PITSCO
EDUCATION

LEARN TOGETHER
CODING AND ROBOTICS
PROGRAMS FOR CAMPS AND COMMUNITIES

Using Pitsco products in your summer **STEM, coding, or robotics camps** or after-school programs offers children a hands-on experience like no other!

And we've made it easy for you to plan your program.

With a teacher's guide and Pitsco products, follow this sample outline to be on your way to summer STEM fun!

SAMPLE PROGRAM: INTRO TO ROBOTICS

10-DAY ROBOTICS PROGRAM FOR GRADES 6-8	
DAY	
1	Wheelee Bot and Activities
2	Buggee Bot and Activities
3	Pickee Bot and Activities
4	Thinking Like an Engineer Activities
5	Build the Car through Drivetrain Experiment Activities
6	Straight Racer Drive and Speed Challenge
7	Bull Moose Drive and Speed Challenge
8	Tug-of-War Drive and Speed Challenge
9	Robot Chassis and Racecourse Activities
10	Sumo Bot Challenge Activity

INITIAL COST:

$5,995 – TETRIX® PRIME Dual-Control Class Pack

$149 – TETRIX PRIME Engineering Mobile Robotics Curriculum Pack

Note: The Dual-Control Class Pack will allow for 19 unique activities and 132+ hours of instruction. A one-time investment can serve students for multiple programs, year after year.

STUDENTS SERVED:
24+ (year after year, multiple programs)

PROGRAM TOPICS

Coding Program   **Remote Control Program**   **Dual Control Program**

CODING

KUBO

KUBO Coding Sets and curriculum provide a simple, intuitive plug-and-learn robot that makes teaching and learning coding as easy as solving a puzzle. The screen-free, hands-on solution makes it easy to introduce K-2 students to coding.

Option 1: Students are introduced to the basic concepts of coding, including using functions and subroutines.

HOURS	BEGINNER TO INTERMEDIATE – OPTION 1
	KUBO Coding License
2	Lesson 1: Routes
2	Lesson 2: Functions
2	Lesson 3: Subroutines

Suggested course of activities

Option 2: In addition to being introduced to the basic concepts of coding, including using functions and subroutines, students will learn about loops.

HOURS	BEGINNER TO INTERMEDIATE – OPTION 2
	KUBO Coding License
2	Lesson 1: Routes
2	Lesson 2: Functions
2	Lesson 3: Subroutines
2	Lesson 4: Loops*

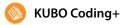*Suggested course of activities*

*Additional concepts covered in option

KUBO CODING+

KUBO Coding+ boosts students' coding expertise with an assortment of additional TagTiles® to use with the KUBO Coding Sets. Through this course, students become more confident programmers while working with increasingly open-ended challenges in a way that facilitates collaboration, critical thinking, and problem-solving.

Option 1: Students practice their basic coding skills using functions and subroutines.

HOURS	BEGINNER TO INTERMEDIATE – OPTION 1
	KUBO Coding+
3	Lesson 1: Refresher Course
3	Lesson 2: Advancing Programming
3	Lesson 3: Challenge Master

Suggested course of activities

Option 2: Students practice their basic coding skills using functions, subroutines, and loops by completing lessons in the KUBO Coding License before moving on to the Coding+ lessons.

HOURS	BEGINNER TO INTERMEDIATE – OPTION 2
	KUBO Coding License (CL) KUBO Coding+ (CP)
2	Lesson 1: Routes (CL)*
2	Lesson 2: Functions (CL)*
2	Lesson 3: Subroutines (CL)*
2	Lesson 4: Loops (CL)*
3	Lesson 2: Advancing Programming (CP)
3	Lesson 3: Challenge Master (CP)

Suggested course of activities

Additional concepts covered in option

SMART BUDDIES™

Smart Buddies is a unique coding tool accompanied by curriculum that focuses on increasing diversity awareness for students in Grades 3-5. The first generation of Smart Buddies has been created with a diverse set of eight relatable characters on self-balancing, programmable scooters called Siggys to enable more learners, regardless of their socioeconomic status, ethnicity, gender, or race, to better relate and envision themselves working in STEM and coding.

Option 1: Students learn about and practice pseudocode.

HOURS	BEGINNER TO INTERMEDIATE – OPTION 1
🟠	**Smart Buddies Teacher's Guide and Presentations**
1	Lesson 1: Introduction to Smart Buddies
1	Lesson 2: Pseudocode
1	Lesson 3: Tutorials
1	Lesson 4: Missions

Suggested course of activities

Option 2: With its focus on storytelling combined with engaging coding challenges, students become immersed in the day and life of their buddy's backstory while also learning language arts, science, and mathematics.

HOURS	BEGINNER TO INTERMEDIATE – OPTION 2
🟠	**Smart Buddies Teacher's Guide and Presentations**
1	Lesson 1: Introduction to Smart Buddies
1	Lesson 2: Pseudocode
1	Lesson 3: Tutorials
1	Lesson 4: Missions
1	Lesson 5: Coding Challenge Part 1*
1	Lesson 6: Coding Challenge Part 1 Continued*
1	Lesson 7: Coding Challenge Part 2*
1	Lesson 8: Coding Challenge Part 2 Continued*
1	Lesson 9: It's Showtime!*

Suggested course of activities

*Additional concepts covered in option

CODE CUBE™

Code Cube is a beginner-friendly learning tool that takes a unique approach to teaching kids the basics of coding. This programmable wearable was specifically developed for upper-elementary students and offers a full-color, 64-pixel LED screen with built-in accelerometer and sound output. With the wearable, students can explore block-based programming as they create artistic displays for their device that play sound or change as they move around.

HOURS	BEGINNER TO INTERMEDIATE

◈ **Code Cube Teacher's Guide**

2	Lesson 1: Turning on the Lights
2	Lesson 2: Changing Lights
2	Lesson 3: Turn That Frown Upside Down
2	Lesson 4: Rock, Paper, Scissors
2	Lesson 5: Sound Off
2	Lesson 6: The Server's Tray
2	Lesson 7: Riddled
2	Lesson 8: Slide Dance
2	Lesson 9: Animated Displays
2	Lesson 10: A Little Extra!

Suggested course of activities

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MICRODUINO STEM MIX KIT

Option 1: STEM MIX Kit 1 will get your students engaged and excited about coding! Designed for those students just beginning their coding experiences, these guides start with basic challenges and will quickly develop students' skills. Students create a fire alarm, a juke box with selectable songs using crash sensors, and a light sword.

HOURS	BEGINNER TO INTERMEDIATE – OPTION 1
	Microduino STEM MIX Kit 1 Book
3	Scratch/mDesigner Introduction
1.5	Lamp
1.5	Fire Alarm
1.5	Flashlight
1.5	Doorbell
1.5	Jukebox
1.5	Fire Truck Light
1.5	Colorful Landscape
1.5	Wind Detector
1.5	Night-Light
1.5	Light Sword
1.5	Airport Runway Light
1.5	Electronic Wind Instrument

Suggested course of activities

Option 2: STEM MIX Kit 3 extends the underlying logic of coding to more advanced controls and behaviors, and it moves students from turning on a single light to programming and sequencing multiple actions that work together to achieve common goals. Students create an emoji robot that makes different faces, a goalkeeper, and robot gymnast.

HOURS	BEGINNER TO INTERMEDIATE – OPTION 2
	Microduino STEM MIX Kit 3 Book
3	Scratch/mDesigner Introduction
1.5	Reclining Chair
1.5	Swinging Robot
1.5	Automatic Door/Window
1.5	Waving Cat
1.5	Emoji Faces
1.5	Robot Gymnast
1.5	Goalkeeper
1.5	Timed Pet Feeder
1.5	Automatic Sorter
1.5	Microwave Timer
1.5	Smart BBQ
1.5	Searchlight

Suggested course of activities

MICRODUINO STEM MIX KIT

Option 1: STEM MIX Kit 2 takes the knowledge acquired in MIX Kit 1 and kicks it into high gear by letting students branch out with more sophisticated components and a deeper understanding of coding its logic. Students create a heat sensor, a machine that allows communications through Morse code, and an energy shield.

HOURS	INTERMEDIATE TO ADVANCED – OPTION 1
	Microduino STEM MIX Kit 2 Book
3	Scratch/mDesigner Introduction
1.5	Electronic Humidity Monitor
1.5	Rock, Paper, Scissors
1.5	Lucky Draw
1.5	Heat Sensor
1.5	Remote Control Color Lamp
1.5	Morse Code
1.5	Anti-Theft Alarm
1.5	Energy Shield
1.5	Remote Control Lamp
1.5	Piggy Bank
1.5	Bar Code Reader
1.5	Anti-Theft Device

Suggested course of activities

Option 2: STEM MIX Kit 4 is a STEM students paradise of logic and engineering learning. Students will write original code; conceive and engineer personalized projects; design, invent, and strategize; and create projects using Microduino technology for science fairs, robotics clubs, and much more! Students create an airbag, build a freight truck that will ship packages, and make an obstacle course.

HOURS	INTERMEDIATE TO ADVANCED – OPTION 2
	Microduino STEM MIX Kit 4 Book
3	Scratch/mDesigner Introduction
1.5	Rotating Motor
1.5	Motion Sensor Motor
1.5	Emoji Robot
1.5	Single Axis Steadycam
1.5	Airbag
1.5	Wired Remote Control Car
1.5	Safety Car
1.5	Freight Car
1.5	Obstacle Course Car
1.5	Edge Car
1.5	Line Finding Car 1
1.5	Line Finding Car 2

Suggested course of activities

ARDUINO STARTER KIT

No prior coding or electronics experience required! The Arduino Education Starter Kit was developed from the ground up to give middle school students an introduction to integrated electronics, circuitry, and coding in a step-by-step manner.

HOURS	BEGINNER TO INTERMEDIATE
	Starter Kit – Arduino Projects Book
1	Setup and Introduction
1	Project 1 – Get to Know Your Tools
1	Project 2 – Spaceship Interface
1	Project 3 – Love-O-Meter
1	Project 4 – Color Mixing Lamp
1	Project 5 – Mood Cue
1	Project 6 – Light Theremin
1	Project 7 – Keyboard Instrument
1	Project 8 – Digital Hourglass
1	Project 9 – Motorized Pinwheel
1	Project 10 – Zoetrope
1	Project 11 – Crystal Ball
1	Project 12 – Knock Lock
1	Project 13 – Touchy-Feely Lamp
1	Project 14 – Tweak the Arduino Logo
1	Project 15 – Hacking Buttons

Suggested course of activities

ARDUINO EDUCATION CTC GO! CORE MODULE

Arduino CTC Go! is composed of three different project types and introduces students to the foundations of programming and basic coding, electronics, inputs and outputs, the difference between digital and analog technologies, and serial communication.

HOURS	BEGINNER TO ADVANCED
	CTC Go! Online Learning Platform
1	Introduction and Software
1	Module 1: Lesson 1: Get Inspired
1	Module 1: Lesson 2: Electronics
1	Module 1: Lesson 3: Programming
1	Module 1: Lesson 4: Digital I/O
3	Module 1: You Choose One of Four Projects
1	Module 2: Lesson 1: Serial to PC
1	Module 2: Lesson 2: Serial to Board
1	Module 2: Lesson 3: Analog Inputs
1	Module 2: Lesson 4: Analog Outputs
3	Module 2: You Choose One of Four Projects

Suggested course of activities

SHAPE ROBOTICS – FABLE

With Fable, learning is as easy as click, click, code. Fable was designed from the ground up to provide a fun and easy way to learn 21st-century skills and STEM subjects and to bring coding to life. Fable is a modular robotic playware platform that enables users, ranging from young students to makers and researchers, to assemble and program their own interactive robots.

Visit **Pitsco.com/Camps** to explore a list of recommended products and corresponding teacher guides.

HOURS	BEGINNER TO INTERMEDIATE
	Fable Getting Started Guide (GSG)
	Fable Online Exercises (FOE)
1	Introduction to Fable
2	Getting Started Guide (GSG)
4	Getting Started Guide and Exploration (GSG)
3	Build a Laser-Drawing Robot (FOE)
3	Build a Sorting Robot (FOE)
3	Build a Social Robot (FOE)
3	Build a Pick-and-Place Robot (FOE)
3	Build a Surveillance Robot (FOE)
3	Build a Robot That Solves a Maze (FOE)
3	Build a Crawling Robot (Video)
3	Crawling Robot Challenge
1	The Game of Love (FOE)
2	Build a Rover Robot (FOE)
2	A Robot That Drives through a Maze (FOE)
2	Conveyer Belt (FOE)

Suggested course of activities

UKIT BEGINNER

With UKIT Beginner, students experience both robot construction and coding. Following a guided build, students progress through the engineering design process, incorporating rapid prototyping and iterative design.

HOURS	BEGINNER TO INTERMEDIATE
	UBTECH EDU App
	UBTECH Beginner Curriculum (UBC)
3	Boom Barrier
3	Grabber
3	Golf Club
3	Elephant Trunk
3	Snail
3	Snake
3	Dinosaur
3	Octopus
3	Humanoid
3	Carrier
3	Scorpion
3	Fan
3	Traffic Cop
5	The Golf Club Robot Challenge (UBC)
5	A Robot for Saving Wildlife (UBC)
5	A Robot for Rescue (UBC)

Suggested course of activities

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UKIT INTERMEDIATE

UKIT Intermediate is designed to deepen students' interest in STEM, computer science, and robotics topics. Students will run multiple tests and use the results to determine redesigns. They will combine useful aspects from multiple builds to create new robots, develop and redevelop skills across units, and learn about crosscutting topics, including Earth science, through authentic, engaging lessons and projects.

HOURS	BEGINNER TO INTERMEDIATE
	UBTECH EDU App
	UBTECH Intermediate Curriculum (UIC)
1	Lucky Cat
1	Musician
1	Strobe Light
1	Windshield Wiper
1	Owl
1	Scissor Lift
1	Castle
1	Mybot
1	Forklift
1	Trolley
1	Street Sweeper
1	Mechanical Arm
1	Police Car
1	Catapult
1	Boxer
13	A Robot for All Weather (UIC)
16	A Robot for All Senses (UIC)
10	A Robot for Tight Spaces (UIC)
10	Inspecting A Power Plant (UIC)

Suggested course of activities

UKIT ADVANCED

UKIT Advanced offers a new, more free-thinking approach to robotics and STEM topics. UKIT Advanced offers new challenges and introduces new tools and more complex concepts for budding engineers, programmers, and future roboticists. Advanced, Arduino-compatible computing modules enable robots to perform more complex tasks.

HOURS	INTERMEDIATE TO ADVANCED
	UBTECH Working with Circuits Curriculum
1	Introduction
2	Lesson 1: Building Circuits to Control LEDs
2	Lesson 2: LEDs
2	Lesson 3: LEDs
2	Lesson 4: Buttons
2	Lesson 5: Buttons
2	Lesson 6: Buttons
2	Lesson 7: Remote Control
2	Lesson 8: DHT
2	Lesson 9: LED Displays

2	Lesson 10: LED Displays
2	Lesson 11: LED Digital Tube
2	Lesson 12: LED Dot Matrices
2	Lesson 13: LED Dot Matrices
2	Lesson 14: LED Dot Matrices
2	Lesson 15: Photoresistor

Suggested course of activities

Visit Pitsco.com/Camps to explore a list of recommended products and corresponding teacher guides.

TETRIX PRIME PROGRAMMABLE ROBOTICS SET

The TETRIX PRIME Programmable Robotics Set enables students to work collaboratively to design, engineer, and program autonomously controlled robots. The course includes activities covering concepts such as motors, sensors, and the engineering design process.
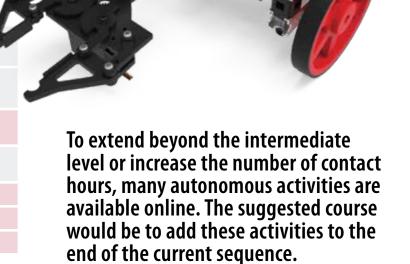

HOURS	BEGINNER TO INTERMEDIATE
	PULSE™ Programming Guide (PPG)
	Robotic Engineering Challenge (REC)
3	Hello World! through Introduction to the Line Finder Sensor Activities (PPG)
3	Introduction to the Ultrasonic Sensor through Drive Forward Activities (PPG)
6	Drive in a Circle through Follow a Line Activities (PPG)
3	Drive Toward a Wall and Stop through Combining the Sensors Activities (PPG)
6	You Choose Autonomous Activity (REC)
6	You Choose Autonomous Activity (REC)
6	You Choose Autonomous Activity (REC)

Suggested course of activities

NOTE: *Activities could also be completed by substituting the TETRIX PRIME Programmable Robotics Set with the TETRIX PRIME Dual-Control Robotics Set.*
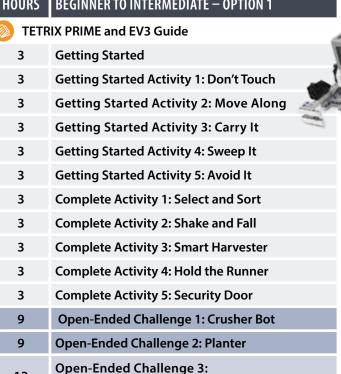
To extend beyond the intermediate level or increase the number of contact hours, many autonomous activities are available online. The suggested course would be to add these activities to the end of the current sequence.

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TETRIX PRIME ROBOTICS SET AND LEGO® MINDSTORMS® EV3

Option 1: Take your TETRIX PRIME system and LEGO MINDSTORMS EV3 lessons to the next level with the TETRIX PRIME and EV3 Curriculum Pack. Students build larger, more robust, and more complex robots with the advanced capabilities of the two systems together. Students will build robots to perform unique tasks and face challenges that put their critical thinking to the test.

HOURS	BEGINNER TO INTERMEDIATE – OPTION 1
	TETRIX PRIME and EV3 Guide
3	Getting Started
3	Getting Started Activity 1: Don't Touch
3	Getting Started Activity 2: Move Along
3	Getting Started Activity 3: Carry It
3	Getting Started Activity 4: Sweep It
3	Getting Started Activity 5: Avoid It
3	Complete Activity 1: Select and Sort
3	Complete Activity 2: Shake and Fall
3	Complete Activity 3: Smart Harvester
3	Complete Activity 4: Hold the Runner
3	Complete Activity 5: Security Door
9	Open-Ended Challenge 1: Crusher Bot
9	Open-Ended Challenge 2: Planter
12	Open-Ended Challenge 3: Autonomous Wheelchair

Suggested course of activities

Visit **Pitsco.com/Camps** to explore a list of recommended products and corresponding teacher guides.

TETRIX PRIME ROBOTICS SET AND LEGO MINDSTORMS EV3

Option 2: Take your TETRIX PRIME system and LEGO MINDSTORMS EV3 lessons to the next level with the TETRIX PRIME and EV3 Curriculum Pack. Students start by building all-metal robots using just the PRIME system, then harness the advanced capabilities of the two systems together by building larger, more robust, and more complex robots.

HOURS	BEGINNER TO INTERMEDIATE – OPTION 2
	TETRIX PRIME Builder's Guide (BG)
	Robotic Engineering Challenge (REC)
	TETRIX PRIME and EV3 (EV3)
1	Getting Started
2	Wheelee Bot Assembly (BG)
3	Wheelee Bot Activities (BG)
1	Buggee Bot Assembly (BG)
2	Buggee Bot Activities 1-2 (BG)
3	Buggee Bot Activities 3-4 (BG)
1	Pickee Bot Assembly (BG)
2	Pickee Bot Activities 1-2 (BG)
3	Pickee Bot Activity 3 (BG)
6	You Choose R/C Activity (REC)
6	You Choose R/C Activity (REC)
3	Getting Started Activity 1: Don't Touch (EV3)
3	Getting Started Activity 2: Move Along (EV3)
3	Getting Started Activity 3: Carry It (EV3)

HOURS	
3	Getting Started Activity 4: Sweep It (EV3)
3	Getting Started Activity 5: Avoid It (EV3)
3	Complete Activity 1: Select and Sort (EV3)
3	Complete Activity 2: Shake and Fall (EV3)
3	Complete Activity 3: Smart Harvester (EV3)
3	Complete Activity 4: Hold the Runner (EV3)
3	Complete Activity 5: Security Door (EV3)
9	Open-Ended Challenge 1: Crusher Bot (EV3)
9	Open-Ended Challenge 2: Planter (EV3)
12	Open-Ended Challenge 3: Autonomous Wheelchair (EV3)

Suggested course of activities

Visit **Pitsco.com/Camps** to explore a list of recommended products and corresponding teacher guides.

TETRIX MAX PROGRAMMABLE ROBOTICS SET

The TETRIX MAX programmable robotics platform provides an opportunity for students to work collaboratively to engineer, code, and test solutions using real-world robotics technology.

This course includes activities covering coding programs for the line finder and ultrasonic sensors.

HOURS	BEGINNER TO INTERMEDIATE
	PRIZM® Programming Guide (PPG)
	Robotic Engineering Challenge (REC)
6	Hello World! through Introduction to the Line Finder Sensor Activities (PPG)
6	Introduction to the Ultrasonic Sensor through Drive in a Circle Activities (PPG)
6	Drive in a Square through Follow a Line Activities (PPG)
6	Drive Toward a Wall and Stop through Combining the Sensors Activities (PPG)
6	You Choose Autonomous Activity (REC)

Suggested course of activities

NOTE: *Activities could also be completed by substituting the TETRIX MAX Programmable Robotics Set with the TETRIX MAX Dual-Control Robotics Set.*

Option 1: In addition to programing the line finder and ultrasonic sensors, students apply the use of these sensors in real-world relevant applications.

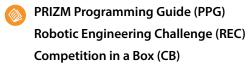| HOURS	BEGINNER TO ADVANCED – OPTION 1
	PRIZM Programming Guide (PPG)
	PRIZM Coding Essentials Guide (PCE)
6	Hello World! through Introduction to the Line Finder Sensor Activities (PPG)
6	Introduction to the Ultrasonic Sensor through Drive in a Circle Activities (PPG)
6	Drive in a Square through Follow a Line Activities (PPG)
6	Drive Toward a Wall and Stop through Combining the Sensors Activities (PPG)
12	Building the Bee-Dee Bot through Smart Cars, Smart Code Activities (PCE)*
12	Take a Drive by the Numbers and Beyond Comparison Activities (PCE)*
6	Decisions, Decisions Activity (PCE)*
6	Taxi, Please! Challenge (PCE)*

Suggested course of activities

*Additional concepts covered in option

TETRIX MAX PROGRAMMABLE ROBOTICS SET

Option 2: This course includes activities covering coding programs for the line finder and ultrasonic sensors. Students code their robot to solve various challenges.

HOURS	BEGINNER TO ADVANCED – OPTION 2
	PRIZM Programming Guide (PPG)
	Robotic Engineering Challenge (REC)
	Competition in a Box (CB)
6	Hello World! through Introduction to the Line Finder Sensor Activities (PPG)
6	Introduction to the Ultrasonic Sensor through Drive in a Circle Activities (PPG)
6	Drive in a Square through Follow a Line Activities (PPG)
6	Drive Toward a Wall and Stop through Combining the Sensors Activities (PPG)
6	You Choose Autonomous Activity (REC)*
9	Autonomous Rescue Robots Overview and Making Modifications Activity (CB)*
9	Combining the Sensors Revisited and Which Way? Activities (CB)*
12	Nothin' but a Hound Dog Activity and Rescue Robots Competition (CB)*

Suggested course of activities

*Additional concepts covered in option

NOTE: *Activities could also be completed by substituting the TETRIX MAX Programmable Robotics Set with the TETRIX MAX Dual-Control Robotics Set.*

Option 3: This course includes activities that require students to code programs, using the sensors, to solve real-world relevant challenges.

HOURS	BEGINNER TO ADVANCED – OPTION 3
	PRIZM Programming Guide (PPG)
	PRIZM Coding Essentials Guide (PCE)
	Competition in a Box (CB)
6	Hello World! through Introduction to the Line Finder Sensor Activities (PPG)
6	Introduction to the Ultrasonic Sensor through Drive in a Circle Activities (PPG)
6	Drive in a Square through Follow a Line Activities (PPG)
6	Drive Toward a Wall and Stop through Combining the Sensors Activities (PPG)
12	Building the Bee-Dee Bot through Smart Cars, Smart Code Activities (PCE)*
12	Take a Drive by the Numbers and Beyond Comparison Activities (PCE)*
6	Decisions, Decisions Activity (PCE)*
6	Taxi, Please! Challenge (PCE)*
9	Autonomous Rescue Robots Overview and Making Modifications Activity (CB)
9	Combining the Sensors Revisited and Which Way? Activities (CB)
12	Nothin' but a Hound Dog Activity and Rescue Robots Competition (CB)

Suggested course of activities

*Additional concepts covered in option

Visit Pitsco.com/Camps to explore a list of recommended products and corresponding teacher guides.

REMOTE CONTROL

TETRIX PRIME R/C ROBOTICS SET

The TETRIX PRIME Remote-Control Robotics Set enables students to work collaboratively to engineer and control robots.

Option 1: After gaining experience with basic builds, students create original and innovative robotics designs to answer real-world challenges.

HOURS	BEGINNER TO INTERMEDIATE – OPTION 1
	Builder's Guide (BG)
	Robotic Engineering Challenge (REC)
6	Wheelee Bot and Activities (BG)
6	Buggee Bot and Activities (BG)
6	Pickee Bot and Activities (BG)
6	You Choose R/C Activity (REC)
6	You Choose R/C Activity (REC)

Suggested course of activities

Option 2: In addition to gaining experience with basic builds, students create original and innovative robotics designs to answer real-world challenges while exploring gearing and chassis scenarios and the impact they have on the robot's performance.

HOURS	BEGINNER TO INTERMEDIATE – OPTION 2
	Builder's Guide (BG)
	Engineering Mobile Robotics (EMR)
6	Wheelee Bot and Activities (BG)
6	Buggee Bot and Activities (BG)
6	Thinking Like an Engineer Activities (EMR)*
6	Build the Car Bot through Drivetrain Experiment Activities (EMR)*
6	Straight Racer Drive and Speed Challenge (EMR)*
6	Road Racer Drive and Speed Challenge (EMR)*
6	Bull Moose Drive and Speed Challenge (EMR)*
6	Tug-of-War Drive and Speed Challenge (EMR)*
12	Robot Chassis and Racecourse Activities (EMR)*
12	Sumo Bot Challenge (EMR)*

Suggested course of activities

*Additional concepts covered in option

NOTE: *Activities could also be completed by substituting the TETRIX PRIME R/C Robotics Set with the TETRIX PRIME Dual-Control Robotics Set.*

TETRIX PRIME R/C ROBOTICS SET + EXPANSION SET

The TETRIX PRIME Remote-Control Robotics Set enables students to work collaboratively to engineer and control robots.

Option 1: After gaining experience with basic builds, students create original and innovative robotics designs to answer real-world challenges exploring methods of movement and compound and simple machines.

HOURS	BEGINNER TO ADVANCED – OPTION 1
	Builder's Guide (BG)
	Expansion Builder's Guide (EBG)
	Robotic Engineering Challenge (REC)
6	**Wheelee Bot and Activities (BG)**
6	**Buggee Bot and Activities (BG)**
6	**Pickee Bot and Activities (BG)**
6	**Rover Bot and Activities (EBG)**
6	**Walker Bot and Activities (EBG)**
6	**Crane Bot and Activities (EBG)**
6	**You Choose R/C Activity (REC)**
6	**You Choose R/C Activity (REC)**
6	**You Choose R/C Activity (REC)**
6	**Wrap-up/Create Your Own Challenge**

Suggested course of activities

Option 2: With extensive opportunity to develop problem-solving skills, students create original and innovative robotics designs to answer real-world challenges exploring methods of movement and compound and simple machines.

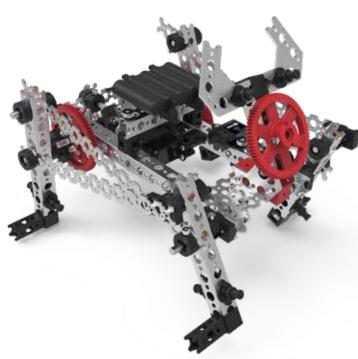| HOURS	BEGINNER TO ADVANCED – OPTION 2
	Builder's Guide (BG)
	Engineering Mobile Robotics (EMR)
	Expansion Builder's Guide (EBG)
	Robotic Engineering Challenge (REC)
6	**Wheelee Bot and Activities (BG)**
6	**Buggee Bot and Activities (BG)**
6	**Pickee Bot and Activities (BG)**
6	**Thinking Like an Engineer Activities (EMR)***
6	**Build the Car Bot through Drivetrain Experiment Activities (EMR)***
6	**Straight Racer Drive and Speed Challenge (EMR)***
6	**Road Racer Drive and Speed Challenge (EMR)***
6	**Bull Moose Drive and Speed Challenge (EMR)***
6	**Tug-of-War Drive and Speed Challenge (EMR)***
6	**Robot Chassis and Racecourse Activities (EMR)***
6	**Sumo Bot Challenge (EMR)***
6	**Rover Bot and Activities (EBG)**
6	**Walker Bot and Activities (EBG)**
6	**Crane Bot and Activities (EBG)**
6	**You Choose R/C Activity (REC)**
6	**You Choose R/C Activity (REC)**
6	**You Choose R/C Activity (REC)**

Suggested course of activities

*Additional concepts covered in option

NOTE: *Activities could also be completed by substituting the TETRIX PRIME R/C Robotics Set with the TETRIX PRIME Dual-Control Robotics Set.*

TETRIX MAX R/C ROBOTICS SET

The TETRIX MAX R/C robotics platform provides an opportunity for students to work collaboratively to engineer, design, test, and drive robots.

Option 1: This course includes activities involving basic remote control functionality of the robot.

HOURS	BEGINNER – OPTION 1
	Builder's Guide (BG)
	Robotic Engineering Challenge (REC)
6	**RangerMAX Bot and Activities (BG)**
6	**MiniMAX Bot and Activities (BG)**
6	**RotoGrip Bot and Activities (BG)**
6	**You Choose R/C Activity (REC)**

Suggested course of activities

NOTE: *Activities could also be completed by substituting the TETRIX MAX R/C Robotics Set with the TETRIX MAX Dual-Control Robotics Set.*

Option 2: This course includes R/C activities that challenge students' critical thinking skills.

HOURS	BEGINNER – OPTION 2
	Builder's Guide (BG)
	Engineering Mobile Robotics (EMR)
6	**RangerMAX Bot and Activities (BG)**
1.5	**Wave the Flag Activity (EMR)***
1.5	**Flex Your Muscles Activity (EMR)***
1.5	**Getting Stronger Activity (EMR)***
1.5	**Robot Waiter Activity (EMR)***
1.5	**Inchworm Activity (EMR)***
9	**Robot Picasso Challenge (EMR)***
9	**Ping-Pong Ball Smasher Challenge (EMR)***
12	**Herding Robot Challenge (EMR)***
6	**MiniMAX Bot and Activities (BG)**
6	**RotoGrip Bot and Activities (BG)**

Suggested course of activities

*Additional concepts covered in option

TETRIX MAX R/C ROBOTICS SET

The TETRIX MAX R/C robotics platform provides an opportunity for students to work collaboratively to engineer, design, test, and drive robots.

Option 1: This course includes R/C activities and introduces students to a competitive robotic element.

HOURS	BEGINNER TO INTERMEDIATE – OPTION 1

Builder's Guide (BG)

Competition in a Box (CB)

6	RangerMAX Bot and Activities (BG)
6	MiniMAX Bot and Activities (BG)
6	RotoGrip Bot and Activities (BG)
12	Engineering for the Environment Activities and Competition (CB)

Suggested course of activities

NOTE: *Activities could also be completed by substituting the TETRIX MAX R/C Robotics Set with the TETRIX MAX Dual-Control Robotics Set.*

Option 2: In addition to R/C activities and an introduction to several competitive robotics challenges, students have an opportunity to learn about real-world applications and hone their problem-solving skills.

HOURS	BEGINNER TO INTERMEDIATE – OPTION 2

Builder's Guide (BG)

Competition in a Box (CB)

6	RangerMAX Bot and Activities (BG)
6	MiniMAX Bot and Activities (BG)
6	RotoGrip Bot and Activities (BG)
9	Engineering for the Environment Activities (CB)
9	Engineering for the Environment Competition (CB)*
12	Meeting the Needs of Industry Activities (CB)*
12	Meeting the Needs of Industry Competition (CB)*

Suggested course of activities

**Additional concepts covered in option*

TETRIX MAX R/C ROBOTICS SET

This course requires the students to take a deep dive into R/C robots and their functionality.

HOURS	BEGINNER TO ADVANCED
	Builder's Guide (BG)
	Engineering Mobile Robotics (EMR)
	Competition in a Box (CB)
6	RangerMAX Bot and Activities (BG)
1.5	Wave the Flag Activity (EMR)
1.5	Flex Your Muscles Activity (EMR)
1.5	Getting Stronger Activity (EMR)
1.5	Robot Waiter Activity (EMR)
1.5	Inchworm Activity (EMR)
9	Robot Picasso Challenge (EMR)
9	Ping-Pong Ball Smasher Challenge (EMR)
12	Herding Robot Challenge (EMR)
12	Robot Boogie Challenge (EMR)
6	MiniMAX Bot and Activities (BG)
6	RotoGrip Bot and Activities (BG)
12	Engineering for the Environment Activities (CB)
12	Engineering for the Environment Competition (CB)
12	Meeting the Needs of Industry Activities (CB)
12	Meeting the Needs of Industry Competition (CB)

Suggested course of activities

NOTE: *Activities could also be completed by substituting the TETRIX MAX R/C Robotics Set with the TETRIX MAX Dual-Control Robotics Set.*

TETRIX MAX R/C ROBOTICS SET + EXPANSION SET

Students build bigger, more complex robots and complete more challenging engineering projects.

HOURS	BEGINNER TO INTERMEDIATE
	Builder's Guide (BG)
	Engineering Mobile Robotics (EMR)
	Expansion Builder's Guide (EBG)
6	RangerMAX Bot and Activities (BG)
1.5	Wave the Flag Activity (EMR)
1.5	Flex Your Muscles Activity (EMR)
1.5	Getting Stronger Activity (EMR)
1.5	Robot Waiter Activity (EMR)
1.5	Inchworm Activity (EMR)
12	Robot Picasso Challenge (EMR)
12	Ping-Pong Ball Smasher Challenge (EMR)
6	MiniMAX Bot and Activities (BG)
6	RotoGrip Bot and Activities (BG)
12	TrackBot and Activities (EBG)
12	WorkCell and Activities (EBG)
12	ScissorLift and Activities (EBG)
12	Herding Robot Challenge (EMR)
12	Robot Boogie Challenge (EMR)

Suggested course of activities

Visit **Pitsco.com/Camps** to explore a list of recommended products and corresponding teacher guides.

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TETRIX MAX R/C ROBOTICS SET + EXPANSION SET

Students build bigger, more complex robots and complete relevant challenges.

HOURS	INTERMEDIATE

Builder's Guide (BG)

Expansion Builder's Guide (EBG)

Robotic Engineering Challenge (REC)

6	RangerMAX Bot and Activities (BG)
6	MiniMAX Bot and Activities (BG)
6	RotoGrip Bot and Activities (BG)
9	TrackBot and Activities (EBG)
9	WorkCell and Activities (EBG)
12	ScissorLift and Activities (EBG)
12	You Choose R/C Activity (REC)

Suggested course of activities

NOTE: *Activities could also be completed by substituting the TETRIX MAX R/C Robotics Set with the TETRIX MAX Dual-Control Robotics Set.*

Students build bigger, more complex robots, and a competitive element is introduced for additional engagement.

HOURS	INTERMEDIATE TO ADVANCED

Builder's Guide (BG)

Expansion Builder's Guide (EBG)

Competition in a Box (CB)

6	RangerMAX Bot and Activities (BG)
6	MiniMAX Bot and Activities (BG)
6	RotoGrip Bot and Activities (BG)
12	TrackBot and Activities (EBG)
12	WorkCell and Activities (EBG)
12	ScissorLift and Activities (EBG)
15	Engineering for the Environment Activities (CB)*
18	Engineering for the Environment Competition (CB)*
15	Meeting the Needs of Industry Activities (CB)*
18	Meeting the Needs of Industry Competition (CB)*

Suggested course of activities

*Additional concepts covered in option

NOTE: *Activities could also be completed by substituting the TETRIX MAX R/C Robotics Set with the TETRIX MAX Dual-Control Robotics Set.*

TETRIX PRIME DUAL-CONTROL ROBOTICS SET

The TETRIX PRIME Dual-Control Robotics Set enables students to work collaboratively to engineer and control both remote- and autonomous-controlled robots. Students create original and innovative robot designs by leveraging both systems. The course includes activities covering concepts such as motors, sensors, and the engineering design process.

HOURS	BEGINNER TO INTERMEDIATE

Builder's Guide (BG)

PULSE Programming Guide (PPG)

6	Wheelee Bot and Activities (BG)
6	Buggee Bot and Activities (BG)
6	Pickee Bot and Activities (BG)
3	Hello World! through Introduction to the Line Finder Sensor Activities (PPG)
3	Build the PULSE Codee Bot through Simplify the Square Activities (PPG)
6	Drive to a Line and Stop through Combining the Sensors Activities (PPG)

Suggested course of activities

To extend beyond the intermediate level or increase the number of contact hours, many R/C and autonomous activities are available online. The suggested course would be to add these activities to the end of the current sequence.

Visit **Pitsco.com/Camps** to explore a list of recommended products and corresponding teacher guides.

TETRIX PRIME DUAL-CONTROL ROBOTICS SET

The **TETRIX PRIME Dual-Control Robotics Set** enables students to work collaboratively to engineer and control both remote- and autonomous-controlled robots. Students create original and innovative robot designs by leveraging both systems. The course includes activities covering concepts such as motors, sensors, and the engineering design process with extensive opportunity to develop problem-solving skills.

HOURS	BEGINNER TO ADVANCED
	Builder's Guide (BG)
	PULSE Programming Guide (PPG)
	Engineering Mobile Robotics (EMR)
	Robotic Engineering Challenge (REC)
6	Wheelee Bot and Activities (BG)
6	Buggee Bot and Activities (BG)
6	Pickee Bot and Activities (BG)
6	Thinking Like an Engineer Activities (EMR)
6	Build the Car Bot through Drivetrain Experiment Activities (EMR)
6	Straight Racer Drive and Speed Challenge (EMR)
6	Robot Chassis and Racecourse Activities (EMR)
6	Sumo Bot Challenge Activity (EMR)

6	You Choose R/C Activity (REC)
3	Hello World! through Introduction to the Line Finder Sensor Activities (PPG)
3	Introduction to the Ultrasonic Sensor through Drive Forward Activities (PPG)
6	Drive in a Circle through Follow a Line Activities (PPG)
3	Drive Toward a Wall and Stop through Combining the Sensors Activities (PPG)
6	You Choose Autonomous Activity (REC)
6	You Choose Autonomous Activity (REC)
6	You Choose Autonomous Activity (REC)

Suggested course of activities

TETRIX PRIME DUAL-CONTROL ROBOTICS SET + EXPANSION SET

The TETRIX PRIME Dual-Control Robotics Set enables students to work collaboratively to engineer and control both remote- and autonomous-controlled robots. Students create original and innovative robot designs by leveraging both systems. The course includes activities covering concepts such as motors, sensors, and the engineering design process with extensive opportunity to develop problem-solving skills.

HOURS	BEGINNER TO ADVANCED
	Builder's Guide (BG)
	PULSE Programming Guide (PPG)
	Engineering Mobile Robotics (EMR)
	Expansion Builder's Guide (EBG)
	Robotic Engineering Challenge (REC)
6	Wheelee Bot and Activities (BG)
6	Buggee Bot and Activities (BG)
6	Pickee Bot and Activities (BG)
6	Thinking Like an Engineer Activities (EMR)
6	Build the Car Bot through Drivetrain Experiment Activities (EMR)
6	Straight Racer Drive and Speed Challenge (EMR)
6	Road Racer Drive and Speed Challenge (EMR)
6	Bull Moose Drive and Speed Challenge (EMR)
6	Tug-of-War Drive and Speed Challenge (EMR)
6	Robot Chassis and Racecourse Activities (EMR)
6	Sumo Bot Challenge (EMR)

6	Rover Bot and Activities (EBG)
6	Walker Bot and Activities (EBG)
6	Crane Bot and Activities (EBG)
6	You Choose R/C Activity (REC)
6	You Choose R/C Activity (REC)
6	You Choose R/C Activity (REC)
3	Hello World! through Introduction to the Line Finder Sensor Activities (PPG)
3	Introduction to the Ultrasonic Sensor through Drive Forward Activities (PPG)
6	Drive in a Circle through Follow a Line Activities (PPG)
3	Drive Toward a Wall and Stop through Combining the Sensors Activities (PPG)
6	You Choose Autonomous Activity (REC)
6	You Choose Autonomous Activity (REC)
6	You Choose Autonomous Activity (REC)

Suggested course of activities

TETRIX MAX DUAL-CONTROL ROBOTICS SET

The TETRIX MAX dual-control robotics platform provides an opportunity for students to work collaboratively to engineer, test, drive, and code robots.

This course includes activities covering remote control functionality, line finder and ultrasonic sensors, and coding basic programs for the robot to execute.

HOURS	BEGINNER TO INTERMEDIATE
	Builder's Guide (BG)
	PRIZM Programming Guide (PPG)
	Robotic Engineering Challenge (REC)
6	RangerMAX Bot and Activities (BG)
6	MiniMAX Bot and Activities (BG)
6	RotoGrip Bot and Activities (BG)
6	Hello World! through Introduction to the Line Finder Sensor Activities (PPG)
6	Introduction to the Ultrasonic Sensor through Drive in a Circle Activities (PPG)
6	Drive in a Square through Follow a Line Activities (PPG)
6	Drive Toward a Wall and Stop through Combining the Sensors Activities (PPG)
6	You Choose Autonomous Activity (REC)

Suggested course of activities

Visit **Pitsco.com/Camps** to explore a list of recommended products and corresponding teacher guides.

TETRIX MAX DUAL-CONTROL ROBOTICS SET

The TETRIX MAX dual-control robotics platform provides an opportunity for students to work collaboratively to engineer, test, drive, and code robots.

Option 1: This course includes activities covering remote-control functionality, sensors, and coding programs for the robot to execute. Students are also engaged in robotic competitive events.

HOURS	BEGINNER TO ADVANCED – OPTION 1
	Builder's Guide (BG)
	PRIZM Programming Guide (PPG)
	Competition in a Box (CB)
6	RangerMAX Bot and Activities (BG)
6	MiniMAX Bot and Activities (BG)
6	RotoGrip Bot and Activities (BG)
12	Engineering for the Environment Activities (CB)
12	Engineering for the Environment Competition (CB)
12	Meeting the Needs of Industry Activities (CB)
12	Meeting the Needs of Industry Competition (CB)
6	Hello World! through Introduction to the Line Finder Sensor Activities (PPG)
6	Introduction to the Ultrasonic Sensor through Drive in a Circle Activities (PPG)
6	Drive in a Square through Follow a Line Activities (PPG)
6	Drive Toward a Wall and Stop through Combining the Sensors Activities (PPG)
15	Autonomous Rescue Robots Activities (CB)
15	Autonomous Rescue Robots Competition (CB)

Suggested course of activities

Option 2: In addition to activities covering remote-control functionality, sensors, and coding programs, students are also challenged to use their robots in a variety real-world scenarios.

HOURS	BEGINNER TO ADVANCED – OPTION 2
	Builder's Guide (BG)
	PRIZM Programming Guide (PPG)
	PRIZM Coding Essentials (PCE)
6	RangerMAX Bot and Activities (BG)
6	MiniMAX Bot and Activities (BG)
6	RotoGrip Bot and Activities (BG)
6	Hello World! through Introduction to the Line Finder Sensor Activities (PPG)
6	Introduction to the Ultrasonic Sensor through Drive in a Circle Activities (PPG)
6	Drive in a Square through Follow a Line Activities (PPG)
6	Drive Toward a Wall and Stop through Combining the Sensors Activities (PPG)
12	Building the Bee-Dee Bot through Smart Cards, Smart Code Activities (PCE)*
12	Take a Drive by the Numbers and Beyond Comparison Activities (PCE)*
6	Decisions, Decisions Activity (PCE)*
15	Taxi, Please! Challenge (PCE)*
3	Presentations and Wrap-up*

Suggested course of activities

Additional concepts covered in option

Visit **Pitsco.com/Camps** to explore a list of recommended products and corresponding teacher guides.

TETRIX MAX DUAL-CONTROL ROBOTICS SET

Option 3: This course includes activities covering R/C robots, sensors, and writing coding programs for the robot to execute. Students also test their robotic design in a competitive event.

HOURS	BEGINNER TO ADVANCED – OPTION 3
	Builder's Guide (BG)
	Engineering Mobile Robotics (EMR)
	PRIZM Programming Guide (PPG)
	PRIZM Coding Essentials Guide (PCE)
	Competition in a Box (CB)
6	**RangerMAX Bot and Activities (BG)**
3	**Build the Robot, Run the Maze Activity (EMR)***
3	**Wave the Flag Activity (EMR)***
3	**Flex Your Muscles Activity (EMR)***
3	**Getting Stronger Activity (EMR)***
3	**Robot Waiter Activity (EMR)***
3	**Inchworm Activity (EMR)***
12	**You Choose Challenge (EMR)***
12	**You Choose Challenge (EMR)***
6	**MiniMAX Bot and Activities (BG)***
6	**RotoGrip Bot and Activities (BG)**
12	**Engineering for the Environment Activities (CB)**
12	**Engineering for the Environment Competition (CB)**

HOURS	
12	**Meeting the Needs of Industry Activities (CB)**
12	**Meeting the Needs of Industry Competition (CB)**
6	**Hello World! through Introduction to the Line Finder Sensor Activities (PPG)**
6	**Introduction to the Ultrasonic Sensor through Drive in a Circle Activities (PPG)**
6	**Drive in a Square through Follow a Line Activities (PPG)**
6	**Drive Toward a Wall and Stop through Combining the Sensors Activities (PPG)**
12	**Building the Bee-Dee Bot through Smart Cards, Smart Code Activities (PCE)**
12	**Take a Drive by the Numbers and Beyond Comparison Activities (PCE)**
6	**Decisions, Decisions Activity (PCE)**
9	**Taxi, Please! Challenge (PCE)**
18	**Autonomous Rescue Robots Activities (CB)**
18	**Autonomous Rescue Robots Competition (CB)**

Suggested course of activities

*Additional concepts covered in option

NOTES

NOTES

SUGGESTED GRADE LEVELS

K-2	3-5	6-8	9+
KUBO	KUBO		
	CODECUBE		
	Smart Buddies — teaching everyone to code		
	MICRODUINO	MICRODUINO	
		ARDUINO	ARDUINO
		fable	fable
UKIT BEGINNER	UKIT INTERMEDIATE	UKIT INTERMEDIATE	UKIT ADVANCED
		PITSCO TETRIX PRIME	PITSCO TETRIX MAX

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