

Controlling An Ozobot (Makers As Innovators)

Now a *New York Times* bestseller! The inside story of LeBron James's return and ultimate triumph in Cleveland. What really happened when LeBron James stunned the NBA by leaving a potential dynasty in Miami to come home to play with the Cleveland Cavaliers? How did the Cavs use secret meetings to put together the deal to add star Kevin Love? Who really made the controversial decision to fire coach David Blatt when the team was in first place? Where did the greatest comeback in NBA history truly begin-and end? RETURN OF THE KING takes you onto the private planes, inside the locker-room conversations, and into the middle of the intense huddles where one of the greatest stories in basketball history took place, resulting in the Cavs winning the 2016 NBA title after trailing the Golden State Warriors three games to one. You'll hear from all the characters involved: the players, the executives, the agents, and the owners as they reveal stories never before told. Get the background on all the controversies, the rivalries, and the bad blood from two reporters who were there for every day, plot twist, and social media snafu as they take you through the fascinating ride that culminated in a heart-stopping Game Seven.

Electronic Circuits covers all important aspects and applications of modern analog and digital circuit design. The basics, such as analog and digital circuits, on operational amplifiers, combinatorial and sequential logic and memories, are treated in Part I, while Part II deals with applications. Each chapter offers solutions that enable the reader to understand ready-made circuits or to proceed quickly from an idea to a working circuit, and always illustrated by an example. Analog applications cover such topics as analog computing circuits. The digital sections deal with AD and DA conversion, digital computing circuits, microprocessors and digital filters. This editions contains the basic electronics for mobile communications. The accompanying CD-ROM contains PSPICE software, an analog-circuit-simulation package, plus simulation examples and model libraries related to the book topics.

Full of activities, quizzes, and skill tests; includes stickers, a model, and a poster game; full of challenging, educational and creative fun; divided into sections that include website designer, animator, and music producer. Discover the essential skills required on the way to becoming a computer coding expert in this innovative activity book. Coder Academy encourages imaginative play and problem solving, and the fresh, contemporary artwork helps to make basic coding concepts accessible.

This proceedings book gathers the latest achievements and trends in research and development in educational robotics from the 10th International Conference on Robotics in Education (RiE), held in Vienna, Austria, on April 10–12, 2019. It offers valuable methodologies and tools for robotics in education that encourage learning in the fields of science, technology, engineering, arts and mathematics (STEAM) through the design, creation and programming of tangible artifacts for creating personally meaningful objects and addressing real-world societal needs. It also discusses the introduction of technologies ranging from robotics platforms to programming environments and languages and presents extensive evaluations that highlight the impact of robotics on students’ interests and competence development. The approaches included cover the entire educative range, from the elementary school to the university level in both formal and informal settings.

Nine Simple Projects with Lights, Sounds, and More!
Making, Tinkering, and Engineering in the Classroom

Electronic Circuits

Smart Learning with Educational Robotics

LeBron James, the Cleveland Cavaliers and the Greatest Comeback in NBA History

Visualizing Learning

LEGO WeDo enables students to build and program their own robots. Through simple text written to foster creativity and problem solving, students will the art of innovation. Large, colorful images show students how to complete activities and an index, help students learn new vocabulary and locate information.

Blockly is a fun, graphical programming language designed to get kids interested in creating their own computer programs. Through simple text written to foster creativity and problem solving, students will learn the art of innovation. Large, colorful images show students how to complete activities. Additional tools, including a glossary and an index, help students learn new vocabulary and locate information.

Making is a dynamic and hands-on learning experience that directly connects with long-established theories of how learning occurs. Although it hasn't been a focus of traditional education or had a prominent place in the classroom, teaching Making is an option for their students. The maker movement brings together diverse communities dedicated to creating things through hands-on projects. Makers represent a growing community of builders and creators—engineers, scientists, artists, designers, and entrepreneurs—and their interests, and skill levels—who engage in experimentation and cooperation. Transferring this innovative, collaborative, and creative mindset to the classroom is the goal of maker education. A makerspace isn't about the latest tools and equipment, but about the experiences and opportunities provided to students. Maker education spaces can be as large as a school workshop with high-tech tools (e.g., 3D printers and laser cutters) or as small and low-tech as the corner of a classroom with bins of cardboard and tools. This book offers a mindset—not the “stuff.” In Learning in the Making, Jackie Gerstein helps you plan, execute, facilitate, and reflect on maker experiences so both you and your students understand how the knowledge, skills, and attitudes of maker education can be integrated into your curriculum. This book also shows how to seamlessly integrate these activities into your curriculum with intention and a clearly defined purpose.

3D printers can turn any idea into a real, three-dimensional object you can hold in your hand. Through simple text written to foster creativity and problem solving, students will learn the art of innovation. Large, colorful images show students how to complete activities. Additional tools, including a glossary and an index, help students learn new vocabulary and locate information.

Designing Board Games

Using Robots to Scaffold Learning Outcomes

Ada and the Number-Crunching Machine

Research & Innovation Forum 2019

Learning in the Making

Get Set Go Computing: Learn to Code Cards

This book features research presented and discussed during the Research & Innovation Forum (Rii Forum) 2019. As such, this volume offers a unique insight into emerging topics, issues and developments pertinent to the fields of technology, innovation and education and their social impact. Papers included in this volume apply inter- and multi-disciplinary approaches to query such issues as technology-enhanced teaching and learning, smart cities., information systems, cognitive computing and social networking. What brings these threads of the discussion together is the question of how advances in computer science – which are otherwise largely incomprehensible to researchers from other fields – can be effectively translated and capitalized on so as to make them beneficial for society as a whole. In this context, Rii Forum and Rii Forum proceedings offer an essential venue where diverse stakeholders, including academics, the think tank sector and decision-makers, can engage in a meaningful dialogue with a view to improving the applicability of advances in computer science. In brief, Rii Forum takes the imperative inherent in the 4th industrial revolution seriously, in that it identifies ways of making technology usable and therefore inclusive.

"Learn how to program Sphero robots to complete a variety of fun activities."-- Provided by publisher.

A Beginner's Guide to Circuits is the perfect first step for anyone ready to jump into the world of electronics and circuit design. After finishing the book's nine graded projects, readers will understand core electronics concepts which they can use to make their own electrifying creations! First, you'll learn to read circuit diagrams and use a breadboard, which allows you to connect electrical components without using a hot soldering iron! Next, you'll build nine simple projects using just a handful of readily available components, like resistors, transistors, capacitors, and other parts. As you build, you'll learn what each component does, how it works, and how to combine components to achieve new and interesting effects. By the end of the book, you'll be able to build your own electronic creations. With easy-to-follow directions, anyone can become an inventor with the help of A Beginner's Guide to Circuits! Build These 9 Simple Circuits! • Steady-Hand Game: Test your nerves using a wire and a buzzer to create an Operation-style game! • Touch-Enabled Light: Turn on a light with your finger! • Cookie Jar Alarm: Catch cookie thieves red-handed with this contraption. • Night-Light: Automatically turn on a light when it gets dark. • Blinking LED: This classic circuit blinks an LED. • Railroad Crossing Light: Danger! Don't cross the tracks if this circuit's pair of lights is flashing. • Party Lights: Throw a party with these charming string lights. • Digital Piano: Play a tune with this simple synthesizer and learn how speakers work. • LED Marquee: Put on a light show and impress your friends with this flashy finale.

Using just a few basic components, it is easy to create customized electric jewelry. Through simple text written to foster creativity and problem solving, students will learn the art of innovation. Large, colorful images show students how to complete activities. Additional tools, including a glossary and an index, help students learn new vocabulary and locate information.

Robots in K-12 Education: A New Technology for Learning

The Everyday Workings of Machines

83 Hands-on S.T.E.A.M Experiments for Curious Kids!

Coding With Blockly

A Beginner's Guide to Circuits

TACCLE

This open access book contains observations, outlines, and analyses of educational robotics methodologies and activities, and developments in the field of educational robotics emerging from the findings presented at FabLearn Italy 2019, the international conference that brought together researchers, teachers, educators and practitioners to discuss the principles of Making and educational robotics in formal, non-formal and informal education. The editors’ analysis of these extended versions of papers presented at FabLearn Italy 2019 highlight the latest findings on learning models based on Making and educational robotics. The authors investigate how innovative educational tools and methodologies can support a novel, more effective and more inclusive learner-centered approach to education. The following key topics are the focus of discussion: Makerspaces and Fab Labs in schools, a maker approach to teaching and learning; laboratory teaching and the maker approach, models, methods and instruments; curricular and non-curricular robotics in formal, non-formal and informal education; social and assistive robotics in education; the effect of innovative spaces and learning environments on the innovation of teaching, good practices and pilot projects.

Learn effective ways to teach STEAM with this helpful book from educational technology experts Billy Krakower and Meredith Martin. Whether you have a dedicated STEAM class, or plan to integrate it into a regular classroom, you’ ll find out how to create a structured learning environment while still leaving room for inquiry and innovation. You’ ll also gain a variety of hands-on activities and rubrics you can use immediately. Topics include: the differences among STEM, STEAM, and makerspaces planning your STEAM space stocking your young with the right supplies planning for instruction and managing class time incorporating the core subjects aligning lessons with standards and assessments getting the administration and community involved taking your class to the next level with design thinking. With this practical book, you’ ll have all the tools you’ ll need to create a STEAM-friendly learning space starting now. Continue the conversation on Twitter with the hashtag #GSWSTEAM!

In Computer Programmer, carefully leveled text and vibrant, full-color photographs take early fluent readers on an informational interview with a real life programmer. Readers learn about the day-to-day responsibilities and challenges of this career and the things they can do now to prepare for work as a programmer.

This book will offer ideas on how robots can be used as teachers’ assistants to scaffold learning outcomes, where the robot is a learning agent in self-directed learning who can contribute to the development of key competences for today’s world through targeted learning - such as engineering thinking, math, physics, computational thinking, etc.

starting from pre-school and continuing to a higher education level. Robotization is speeding up at the moment in a variety of dimensions, both through the automation of work, by performing intellectual duties, and by providing support for people in everyday situations. There is increasing political attention, especially in Europe, on educational systems not being able to keep up with such emerging technologies, and efforts to rectify this. This edited volume responds to this attention, and seeks to explore which pedagogical and educational concepts should be included in the learning process so that the use of robots is meaningful from the point of view of knowledge construction, and so that it is safe from the technological and cybersecurity perspective.

Playing with Makey Makey

A New Technology for Learning

Using Light to Make Shadow Puppets

Getting Started with STEAM

Makers at School, Educational Robotics and Innovative Learning Environments

Coding with LEGO WeDo

Awesome S.T.E.A.M.-based science experiments you can do right at home with easy-to-find materials designed for maximum enjoyment, learning, and discovery for kids ages 8 to 12 Join the experts at the Good Housekeeping Institute Labs and explore the science you interact with every day. Using the scientific method, you’ll tap into your own super-powers of logic and deduction to go on a science adventure. The engaging experiments exemplify core concepts and range from quick and simple to the more complex. Each one includes clear step-by-step instructions and color photos that demonstrate the process and end result. Plus, secondary experiments encourage young readers to build on what they’ve discovered. A “Mystery Solved!” explanation of the science at work helps your budding scientist understand the outcomes of each experiment. These super-fun, hands-on experiments include: • Building a solar oven and making s’mores • Creating an active rain cloud in a jar • Using static electricity created with a balloon to power a light bulb • Growing your own vegetables—from scraps! • Investigating the forces that make an object sink or float • And so much more! Bursting with more than 200 color photos and incredible facts, this sturdy hard cover is the perfect gift for any aspiring biologist, chemist, physicist, engineer, and mathematician!

ScratchJr is a beginner's programming language that is fun and easy to use. Through simple text written to foster creativity and problem solving, students will learn the art of innovation.

Large, colorful images show students how to complete activities. Additional tools, including a glossary and an index, help students learn new vocabulary and locate information.

A new and expanded edition of one of the decade's most influential education books. In this practical guide, Sylvia Martinez and Gary Stager provide K-12 educators with the how, why, and cool stuff that supports making in the classroom, library, makerspace, or anywhere learners learn.

Makey Makey is a kit that helps you turn everyday objects into touchpads that control your computer's keyboard. Through simple text written to foster creativity and problem solving, students will learn the art of innovation. Large, colorful images show students how to complete activities. Additional tools, including a glossary and an index, help students learn STEM concepts, new vocabulary, and locate information.

Technology, Innovation, Education, and their Social Impact

Makers as Learners (Volume 2)

Coding with ScratchJr

Return of the King

Research and Experiences from FabLearn Italy 2019, in the Italian Schools and Beyond

Invent to Learn

She invents crazy contraptions, solves big sums, and reads all the books in the library. Although she may look like an ordinary little girl, Ada Lovelace is about to change the world. Zoë Tucker and Rachel Katstaller tell the amazing true story of a little girl who didn't go to school, but grew up to create the world's first computer program.

Designing and playing your own board games can be a lot of fun. Through simple text written to foster creativity and problem solving, students will learn the art of innovation. Large, colorful images show students how to complete activities. Additional tools, including a glossary and an index, help students learn new vocabulary and locate information.

Controlling an OzobotCherry Lake

At MakerFests, makers of all kinds come together to show off their projects and share knowledge with the public. Through simple text written to foster creativity and problem solving, students will learn how to host their own MakerFests. Large, colorful images show students how to complete activities. Additional tools, including a glossary and an index, help students learn new vocabulary and locate information.

Coding With ScratchJr

Learn to Program by Making Cool Games (Covers Version 2)

Robotics in Education

Learning and Playing Through Modes and Media

Coding with Sphero

Current Research and Innovations

This book explores “making” in the school curriculum in a period in which the ability to create and respond to digital artifacts is key and focuses on makerspaces in educational settings. Combining the arts with design to give a fuller picture of the engagement and wonder that unfolds with maker literacies, the book moves across such settings and themes as: Creativity and writing in classrooms Making and developing civic engagement Emotional experiences of making Race and gender in makerspace Game-based play and coding in schools and draws its case studies from the Netherlands, Finland, Canada, Australia, the United Kingdom, and the United States. Giving as broad a perspective on makerspaces, making, and design as possible, the book will help scholars expand their understandings and help educators appreciate the power and worth of making to inspire students. It is useful for anyone hoping to apply design, maker, and makerspace approaches to their teaching and learning.

Full of fascinating information and colorful graphics the pages reveal the science behind how many of today's machines work.

This book is written for classroom teachers who want to know more about e-learning and who would like to experiment with designing e-learning material to use in their own classrooms. It is primarily targeted at secondary teachers but there is no reason why primary school teachers and adult education teachers should not find it useful too. The other group we had in mind were those of you still undertaking initial teacher training. Although there are some exemplary courses, a depressing number of trainee teachers continue to arrive in the classroom having barely heard the words ‘e-learning’, still less have hands on experience of it.

All it takes to create your own exciting puppet show is the right lighting and a good stage. Through simple text written to foster creativity and problem solving, students will learn the art of innovation. Large, colorful images show students how to complete activities. Additional tools, including a glossary and an index, help students learn STEM concepts, new vocabulary, and locate information.

Filming Stop-Motion Animation

Computational Fairy Tales

Sewing Circuits

Practical Strategies for the K–8 Classroom

How to Plan, Execute, and Assess Powerful Makerspace Lessons

Organizing a MakerFest

Makeology introduces the emerging landscape of the Maker Movement and its connection to interest-driven learning. While the movement is fueled in part by new tools, technologies, and online communities available to today’s makers, its simultaneous emphasis on engaging the world through design and sharing with others harkens back to early educational predecessors including Froebel, Dewey, Montessori, and Papert. Makers as Learners (Volume 2) highlights leading researchers and practitioners as they discuss and share current perspectives on the Maker movement and research on educational outcomes in makerspaces. Each chapter closes with a set of practical takeaways for educators, researchers, and parents.

With a little creativity, it is easy to turn old or unwanted toys into fun new inventions. Through simple text written to foster creativity and problem solving, students will learn the art of innovation. Large, colorful images show students how to complete activities. Additional tools, including a glossary and an index, help students learn STEM concepts, new vocabulary, and locate information.

Scratch is the wildly popular educational programming language used by millions of first-time learners in classrooms and homes worldwide. By dragging together colorful blocks of code, kids can learn computer programming concepts and make cool games and animations. The latest version, Scratch 2, brings the language right into your web browser, with no need to download software. In Super Scratch Programming Adventure!, kids learn programming fundamentals as they make their very own playable video games. They’ll create projects inspired by classic arcade games that can be programmed (and played!) in an afternoon. Patient, step-by-step explanations of the code and fun programming challenges will have kids creating their own games in no time. This full-color comic book makes programming concepts like variables, flow control, and subroutines effortless to absorb. Packed with ideas for games that kids will be proud to show off, Super Scratch Programming Adventure! is the perfect first step for the budding programmer. Now Updated for Scratch 2 The free Super Scratch Educator’s Guide provides commentary and advice on the book’s games suitable for teachers and parents. For Ages 8 and Up

Creating animated movies is easier than ever using stop-motion techniques and everyday technology. Through simple text written to foster creativity and problem solving, students will learn the art of innovation. Large, colorful images show students how to complete activities. Additional tools, including a glossary and an index, help students learn STEM concepts, new vocabulary, and locate information.

Controlling an Ozobot
Good Housekeeping Amazing Science
Makeology
Coder Academy
Looking Inside a 3D Printer

"This book explores the theory and practice of educational robotics in the K-12 formal and informal educational settings, providing empirical research supporting the use of robotics for STEM learning"--Provided by publisher.

This book focuses on how to effectively integrate the teaching and learning of visual and media literacies in K-12 and higher education. Not only does it address and review the elements and principles of visual design but also identifies, discusses and describes the value of media in learning diverse and challenging content across disciplines. Finally, this book provides a balanced treatment of how visual and media literacies support deep content learning, student engagement, critical thinking, creativity, problem solving, and production.

Inside this volume of Maker Comics, First Second's DIY comic series, you'll find step-by-step instructions on how to construct six different robots! The family toaster is preparing to take over the world with an army of evil robots, but he needs your help to build them! Several obstacles lie in his path: your homework, a pesky little sister, and even a dastardly kitty cat. Just follow his instructions to build a series of robots, and world domination is within reach! With Maker Comics: Build a Robot! written by Colleen AF Venable, featuring illustrations from Kathryn Hudson, you can create a bunch of (non-evil) robots of your very own! All you need are a few everyday items you can find lying around the house and some simple components you can order online. With the easy instructions in this book and you can build a robot that can move on its own, sound an alarm, and even use a sensor to respond to the outside world! Follow the easy step-by-step instructions inside this book and you can make these robots! Brush bot Art bot Scare bot Noisy bot LED throwie Remote controlled car bot

Have you ever thought that computer science should include more dragons and wizards? Computational Fairy Tales introduces principles of computational thinking, illustrating high-level computer science concepts, the motivation behind them, and their application in a non-computer—fairy tale—domain. It's a quest that will take you from learning the basics of programming in a blacksmith's forge to fighting curses with recursion. Fifteen seers delivered the same prophecy, without so much as a single minstrel to lighten the mood: an unknown darkness threatens the kingdom. Suddenly, Princess Ann finds herself sent forth alone to save the kingdom. Leaving behind her home, family, and pet turtle Fido, Princess Ann must face goblin attacks, magical curses, arrogant scholars, an unpleasant oracle, and rude Boolean waiters. Along the way she must build a war chest of computational knowledge to survive the coming challenge.

The Ultimate DIY Guide; with 6 Robot projects

Maker Literacies and Maker Identities in the Digital Age

Handbook for Design and Application

Essentials of Teaching and Integrating Visual and Media Literacy

Teachers' Aids on Creating Content for Learning Environments ; the E-learning Handbook for Classroom Teachers

Remixing Toys

An Ozobot is a small robot designed to follow user-created paths. Through simple text written to foster creativity and problem solving, students will learn the art of innovation. Large, colorful images show students how to complete activities. Additional tools, including a glossary and an index, help students learn new vocabulary and locate information.

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Computer Programmer

Maker Comics: Build a Robot!

Super Scratch Programming Adventure! (Covers Version 2)