacturing



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KIBO BASICS

OTISpd.com/events/view/13972



Engineering for Hazardous Weather: Create a Rescue Kit

DESCRIPTION:

Even at a young age, it's necessary that children understand different types of weather and how to be prepared for them. In this iBlock, students will research what should be included in a rescue kit for different types of extreme weather. Then they'll create model rescue kits, develop and test kit delivery, and present a weather report to show off their creations.

FOCUS OF THE IBLOCK:

Grade Bands: K-2

Primary Focus: Weather

Secondary Focus: Engineering

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters)

Academic Alignment: Science, Engineering, STEM

Here is a sample content standard for this iBlock:

Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. (K-2-ESS3-2)

Suggested Technology Offerings (from Teq):

- 3Doodler

CTE Alignment:

- Public Service & Safety, Healthcare & Human Services



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WEATHER WATCHING ACTIVITIES FOR GROUNDHOG DAY

<https://otis.teq.com/events/view/17308>



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:

Grade Bands: 3-5

Primary Focus: Weather

Secondary Focus: Engineering

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), AR/VR, Physical Computing

Academic Alignment: Science, Engineering, STEM

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)

Suggested Technology Offerings (from Teq):

- Makerbot
- Ultimaker
- Merge
- Strawbees

CTE Alignment:

- Construction, Energy & Natural Resources



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MAKERBOT SKETCH BASICS
OTISpd.com/events/view/16412



Exploring Native American Culture

DESCRIPTION:

Geography plays an important role in how people live, beginning by influencing which communities occupy given areas. As Native American communities began to settle and adapt to their environment, they were challenged by climate and terrain conditions, such as dry land, extreme cold, or high mountain ranges, as well as natural resources. As a result, they developed patterns of behavior. Some groups resorted to behavioral patterns such as migration, while other Native American groups chose to use the land and resources around them to structure more permanent homes. In this iBlock, students will explore how geography influenced the lives of different Native American communities. Then they will design and construct a redesigned model of a Native American home structure.

FOCUS OF THE IBLOCK:

Grade Bands: 3-5

Primary Focus: Social Studies

Secondary Focus: Engineering

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters)

Academic Alignment: Engineering, Social Studies

Here is a sample content standard for this iBlock:

Write informative/explanatory texts to explore a topic and convey ideas and information relevant to the subject. (3-5-W2)

Suggested Technology Offerings (from Teq):

- 3Doodler
- Cricut
- Makerbot
- Ultimaker

CTE Alignment:

- Construction, Education



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TEACHING WITH TINKERCAD
OTISpd.com/events/view/16268



Jurassic Kids: Design a Dinosaur

DESCRIPTION:

Animals of all sorts are an exciting topic for young students, especially animals as impressive as dinosaurs! In this iBlock, students will embark on a journey to discover unknown facts and features about different types of dinosaurs. They will learn about different dinosaurs and their features, and from there, design their own dinosaur and the habitat it would call home. To guide their design, students will research several dinosaur species and determine the features for their own species. Once they have decided upon the features, they will move on to the design of their dinosaur's habitat. For both tasks, students will be challenged to add creativity through different artistic elements.

FOCUS OF THE IBLOCK:

Grade Bands: K-2

Primary Focus: STEM

Secondary Focus: Science

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), Pre-built Coding Robots, Electronics/Circuitry Kits

Academic Alignment: STEM, Engineering, Science

Here is a sample content standard for this iBlock:

Ask questions based on observations to find more information about the natural and/or designed world(s). Define a simple problem that can be solved through the development of a new or improved object or tool.
[K-2-ETS1-1]

Suggested Technology Offerings (from Teq):

- 3Doodler
- BirdBrain Finch Robot
- KIBO
- KUBO
- Ozobot
- Modular Robotics (Cubelets & Dexter)

CTE Alignment:

- Education, Arts, Entertainment, and Design



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**3D PRINTING AND DESIGN
MIKRO-CREDENTIAL**

https://otis.teq.com/courses/microcredential_courses/threed



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:

Grade Bands: 3-5

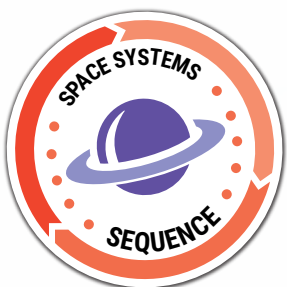
Primary Focus: Astronomy, 3D printing

Secondary Focus: Engineering

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), AR/VR, Data Loggers

Academic Alignment: Science, Engineering, STEM



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)

Suggested Technology Offerings (from Teq):

- 3Doodler
- Cricut
- Makerbot
- Ultimaker
- xTool
- Merge

CTE Alignment:

- Advanced Manufacturing, Education



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MAKERBOT REPLICATOR+ BASICS

[OTISpd.com/events/view/13953](https://www.OTISpd.com/events/view/13953)



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:

Grade Bands: 3-5

Primary Focus: Forces and Interactions

Secondary Focus: Engineerings

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters)", AR/VR, Pre-built Coding Robots, Buildable Robots & Kits, Electronics/Circuitry Kits

Academic Alignment: STEM, Engineering, Coding, Mathematics, Robotics, Science, Social Studies

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)

Suggested Technology Offerings (from Teq):

- 3Doodler
- Cricut
- Makerbot
- Ultimaker
- Ozobot
- Wonder Workshop (Dash)
- BirdBrain Hummingbird Robotics Kit
- LEGO
- UBTECH

CTE Alignment:

- Supply Chain & Transportation



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LET'S GET ROLLING WITH LITTLEBITS

OTISpd.com/events/view/14186



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:

Grade Bands: 3-5

Primary Focus: Science

Secondary Focus: Social Studies

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

Suggested Product Category: AR/VR, Data Loggers

Academic Alignment: Engineering, Science, Social Studies , STEM

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)

CTE Alignment:

- Energy & Natural Resources, Advanced Manufacturing



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ENGAGING IN CITIZEN SCIENCE
OTISpd.com/events/view/14172



Storytelling Through the Ages

DESCRIPTION:

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 both speak to our past and look forward to the future. Students will develop a new story and work through the process of storyline creation, character development, narrative arc, developing props & visuals, and presenting their final product. Finally, students will bring storytelling into the 21st century by coding a robot or program to tell their story!

FOCUS OF THE IBLOCK:

Grade Bands: 3-5

Primary Focus: ELA, Writing

Secondary Focus: Computer Science/Coding; Art

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), Video Game Creation/Gamification, AR/VR, Pre-built Coding Robots, Buildable Robots & Kits

Academic Alignment: Coding, ELA, Robotics, Literacy, Art & Design, Computer Science

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.)

Suggested Technology Offerings (from Teq):

- Cricut
- Breakout EDU
- BirdBrain Finch Robot
- Ozobot
- Wonder Workshop (Dash)
- BirdBrain Hummingbird Robotics Kit
- LEGO
- UBTECH

CTE Alignment:

- Arts, Entertainment, and Design", Advanced Manufacturing



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**DIGITAL STORYTELLING
AROUND THE CAMPFIRE
WITH SPHERO**

OTISpd.com/events/view/13953

Middle School





Becoming a Digital Citizen with MAD-learn

DESCRIPTION:

In this iBlock, students will learn about what it means to be a digital citizen and the responsibilities that come with it. In addition, they will learn about app design and creation. Then, they'll plan, design, create, test, and improve an app of their own to educate users on becoming a digital citizen. Students will create a pathway to digital citizenship utilizing MAD-learn's app development platform. Finally, students will have the option to create a new mission statement for their school, incorporating elements of digital citizenship to bring the mission statement into the 21st century.

FOCUS OF THE IBLOCK:

Grade Bands: 6-8

Primary Focus: Digital Citizenship

Secondary Focus: Computer Science & Digital Fluency

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

Suggested Product Category: Mobile App Development

Academic Alignment: Computer Science, Coding, Social Studies, ELA

Here is a sample content standard for this iBlock:

Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts. (NYS Next Gen. ELA: RH7 6-8)

Suggested Technology Offerings (from Teq):

- MAD-learn (Specific Tech. Required)

CTE Alignment:

- Digital Technology



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MAD-LEARN BASICS

otis.teq.com/events/view/17328



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:

Grade Bands: 6-8

Primary Focus: STEM, Science

Secondary Focus: Math

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), AR/VR, Data Loggers

Academic Alignment: Engineering, Mathematics, Science, STEM

Here is a sample content standard for this iBlock:

Typically, as human populations and per-capita consumption of natural resources increase, so do the negative impacts on Earth unless the activities and technologies involved are engineered otherwise. (Next Generation Science Standards, MS-ESS3-3; MS-ESS3-4)

Suggested Technology Offerings (from Teq):

- Makerbot
- Ultimaker
- Inspirit

CTE Alignment:

- Energy & Natural Resources

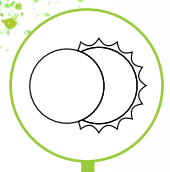


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ENGAGING IN CITIZEN SCIENCE

OTISpd.com/events/view/14172



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:

Grade Bands: 6-8

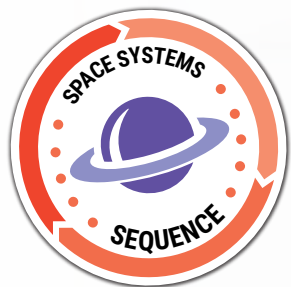
Primary Focus: Astronomy, 3D printing

Secondary Focus: Engineering

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), AR/VR

Academic Alignment: Science, Engineering, STEM



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)

Suggested Technology Offerings (from Teq):

- 3Doodler
- Makerbot
- Ultimaker
- Merge
- Inspirit

CTE Alignment:

- Advanced Manufacturing, Education



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MAKEY MAKEY CIRCUITS
OTISpd.com/events/view/13972



Create a Short Story

DESCRIPTION:

Despite the natural fast-paced read element to short stories, this type of literature typically contains the same components of a standard novel including characters, conflict, plot, and a theme. In this iBlock, students will develop a short story using their knowledge of literary elements and work through the process of writing a story: character development, narrative arc, developing visuals, reviewing one another's work, and presenting their final product.

FOCUS OF THE IBLOCK:

Grade Bands: 6-8

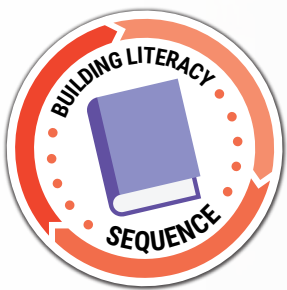
Primary Focus: ELA/Writing

Secondary Focus: Art

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

Suggested Product Category: Mobile App Development, Video Game Creation/Gamification, AR/VR

Academic Alignment: ELA, Literacy



Here is a sample content standard for this iBlock:

In literary texts, analyze how elements of plot are related, affect one another, and contribute to meaning. (6-8R3; RL)

Suggested Technology Offerings (from Teq):

- Breakout EDU

CTE Alignment:

- Arts, Entertainment, and Design



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GROWING GREAT WRITERS WITH SCHOOLOGY

[OTISpd.com/events/view/16115](https://www.OTISpd.com/events/view/16115)



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:

Grade Bands: 6-8

Primary Focus: ELA, Engineering

Secondary Focus: Art, Marketing

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters)

Academic Alignment: ELA, Engineering, STEM, Art & Design

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.)

Suggested Technology Offerings (from Teq):

- 3Doodler
- Cricut
- Formlabs
- Makerbot
- Ultimaker
- Maplewoodshop
- xTool

CTE Alignment:

- Arts, Entertainment, and Design, Marketing & Sales



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IMPLEMENTING A 3D DESIGN CHALLENGE WITH TINKERCAD

[OTISpd.com/events/view/14001](https://www.otispd.com/events/view/14001)



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:

Grade Bands: 6-8

Primary Focus: Musical instruments, Sound Engineering

Secondary Focus: Music

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), AR/VR, Physical Computing

Academic Alignment: Music, Engineering, STEM, Science, Coding

Here is a sample content standard for this iBlock:

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

Suggested Technology Offerings (from Teq):

- Specific Tech. Required
- Makerbot*
- Ultimaker
- Inpsirit
- Makey Makey*

CTE Alignment:

- Arts, Entertainment, and Design, Advanced Manufacturing



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**ULTIMAKER 3/3
EXTENDED BASICS**

OTISpd.com/events/view/13952



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:

Grade Bands: 6-8

Primary Focus: Design, Fabrication

Secondary Focus: Art, Marketing

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), AR/VR, Electronics/Circuitry Kits, Physical Computing

Academic Alignment: Engineering, Art & Design, Coding, Science, STEM

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)

Suggested Technology Offerings (from Teq):

- 3Doodler
- Cricut
- Makerbot
- Ultimaker
- xTool
- Makey Makey
- Strawbees

CTE Alignment:

- Advanced Manufacturing, Arts, Entertainment, and Design, Healthcare & Human Services



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INTRO TO MICRO:BIT
OTISpd.com/events/view/13954



Geometric Self-Watering Planter

DESCRIPTION:

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:

Grade Bands: 6-8

Primary Focus: CAD

Secondary Focus: Geometry

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), Hydroponics Units, AR/VR, Data Loggers

Academic Alignment: STEM, Mathematics, Science, Engineering, Art & Design, Hydroponics

Here is a sample content standard for this iBlock:

6-7.G Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

Suggested Technology Offerings (from Teq):

- 3Doodler
- Formlabs
- Makerbot
- Ultimaker
- xTool
- Fork Farms
- Merge
- Inspirit

CTE Alignment:

- Advanced Manufacturing, Agriculture, Arts, Entertainment, and Design



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GLOWFORGE BASICS
OTISpd.com/events/view/15981



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:

Grade Bands: 6-8

Primary Focus: Engineering, Social Studies

Secondary Focus: Biology, ELA

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), AR/VR, Pre-built Coding Robots, Buildable Robots & Kits, Electronics/Circuitry Kits

Academic Alignment: Coding, Engineering, Robotics, Science, STEM

Here is a sample content 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.)

Suggested Technology Offerings (from Teq):

- Cricut
- Breakout EDU
- Makerbot
- Ultimaker
- Merge
- Inspirit
- Ozobot
- Wonder Workshop (Dash)
- BirdBrain Hummingbird Robotics Kit
- LEGO
- UBTECH

CTE Alignment:

- Advanced Manufacturing, Construction, Supply Chain & Transportation, Hospitality, Events, and Tourism, Digital Technology



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USING SPHERO TO
ENHANCE MIDDLE SCHOOL
SCIENCE LESSONS

OTISpd.com/events/view/14092



No Poverty and Zero Hunger

DESCRIPTION:

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:

Grade Bands: 6-8

Primary Focus: STEM

Secondary Focus: Math

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), Hydroponics Units, AR/VR, Data Loggers

Academic Alignment: STEM, Mathematics, Science, Engineering, Hydroponics, Social Studies

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)

Suggested Technology Offerings (from Teq):

- Makerbot
- Ultimaker
- xTool
- Fork Farms
- Merge
- Inspirit
- Maplewoodshop

CTE Alignment:

- Agriculture



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REPRESENTING DATA IN CHARTS
[OTISpd.com/events/view/13900](https://www.OTISpd.com/events/view/13900)



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:

Grade Bands: 6-8

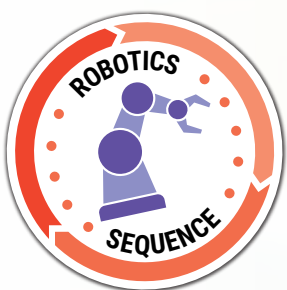
Primary Focus: STEM

Secondary Focus: Physics

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), Pre-built Coding Robots, Buildable Robots & Kits, Electronics/Circuitry Kits, Physical Computing

Academic Alignment: Robotics, STEM, Science, Coding



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)

Suggested Technology Offerings (from Teq):

- 3Doodler
- Cricut
- Makerbot
- Ultimaker
- xTool
- Ozobot
- Wonder Workshop (Dash)
- BirdBrain Hummingbird Robotics Kit
- Modular Robotics (Cubelets & Dexter)
- LEGO
- UBTECH
- Strawbees

CTE Alignment:

- Hospitality, Events, and Tourism, Advanced Manufacturing, Construction



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ROBOTIS DREAM SERIES
OTISpd.com/events/view/14172



The Cotton Candy iBlock

DESCRIPTION:

Learning opportunities are everywhere, even inside your candy jar! In this iBlock, students will research the history of sugar, its molecular structure, and even candy making machinery before trying their hand at making their own sweets, including cotton candy! Students will then expand their product lineup by creating or perfecting a treat to showcase at their very own Candy & Sweets Expo. If desired, computer-aided design (CAD) can also be used to make candy molds and/or displays. Graphical software can be used for packaging products as well. This is a great opportunity for students to explore important science, physics, and historical concepts.

FOCUS OF THE IBLOCK:

Grade Bands: 6-8

Primary Focus: Science, STEM

Secondary Focus: Social Studies

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), Mobile App Development

Academic Alignment: STEM, Science, Social Studies, Engineering, Art & Design

Here is a sample content standard for this iBlock:

Solids may be formed from molecules, or they may be extended structures with repeating subunits (e.g., crystals). (NGSS: MS-PS1-1)

Suggested Technology Offerings (from Teq):

- 3Doodler
- Cricut
- Formlabs
- Makerbot
- Ultimaker
- xTool

CTE Alignment:

- Hospitality, Events, and Tourism
- Arts, Entertainment, and Design



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CRICUT BASICS

otis.teq.com/events/view/17645



The Phys. Ed iBlock

DESCRIPTION:

Calling all creative minds and game enthusiasts! Get ready to combine the power of physical education, health, and recreation through a project-based exploration that follows the engineering design process! This pathway will guide you in creating a solution that promotes healthy living and movement. Are you ready to combine the power of physical activity, mental challenges, and focus-boosting activities into a brand new physical activity? Get your athletic shoes ready and your innovation caps on. We're about to develop a fun and engaging way to get our bodies moving and even sharpen our minds and focus!

FOCUS OF THE IBLOCK:

Grade Bands: 6-8

Primary Focus: Physical Education

Secondary Focus: Health, STEM

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), AR/VR, Data Loggers, Electronics/Circuitry Kits, Mobile App Development, Physical Computing

Academic Alignment: Coding, Engineering, Mathematics, Science, STEM

Here is a sample content standard for this iBlock:

Identifies/applies strategies to improve health-enhancing behaviors. (NY Phys. Ed Learning Standards: 3.2.6-7)

Suggested Technology Offerings (from Teq):

- Active Floor
- ClassVR
- Cricut
- Lü
- Maker & Coder
- Makerbot
- Makey Makey
- Shaper Origin
- Strawbees
- UltiMaker
- Unruly Splats
- xTool

CTE Alignment:

- Applied Science
- Healthcare & Human Services
- Math/CS



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PHYS ED. ACTIVITIES TO START THE SCHOOL YEAR

otis.teq.com/events/view/18166

High School





Design Your Own Escape Room

DESCRIPTION:

Escape room games are a fun amusement, but they also provide an opportunity to explore the history of new gaming formats, problem-solving skills, and even storytelling. In this iBlock, students will learn more about the history and culture of this “new” form of entertainment, and then plan, design, and construct their very own!

FOCUS OF THE IBLOCK:

Grade Bands: 9-12

Primary Focus: Design Thinking

Secondary Focus: Problem Solving and Engineering

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), Mobile App Development, Video Game Creation/Gamification, Electronics/Circuitry Kits, Physical Computing

Academic Alignment: Coding, ELA, Engineering, STEM, Art & Design

Here is a sample content standard for this iBlock:

9-12.CY.4: Evaluate applications of cryptographic methods.

Suggested Technology Offerings (from Teq):

- 3Doodler
- Cricut
- Formlabs
- Makerbot
- Ultimaker
- Maplewoodshop
- xTool
- Bloxels
- Breakout EDU
- Makey Makey

CTE Alignment:

- Arts, Entertainment, and Design, Hospitality, Events, and Tourism, Advanced Manufacturing



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PI-TOP[4] FOUNDATION ELECTRONICS KIT

[OTIS.teq.com/events/preview/16468](https://otis.teq.com/events/preview/16468)



Develop a Play

DESCRIPTION:

How does a story change when it's developed into a play? In this iBlock, that's exactly what students will explore as they become playwrights. Before writing their play, students will take a closer look at the history of theatre and play structure, then they will write and perform an original one-act play. Considerations will be made to set design, costuming, sound, lighting, casting, and blocking. Students can even consider how they could convert their play into a movie. It's time to "break a leg!"

FOCUS OF THE IBLOCK:

Grade Bands: 9-12

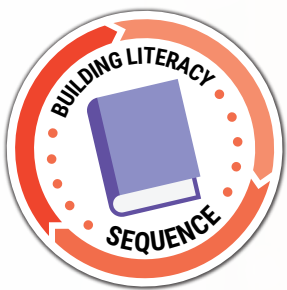
Primary Focus: ELA, Performing Arts

Secondary Focus: Communications

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), AR/VR

Academic Alignment: ELA, Art & Design, Literacy



Here is a sample content standard for this iBlock:

Synthesize knowledge from a variety of dramatic forms, theatrical conventions, and technologies to create the visual composition of a drama/ theatre work. (HS Advanced TH:Cr1.1.III a.)

Suggested Technology Offerings (from Teq):

- Cricut
- Formlabs
- Makerbot
- Ultimaker
- xTool

CTE Alignment:

- Arts, Entertainment, and Design



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INTRO TO FLIPGRID

[OTISpd.com/events/view/15087](https://www.OTISpd.com/events/view/15087)



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:

Grade Bands: 9-12

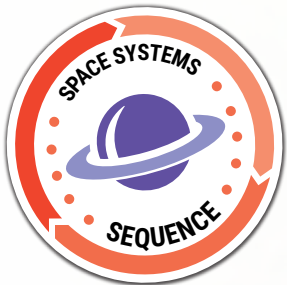
Primary Focus: Astronomy, 3D printing

Secondary Focus: Engineering

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), AR/VR

Academic Alignment: Science, Engineering, STEM



Here is a sample content standard for this iBlock:

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

Suggested Technology Offerings (from Teq):

- Formlabs
- Makerbot
- Ultimaker
- xTool
- Inpspirit

CTE Alignment:

- Advanced Manufacturing



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OPTIMIZING YOUR 3D PRINT
OTISpd.com/events/view/13921



Get Your Dream Job

DESCRIPTION:

As a young child, you probably remember an adult asking you those famous words, “What do you want to be when you grow up?” As we continue through school, we learn about employment opportunities and aspire for a “dream job.” However, many candidates often become overwhelmed with the process of landing their dream job before they even realize if it is a good fit. In this iBlock, students will explore and identify how to determine if a career is tailored to one’s desired lifestyle goals, skills, and passions. They will create a vision board, build a portfolio, craft application materials, participate in a mock interview, and even showcase their hard work at a career fair! Students will definitely be future-ready with this experience.

FOCUS OF THE IBLOCK:

Grade Bands: 9-12

Primary Focus: Career Readiness, ELA

Secondary Focus: Communication, Critical Thinking, Computer Science

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

Suggested Product Category: Mobile App Development

Academic Alignment: ELA, Computer Science, Social Studies, Literacy

Here is a sample content standard for this iBlock:

Integrate and evaluate visual and technical information (e.g., in research data, charts, graphs, photographs, videos, or maps) with other information in print and digital texts. (NYS Next Gen. ELA: RH7)

Use precise language and content-specific vocabulary to express the appropriate complexity of the topic. (NYS Next Gen. ELA: 9-10W1c)

Suggested Technology Offerings (from Teq):

- MAD-learn

CTE Alignment:

- Advanced Manufacturing
- Construction
- Supply Chain & Transportation
- Arts, Entertainment, and Design
- Hospitality, Events, and Tourism
- Financial Services
- Education
- Healthcare & Human Services
- Public Service & Safety
- Agriculture
- Energy & Natural Resources
- Digital Technology
- Marketing & Sales
- Management & Entrepreneurship



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INTRO TO INSPIRIT

otis.teq.com/events/view/48/18032



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:

Grade Bands: 9-12

Primary Focus: Ecology, Programming

Secondary Focus: Engineering, Botany

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), Hydroponics Units, AR/VR, Physical Computing, Data Loggers

Academic Alignment: Coding, Hydroponics, Science, STEM, Engineering

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)

Suggested Technology Offerings (from Teq):

- Formlabs
- Makerbot
- Ultimaker
- xTool
- Fork Farms
- Inspirit

CTE Alignment:

- Construction, Agriculture



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INTRO TO MICRO:BIT

OTISpd.com/events/view/13954



Prosthetics

DESCRIPTION:

Technology and design have had a major impact on the function of modern-day prosthetics. They've also served to make prosthetics more accessible. In this iBlock, students will navigate through the engineering design process to design and develop a prosthetic device. To complete this task, students will explore 21st century skills such as critical thinking, innovation, and collaboration. Solutions can include computer-aided design (CAD), 3D printing, circuitry, and more.

FOCUS OF THE IBLOCK:

Grade Bands: 9-12

Primary Focus: Design, Fabrication, and Engineering

Secondary Focus: STEM and Problem Solving

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), Buildable Robots & Kits, Electronics/Circuitry Kits

Academic Alignment: STEM, Science, Engineering, Mathematics, Art & Design

Here is a sample content standard for this iBlock:

Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts. (HS-ETS1-3)

Suggested Technology Offerings (from Teq):

- 3Doodler
- Cricut
- Formlabs
- Makerbot
- Ultimaker
- xTool
- BirdBrain
- Hummingbird Robotics Kit
- LEGO
- UBTECH

CTE Alignment:

- Healthcare & Human Services, Advanced Manufacturing



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MANAGING 3D PRINT QUEUES
OTISpd.com/events/view/13931



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:

Grade Bands: 9-12

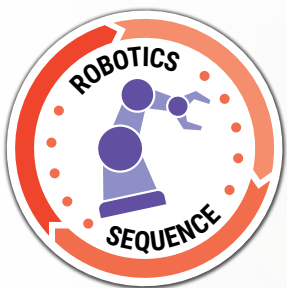
Primary Focus: Robotics

Secondary Focus: Engineering

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

Suggested Product Category: Buildable Robots & Kits, Robotic Arms

Academic Alignment: Robotics, Coding, Social Studies, STEM, Engineering



Here is a sample content 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)

Suggested Technology Offerings (from Teq):

- BirdBrain Hummingbird Robotics Kit
- UBTECH
- Dobot
- Ozobot Ora

CTE Alignment:

- Advanced Manufacturing, Supply Chain & Transportation



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ROBOTIS DREAM SERIES
OTISpd.com/events/view/14172



UN Sustainability Goals: Managing Microplastics

DESCRIPTION:

Globally, over 3 billion people rely on Earth's oceans to support their livelihoods. With our population growing and pollution becoming a greater problem by the day, it is not surprising that one of Earth's most fragile and important ecosystems is at risk. Products like synthetic fiber clothing, take-out containers, and all-in-one laundry detergent pollute our waters in both their original form and as microplastics. Throughout this iBlock, students will discover the ways in which humans use plastics, how microplastics form and enter our waterways, and ultimately design and engineer a device that can help mitigate the microplastic problem.

FOCUS OF THE IBLOCK:

Grade Bands: 9-12

Primary Focus: Ecology, Engineering

Secondary Focus: STEM, Science

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), Mobile App Development

Academic Alignment: Science, Engineering, STEM, Social Studies

Here is a sample content standard for this iBlock:

The sustainability of human societies and the biodiversity that supports them requires responsible management of natural resources. (NGSS: HS-ESS3-3)

Suggested Technology Offerings (from Teq):

- Cricut
- Formlabs
- Makerbot
- Ultimaker
- xTool

CTE Alignment:

- Energy & Natural Resources
- Advanced Manufacturing



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USING GOOGLE TO EXPLORE
THE EARTH'S OCEANS

otis.teq.com/events/view/16875

Multiple Grade Bands





Coding a Classification System

DESCRIPTION:

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:

Grade Bands:

3-5: Coding and Classifying: Ready, Set, Sort!

6-8: Super Sort: Classifying with Code!

9-12: 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-Emotional Learning

Suggested Product Category: Physical Computing

Academic Alignment: Coding, Computer Science, Science, STEM

Here is a sample content standard for this iBlock:

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

Suggested Technology Offerings (from Teq):

- Specific Tech. Required
- Piper* (ES)

CTE Alignment:

- Digital Technology



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LEARNING PYTHON WITH PI-TOP: DATA TYPES

OTISpd.com/events/view/13983



Create a Video Game

DESCRIPTION:

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:

Grade Bands: 6-8, 9-12

Primary Focus: Literacy

Secondary Focus: Engineering design

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

Suggested Product Category: Video Game Creation/Gamification, Physical Computing

Academic Alignment: ELA, Literacy, Engineering, Art & Design, STEM

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. (Next Generation ELA Standards, 9-10RST2)

Suggested Technology Offerings (from Teq):

- Specific Tech. Required
- Bloxels
- Makey Makey (Ext.)

CTE Alignment:

- Arts, Entertainment, and Design, Digital Technology



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BLOXELS BASICS

OTISpd.com/events/view/14181



Design a Comic Book

DESCRIPTION:

From images, to text, to color palette, there is a lot to consider when designing a comic book. How are comics similar to a short story? How are they different? In this iBlock, students will investigate the history of comics and various comic texts before creating their own masterpiece. With attention to how established comic artists perfect their craft, these modules will help unleash creativity and provide a new means of expression. Finally, students will bring all of their hard work together as they create their very own comic convention.

FOCUS OF THE IBLOCK:

Grade Bands: 6-8, 9-12

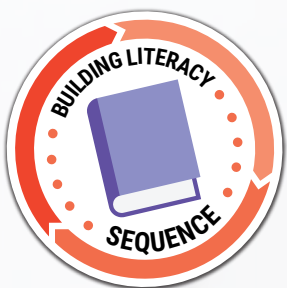
Primary Focus: ELA, Art

Secondary Focus: Communications, Visual Design

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters),
Mobile App Development

Academic Alignment: ELA, Art & Design, Literacy



Here is a sample content standard for this iBlock:

Synthesize and relate knowledge and personal experiences to make art.
(Anchor Standard 10)

Suggested Technology Offerings (from Teq):

- Cricut

CTE Alignment:

- Arts, Entertainment, and Design



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ENHANCING LITERACY WITH PIXTON COMICS

[OTISpd.com/events/view/14368](https://www.OTISpd.com/events/view/14368)



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!

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:

Grade Bands: 3-5, 6-8, 9-12

Primary Focus: Engineering, Programming

Secondary Focus: ELA, Communication

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), Buildable Robots & Kits, Electronics/Circuitry Kits, Physical Computing

Academic Alignment: Coding, Engineering, ELA, STEM

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)

Suggested Technology Offerings (from Teq):

- 3Doodler
- Cricut
- Formlabs
- Makerbot
- Ultimaker
- xTool
- BirdBrain Hummingbird Robotics Kit
- Makey Makey

CTE Alignment:

- Healthcare & Human Services, Advanced Manufacturing, Digital Technology



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DESIGN CHALLENGES WITH LITTLEBITS

[OTISpd.com/events/view/14139](https://www.OTISpd.com/events/view/14139)



Financial Literacy

DESCRIPTION:

You may have heard it said before, but it's never too early to start preparing for your financial future. In this iBlock, students will explore key concepts in personal finance and map out a plan to give them a secure financial future. Tasks include creating a budget, preparing savings and credit accounts, building an investment portfolio, and presenting the final product.

FOCUS OF THE IBLOCK:

Grade Bands: 6-8, 9-12

Primary Focus: Economics and Financial Literacy

Secondary Focus: Future Readiness

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

Suggested Product Category: Mobile App Development

Academic Alignment: Mathematics, Financial Literacy, Social Studies

Here is a sample content standard for this iBlock:

Spending 12-9: Having an organized system for keeping track of spending, savings, and investments makes it easier to make financial decisions.

Suggested Technology Offerings (from Teq):

- MAD-learn

CTE Alignment:

- Financial Services



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MICROSOFT EXCEL

OTIS.teq.com/events/view/28/14877



Robotic Field Day

DESCRIPTION:

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:

Grade Bands: 3-5, 6-8, 9-12

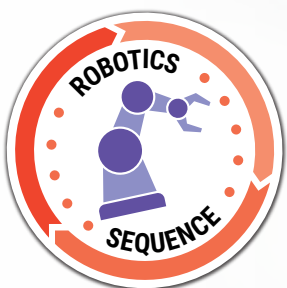
Primary Focus: Robotics

Secondary Focus: Engineering

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), Pre-built Coding Robots, Buildable Robots & Kits

Academic Alignment: Robotics, Coding, Social Studies, STEM, Engineering, Mathematics



Here is a sample content standard for this iBlock:

Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.(3-5-ETS1-1)

Suggested Technology Offerings (from Teq):

- 3Doodler
- Cricut
- Makerbot
- Ultimaker
- xTool
- Formlabs
- BirdBrain Finch Robot
- Ozobot
- Wonder Workshop (Dash)
- BirdBrain Hummingbird Robotics Kit
- Modular Robotics (Cubelets & Dexter)
- LEGO
- UBTECH

CTE Alignment:

- Advanced Manufacturing, Hospitality, Events, and Tourism



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CUBELETS BASICS

OTISpd.com/events/view/13974



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:

Grade Bands: 3-5, 6-8, 9-12

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-Emotional Learning

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), Pre-built Coding Robots, Buildable Robots & Kits, Electronics/Circuitry Kits, Robotic Arms, Physical Computing

Academic Alignment: STEM, Art & Design, ELA, Engineering, Science, Robotics, Coding

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.)

Suggested Technology Offerings (from Teq):

- 3Doodler
- Cricut
- Formlabs
- Makerbot
- Ultimaker
- Maplewoodshop
- xTool
- BirdBrain Finch Robot
- KIBO
- KUBO
- Ozobot
- Wonder Workshop (Dash)
- BirdBrain Hummingbird Robotics Kit
- Modular Robotics (Cubelets & Dexter)
- LEGO
- UBTECH
- Dobot
- Ozobot Ora
- Makey Makey
- Strawbees
- Piper

CTE Alignment:

- Arts, Entertainment, and Design, Advanced Manufacturing, Construction



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RUBE GOLDBERG MACHINES IN THE CLASSROOM

OTISpd.com/events/view/16459



Tiny Houses

DESCRIPTION:

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:

Grade Bands: 3-5, 6-8, 9-12

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

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

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

Suggested Product Category: 3D Modeling (incl. 3D printers, laser & craft cutters), Buildable Robots & Kits, Electronics/Circuitry Kits, Physical Computing

Academic Alignment: Science, STEM, Engineering, Mathematics, Art & Design

Here is a sample content standard for this iBlock:

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

Suggested Technology Offerings (from Teq):

- 3Doodler
- Cricut
- Formlabs
- Makerbot
- Ultimaker
- Maplewoodshop
- xTool
- BirdBrain Hummingbird Robotics Kit
- Strawbees

CTE Alignment:

- Construction, Energy & Natural Resources, Marketing & Sales



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TEACHING WITH TINKERCAD
OTISpd.com/events/view/13883

Notes

Notes



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