

Scratch Programming Playground Learn To Program By Making Cool Games

Now updated for Scratch 3.0, this 75-card deck features interactive programming projects you can make with Scratch, a free-to-use graphical programming language used by millions of kids around the world. The front of each card shows an activity, like Pong, Write an Interactive Story, Create a Virtual Pet, Play Hide and Seek. The back shows how to put code blocks together to make projects come to life! Along the way, kids learn coding concepts like sequencing, conditionals, and variables.

Invent Your Own Computer Games with Python will teach you how to make computer games using the popular Python programming language—even if you've never programmed before! Begin by building classic games like Hangman, Guess the Number, and Tic-Tac-Toe, and then work your way up to more advanced games, like a text-based treasure hunting game and an animated collision-dodging game with sound effects. Along the way, you'll learn key programming and math concepts that will help you take your game programming to the next level. Learn how to:

- Combine loops, variables, and flow control statements into real working programs
- Choose the right data structures for the job, such as lists, dictionaries, and tuples
- Add graphics and animation to your games with the pygame module
- Handle keyboard and mouse input
- Program simple artificial intelligence so you can play against the computer
- Use

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cryptography to convert text messages into secret code –Debug your programs and find common errors As you work through each game, you'll build a solid foundation in Python and an understanding of computer science fundamentals. What new game will you create with the power of Python? The projects in this book are compatible with Python 3.

Python is a powerful programming language that's easy to learn and fun to play with. But once you've gotten a handle on the basics, what do you do next? Python Playground is a collection of imaginative programming projects that will inspire you to use Python to make art and music, build simulations of real-world phenomena, and interact with hardware like the Arduino and Raspberry Pi. You'll learn to use common Python tools and libraries like numpy, matplotlib, and pygame to do things like:

- Generate Spirograph-like patterns using parametric equations and the turtle module
- Create music on your computer by simulating frequency overtones
- Translate graphical images into ASCII art
- Write an autostereogram program that produces 3D images hidden beneath random patterns
- Make realistic animations with OpenGL shaders by exploring particle systems, transparency, and billboard techniques
- Construct 3D visualizations using data from CT and MRI scans
- Build a laser show that responds to music by hooking up your computer to an Arduino

Programming shouldn't be a chore. Have some solid, geeky fun with Python Playground. The projects in this book are compatible with both Python 2 and 3.

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A perfect introduction to coding for young minds! This updated step-by-step visual guide teaches children to create their own projects using Scratch 3.0. Suitable for complete beginners, this educational book for kids gives readers a solid understanding of programming. Teach them to create their own projects from scratch, preparing them for more complex programming languages like Python. Techy kids will familiarize themselves with Scratch 3.0 using this beginner's guide to scratch coding. Difficult coding concepts become fun and easy to understand, as budding programmers build their own projects using the latest release of the world's most popular programming language for beginners. Make a Dino Dance Party or create your own electronic birthday cards for friends and family. Build games, simulations, and mind-bending graphics as you discover the awesome things computer programmers can do with Scratch 3.0. This second edition of Coding Projects in Scratch uses a visual step-by-step approach to split complicated code into manageable, easy-to-digest chunks. Even the most impressive projects become possible. This book is an impressive guide that is perfect for anyone who wants to learn to code. Follow Simple Steps, Improve Your Skills & Share Your Creations! Follow the simple steps to become an expert coder using the latest version of the popular programming language Scratch 3.0 in this new edition. Create mind-bending illusions, crazy animations, and interactive artwork with this amazing collection of Scratch projects. Suitable for beginners and experts alike, this fabulous introduction to programming for kids has everything you need to learn how

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to code. You'll improve your coding skills and learn to create and customize your own projects, then you can share your games online and challenge friends and family to beat each other's scores! What's inside this kids' coding book? - Simulations, mind-benders, music, and sounds - Algorithms, virtual snow, and interactive features - Different devices, operating systems, programming languages and more Computer coding teaches kids how to think creatively, work collaboratively, and reason systematically, and is quickly becoming a necessary and sought-after skill. DK's computer coding books for kids are full of fun exercises with step-by-step guidance, making them the perfect introductory tools for building vital skills in computer programming. Coding Projects in Scratch is one of three brilliant coding books for kids. Add Coding Games in Scratch and Coding Projects in Python to your collection. "Different from any knitting book I've ever seen! Think of it as a journal of your life, not with pen and paper, but with knitting needles" (Lisa Congdon, author of Find Your Artistic Voice). Record the beauty, emotions, and experiences of everyday life—with your knitting needles! Author Lea Redmond offers thirty-two enchanting projects that will inspire you to create beautiful finished pieces full of personal meaning and memories. Stock up on shades of blue, gray, and white and knit one strip of a scarf each day for a year, using the color that matches the sky on that day. When you're done, you'll have a unique memento of your year better than anything you can keep in a scrapbook. Or when you're traveling, knit postcard-size swatches at each place you

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visit, using the colors you see around you. When the trip is over, piece the swatches together into a throw or scarf that will remind you of your journey every time you use it. Or knit a height-chart scarf for a beloved baby, starting with her length at birth, then add inches each year until you have the perfect gift for her eighteenth birthday. These are knitting projects like no other, resulting in one-of-a-kind heirlooms that tell a story only you can tell. Redmond provides instructions for all the stitches and techniques you need, as well as required patterns. “In this charming book, Lea Redmond puts her big heart into creative knitting projects. She reminds us that the sky’s the limit—in knitting and in life.” —Ann Hood, author of *The Knitting Circle* “Not your usual book about knitting . . . [It] aspires to turn on your creativity, to awaken the designer within you.” —*In Stitches*

If you were the moon, what would you do? You'd spin like a twilight ballerina and play dodgeball with space rocks! Find out more in this lyrical list poem accompanied by stunning illustrations.

This workbook is a black and white printing of the Creative Computing Learner Workbook. It includes all of the learner activity instructions and worksheets for the Creative Computing course, which teaches basic programming concepts using the scratch language. A digital version of this book is available for free at <http://scratched.gse.harvard.edu/guide>

Teach kids the concepts of coding in easy-to-understand language and help them

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develop games of their own with The Everything Kids' Scratch Coding Book!

Understanding computer science is becoming a necessity in the modern age. As our world shifts towards becoming increasingly more technical and automated, the ability to code and understand computers has become one of the most valuable skills any child can have on the road to a successful life. More and more schools are recognizing this importance and have started to implement computer science and coding as core elements in their curriculums, right alongside math and history. The Everything Kids' Scratch Coding Book helps children get a head start on this new essential skill, with Scratch coding—a language designed by MIT specifically to help a younger audience learn to code. In no time, children will learn basic coding concepts, build fun games, and get a competitive edge on their classmates. This book encourages children to think analytically and problem-solve, while helping them develop an essential skill that will last them a lifetime.

The LEGO® MINDSTORMS® EV3 set offers so many new and exciting features that it can be hard to know where to begin. Without the help of an expert, it could take months of experimentation to learn how to use the advanced mechanisms and numerous programming features. In The LEGO MINDSTORMS EV3 Laboratory, author Daniele Benedettelli, robotics expert and member of the elite LEGO MINDSTORMS Expert Panel, shows you how to use gears, beams, motors, sensors, and programming blocks to create sophisticated robots that can avoid obstacles, walk on two legs, and even

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demonstrate autonomous behavior. You'll also dig into related math, engineering, and robotics concepts that will help you create your own amazing robots. Programming experiments throughout will challenge you, while a series of comics and countless illustrations inform the discussion and keep things fun. As you make your way through the book, you'll build and program five wicked cool robots: –ROV3R, a vehicle you can modify to do things like follow a line, avoid obstacles, and even clean a room –WATCHGOOZ3, a bipedal robot that can be programmed to patrol a room using only the Brick Program App (no computer required!) –SUP3R CAR, a rear-wheel-drive armored car with an ergonomic two-lever remote control –SENTIN3L, a walking tripod that can record and execute color-coded sequences of commands –T-R3X, a fearsome bipedal robot that will find and chase down prey With The LEGO MINDSTORMS EV3 Laboratory as your guide, you'll become an EV3 master in no time. Requirements: One LEGO MINDSTORMS EV3 set (LEGO SET #31313)

This amazing title instructs young readers on how to shape wooden objects based on their own, unique ideas. Kids will explore this exciting and popular field by learning a few basic techniques of woodworking and what tools to use, which they can then experiment with in safe and accessible projects. "Makers and Shakers" sidebars introduce kids to furniture makers and builders and to different styles in woodworking. LEGO MINDSTORMS has changed the way we think about robotics by making it possible for anyone to build real, working robots. The latest MINDSTORMS set, EV3, is

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more powerful than ever, and The LEGO MINDSTORMS EV3 Discovery Book is the complete, beginner-friendly guide you need to get started. Begin with the basics as you build and program a simple robot to experiment with motors, sensors, and EV3 programming. Then you'll move on to a series of increasingly sophisticated robots that will show you how to work with advanced programming techniques like data wires, variables, and custom-made programming blocks. You'll also learn essential building techniques like how to use beams, gears, and connector blocks effectively in your own designs. Master the possibilities of the EV3 set as you build and program: –The EXPLOR3R, a wheeled vehicle that uses sensors to navigate around a room and follow lines –The FORMULA EV3 RACE CAR, a streamlined remote-controlled race car –ANTY, a six-legged walking creature that adapts its behavior to its surroundings –SK3TCHBOT, a robot that lets you play games on the EV3 screen –The SNATCH3R, a robotic arm that can autonomously find, grab, lift, and move the infrared beacon –LAVA R3X, a humanoid robot that walks and talks More than 150 building and programming challenges throughout encourage you to think creatively and apply what you've learned to invent your own robots. With The LEGO MINDSTORMS EV3 Discovery Book as your guide, you'll be building your own out-of-this-world creations in no time! Requirements: One LEGO MINDSTORMS EV3 set (LEGO SET #31313) ScratchJr is a free, introductory computer programming language that runs on iPads, Android tablets, Amazon tablets, and Chromebooks. Inspired by Scratch, the wildly

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popular programming language used by millions of children worldwide, ScratchJr helps even younger kids create their own playful animations, interactive stories, and dynamic games. The Official ScratchJr Book is the perfect companion to this free app and makes coding easy and fun for all. Kids learn to program by connecting blocks of code to make characters move, jump, dance, and sing. Each chapter includes several activities that build on one another, culminating in a fun final project. These hands-on activities help kids develop computational-thinking, problem-solving, and design skills. In each activity, you'll find: –Step-by-step, easy-to-follow directions –Ways to connect the activity with literacy and math concepts –Tips for grown-ups and teachers –Creative challenges to take the learning further By the end of the book, kids will be ready for all sorts of new programming adventures! The ScratchJr app now supports English, Spanish, Catalan, Dutch, French, Italian, and Thai.

Coding as a Playground, Second Edition focuses on how young children (aged 7 and under) can engage in computational thinking and be taught to become computer programmers, a process that can increase both their cognitive and social-emotional skills. Learn how coding can engage children as producers—and not merely consumers—of technology in a playful way. You will come away from this groundbreaking work with an understanding of how coding promotes developmentally appropriate experiences such as problem-solving, imagination, cognitive challenges, social interactions, motor skills development, emotional exploration, and making

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different choices. Featuring all-new case studies, vignettes, and projects, as well as an expanded focus on teaching coding as a new literacy, this second edition helps you learn how to integrate coding into different curricular areas to promote literacy, math, science, engineering, and the arts through a project-based approach and a positive attitude to learning.

Scratch 3.0 has landed! Stay ahead of the curve with this fully updated guide for beginner coders. Coding is not only a highly sought-after skill in our digital world, but it also teaches kids valuable skills for life after school. This book teaches important strategies for solving problems, designing projects, and communicating ideas, all while creating games to play with their friends. Children will enjoy the step-by-step visual approach that makes even the most difficult coding concepts easy to master. They will discover the fundamentals of computer programming and learn to code through a blend of coding theory and the practical task of building computer games themselves. The reason coding theory is taught through practical tasks is so that young programmers don't just learn how computer code works - they learn why it's done that way. With Coding Games in Scratch, kids can build single and multiplayer platform games, create puzzles and memory games, race through mazes, add animation, and more. It also supports STEM education initiatives and the maker movement. Follow Simple Steps - Improve Your Skills - Share Your Games! If you like playing computer games, why not create your own? Essential coding concepts are explained using eight build-along

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game projects. Coding Games In Scratch guides young coders step-by-step, using visual samples, easy-to-follow instructions, and fun pixel art. This coding book for kids has everything you need to build amazing Scratch 3.0 games, including thrilling racing challenges, zany platform games, and fiendish puzzles. Follow the simple steps to become an expert coder using the latest version of the popular programming language Scratch 3.0 in this new edition. Improve your coding skills and create your own games before remixing and customizing them. Share your games online and challenge friends and family to beat each other's scores! In this book, you will: - Learn about setting the scene, what makes a good game and playability - Discover objects, rules, and goals - Explore hacks and tweaks, camera angles, fine-tuning and controls - And much more

Computer coding teaches kids how to think creatively, work collaboratively, and reason systematically, and is quickly becoming a necessary and sought-after skill. DK's computer coding books for kids are full of fun exercises with step-by-step guidance, making them the perfect introductory tools for building vital skills in computer programming. Add Coding Projects in Scratch and Coding Projects in Python to your collection.

Become a coding super-genius and create incredible projects with Scratch 3 - the newest version of the most powerful coding language for kids! This beautifully illustrated, hilariously written, and delightfully engaging step-by-step guide is designed for kids (ages 8+) to learn the fundamentals of coding and apply them to amazingly

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innovative projects. Readers will learn to use the incredible new features of Scratch 3 to build projects that not only teach them to code, but also inspire them to pursue today's most exciting frontiers of technology: Artificial Intelligence Video Game Bots Machine Learning Augmented Reality Multiplayer Computer Games The tried-and-true teaching methods featured in this book were developed by author Raj Sidhu and have been used to teach hundreds of thousands of children around the world how to code.

There is a lot of material on Scratch Programming on the Internet, including videos, online courses, Scratch projects, and so on, but, most of it is introductory. There is very little that can take students to the next level, where they can apply their Scratch and CS concepts to exciting and challenging problems. There is also very little material that shows students how to design complex projects, and introduces them to the process of programming. This book is meant to fill these gaps. In short, this book is for students who are already familiar with Scratch: its various commands, its user interface, and how it represents a variety of CS concepts such as, variables, conditional statements, looping, and so on. The book does not attempt to teach these concepts, but, it does provide a quick introduction to each concept in the free Supplement to the book. I call this an "interactive book" because it is something between a traditional book - which is static and passive - and a fully interactive online course. It does look like a book: it has a series of chapters, diagrams, a lot of text, etc. But it also contains links to online Scratch programs, code snippets, references, which the reader is expected to click and

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explore to fully benefit from the ideas presented. I have organized the book as a series of independent Scratch projects - each of which describes how to design and build an interesting and challenging Scratch program. Each project progresses in stages - from a simple implementation to increasingly complex versions. You can read these chapters in any order you like, although I have tried to arrange the chapters in an increasing order of challenge. Programming is a powerful tool that can be applied to virtually any field of human endeavor. I have tried to maintain a good diversity of applications in this book. You will find the following types of projects: -Simple ball games -Puzzle games -Memory games -Science simulations -Math games -Geometric designs

Learn the concepts: As the experts will tell you, concepts are really understood and internalized when you apply them to solve problems. The purpose of this book is to help you apply Scratch and CS concepts to solve interesting and challenging programming problems. Every chapter lists, at the very start, the Scratch and CS concepts that you will apply while building that project.

Learn the design process: Besides these technical concepts, you will also learn the "divide and conquer" approach of problem-solving. This is a fancy term for the technique of breaking down a bigger problem into many smaller problems and solving them separately one by one. You will also learn the "iterative design process" for designing programs. This is another fancy name that describes the idea that something complex can be designed in a repeated idea -> implement -> test cycle, such that in each cycle we add a little more complexity. You will also learn a bit of

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"project management". Project management helps you undertake a project, such as creating a complex program, and complete it in a reasonable time, with reasonable effort, and with reasonable quality. It involves things such as planning tasks, tracking their progress, etc. Audience for the book: The book is intended for students who are already familiar with Scratch. The level of challenge is tuned for middle- and high-school students, but elementary-school students who have picked up all the concepts in an introductory course might also be able to enjoy the projects presented in this book. The book would be a great resource for teachers who teach Scratch programming. They could use the projects to teach advanced tricks of programming and to show how complex programs are designed. Finally, the book is for anyone who wants to get the wonderful taste of the entertaining and creative aspect of Computer Programming.

A hands-on, application-based introduction to machine learning and artificial intelligence (AI) that guides young readers through creating compelling AI-powered games and applications using the Scratch programming language. Machine learning (also known as ML) is one of the building blocks of AI, or artificial intelligence. AI is based on the idea that computers can learn on their own, with your help. Machine Learning for Kids will introduce you to machine learning, painlessly. With this book and its free, Scratch-based, award-winning companion website, you'll see how easy it is to add machine learning to your own projects. You don't even need to know how to code! As you work through the book you'll discover how machine learning systems can be taught to recognize text, images, numbers, and sounds, and how to train your

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models to improve their accuracy. You'll turn your models into fun computer games and apps, and see what happens when they get confused by bad data. You'll build 13 projects step-by-step from the ground up, including:

- Rock, Paper, Scissors game that recognizes your hand shapes
- An app that recommends movies based on other movies that you like
- A computer character that reacts to insults and compliments
- An interactive virtual assistant (like Siri or Alexa) that obeys commands
- An AI version of Pac-Man, with a smart character that knows how to avoid ghosts

NOTE: This book includes a Scratch tutorial for beginners, and step-by-step instructions for every project. Ages 12+

The second edition of this best-selling Python book (over 500,000 copies sold!) uses Python 3 to teach even the technically uninclined how to write programs that do in minutes what would take hours to do by hand. There is no prior programming experience required and the book is loved by liberal arts majors and geeks alike. If you've ever spent hours renaming files or updating hundreds of spreadsheet cells, you know how tedious tasks like these can be. But what if you could have your computer do them for you? In this fully revised second edition of the best-selling classic *Automate the Boring Stuff with Python*, you'll learn how to use Python to write programs that do in minutes what would take you hours to do by hand--no prior programming experience required. You'll learn the basics of Python and explore Python's rich library of modules for performing specific tasks, like scraping data off websites, reading PDF and Word documents, and automating clicking and typing tasks. The second edition of this international fan favorite includes a brand-new chapter on input validation, as well as tutorials on automating Gmail and Google Sheets, plus tips on automatically updating CSV files. You'll learn how to create programs that effortlessly perform useful feats of automation to:

- Search

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for text in a file or across multiple files • Create, update, move, and rename files and folders • Search the Web and download online content • Update and format data in Excel spreadsheets of any size • Split, merge, watermark, and encrypt PDFs • Send email responses and text notifications • Fill out online forms Step-by-step instructions walk you through each program, and updated practice projects at the end of each chapter challenge you to improve those programs and use your newfound skills to automate similar tasks. Don't spend your time doing work a well-trained monkey could do. Even if you've never written a line of code, you can make your computer do the grunt work. Learn how in *Automate the Boring Stuff with Python, 2nd Edition*.

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

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and parents. For Ages 8 and Up

Learn to make interactive games with Scratch—the beginner-friendly, block-based programming language from the MIT Media Lab! Anna Anthropy, game designer extraordinaire, will show you how to do everything from building a game map to creating animations and debugging the end product. Take a peek inside the history of video game design, learn programming basics, and turn your ideas into creative games that you can play and share with your friends. Learn how to:

- Draw characters like a hungry, leaf-eating bug
- Animate characters—make them walk, jump, climb, and fall!
- Create objects for your player to collect and obstacles to avoid
- Design multiple levels to create a cave exploring platform game
- Create sound effects and music for your games
- Share your games online and use player feedback to improve your games

Isn't it time to Make Your Own Scratch Games? The world is waiting! Covers Scratch 3.0

Assembly is a low-level programming language that's one step above a computer's native machine language. Although assembly language is commonly used for writing device drivers, emulators, and video games, many programmers find its somewhat unfriendly syntax intimidating to learn and use. Since 1996, Randall Hyde's *The Art of Assembly Language* has provided a comprehensive, plain-English, and patient introduction to 32-bit x86 assembly for non-assembly programmers. Hyde's primary teaching tool, High Level Assembler (or HLA), incorporates many of the features found in high-level languages (like C, C++, and Java) to help you quickly grasp basic assembly concepts. HLA lets you write true low-level code while enjoying the benefits of high-level language programming. As you read *The Art of Assembly Language*, you'll learn the low-level theory fundamental to computer science and turn that understanding into real, functional code. You'll learn how to:

- Edit, compile, and run HLA

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programs –Declare and use constants, scalar variables, pointers, arrays, structures, unions, and namespaces –Translate arithmetic expressions (integer and floating point) –Convert high-level control structures This much anticipated second edition of The Art of Assembly Language has been updated to reflect recent changes to HLA and to support Linux, Mac OS X, and FreeBSD. Whether you're new to programming or you have experience with high-level languages, The Art of Assembly Language, 2nd Edition is your essential guide to learning this complex, low-level language.

The ScratchJr Coding Cards are a deck of 75 activity cards covering fun and exciting projects designed to educate young children with the visual programming language, ScratchJr. ScratchJr is a free, introductory computer programming language that runs on iPads, Android tablets, Amazon tablets, and Chromebooks. Derived from Scratch, the wildly popular programming language used by millions of kids worldwide, ScratchJr helps even younger children (5 to 7 years old) create their own playful animations, interactive stories, and dynamic games. The ScratchJr Coding Cards encourage kids to think creatively and systematically while developing computational thinking skills. Kids will learn powerful ideas about computer science by using ScratchJr programming blocks to make characters move, jump, dance, sing, and more. As they work through the deck, they will become creative thinkers and problem solvers. Written by the ScratchJr co-creator, Prof. Marina Umaschi Bers, and Dr. Amanda Sullivan, the exercises in ScratchJr Coding Cards will encourage kids to develop coding skills as well as foundational concepts for literacy, math, planning, and problem-solving, all while having fun. The cards are created using the pedagogical approach developed by Prof. Bers to teach coding in a playful way to young children.

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Java is the world's most popular programming language, but it's known for having a steep learning curve. Learn Java the Easy Way takes the chore out of learning Java with hands-on projects that will get you building real, functioning apps right away. You'll start by familiarizing yourself with JShell, Java's interactive command line shell that allows programmers to run single lines of code and get immediate feedback. Then, you'll create a guessing game, a secret message encoder, and a multitouch bubble-drawing app for both desktop and mobile devices using Eclipse, an industry-standard IDE, and Android Studio, the development environment for making Android apps. As you build these apps, you'll learn how to: -Perform calculations, manipulate text strings, and generate random colors -Use conditions, loops, and methods to make your programs responsive and concise -Create functions to reuse code and save time -Build graphical user interface (GUI) elements, including buttons, menus, pop-ups, and sliders -Take advantage of Eclipse and Android Studio features to debug your code and find, fix, and prevent common mistakes If you've been thinking about learning Java, Learn Java the Easy Way will bring you up to speed in no time.

A collection of ten themed activity card sets that introduces children to computer programming fundamentals using Scratch, a visual programming language developed by the Lifelong Kindergarten Group at the MIT Media Lab.

The ability to code will become an essential skill in a fast-changing future. Coding education is a part of the national curriculum in many countries, such as the UK, Finland, Japan, and China. Students are able to acquire computational thinking skills, which can help them to analyze and solve problems logically. CodingTime is a coding education academy located in Seoul, South Korea. For many years, we have helped students achieve their educational goals. This book

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will help students to excel in programming. Students will learn how to use the Scratch program to code in a fun and easy way. They can make algorithms and get a glimpse of mathematics and science principles used in programming, while building their own project.

An easy-to-use book, containing 10 engaging projects that will help you learn how to build video games with the easy to use Scratch 2.0 environment. If you are a new, or current Scratch user and would like to improve your understanding of the new Scratch 2.0 interface, and learn how to make video games, this book is ideal for you. Each project is explained in-depth from start to finish, so everyone can follow along, even if you don't have much previous experience with the software. If you want to become a video game designer, this book is an easy-to-use and friendly guide about the world of interactive media. It will teach, challenge, and inspire you to create great interactive projects.

A project-filled introduction to coding that shows kids how to build programs by making cool games. Scratch, the colorful drag-and-drop programming language, is used by millions of first-time learners worldwide. Scratch 3 features an updated interface, new programming blocks, and the ability to run on tablets and smartphones, so you can learn how to code on the go. In Scratch 3 Programming Playground, you'll learn to code by making cool games. Get ready to destroy asteroids, shoot hoops, and slice and dice fruit! Each game includes easy-to-follow instructions with full-color images, review questions, and creative coding challenges to make the game your own. Want to add more levels or a cheat code? No problem, just write some code. You'll learn to make games like:

- Maze Runner: escape the maze!
- Snaaaaaake: gobble apples and avoid your own tail
- Asteroid Breaker: smash space rocks
- Fruit Slicer: a Fruit Ninja clone
- Brick Breaker: a remake of Breakout, the brick-breaking classic

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Platformer: a game inspired by Super Mario Bros Learning how to program shouldn't be dry and dreary. With Scratch 3 Programming Playground, you'll make a game of it! Covers: Scratch 3

A hands-on introduction to coding that teaches you how to program bots to do cool things in the game you love--Minecraft! This book takes the robotic "turtle" method, and extends it to the 3D, interactive world of Minecraft. You've mined for diamonds, crafted dozens of tools, and built all sorts of structures--but what if you could program robots to do all of that for you in a fraction of the time? In Coding with Minecraft®, you'll create a virtual robot army with Lua, a programming language used by professional game developers. Step-by-step coding projects will show you how to write programs that automatically dig mines, collect materials, craft items, and build anything that you can imagine. Along the way, you'll explore key computer science concepts like data types, functions, variables, and more. Learn how to: - Program robots that make smart decisions with flow control - Reuse code so that your robots can farm any crop you want, including wheat, sugar cane, and even cacti! - Program a factory that generates infinite building supplies - Design an algorithm for creating walls and buildings of any size - Code yourself a pickaxe-swinging robotic lumberjack! - Create a robot that digs mine shafts with stairs so you can explore safely Bonus activities in each chapter will help you take your coding skills to the next level. By the end of the book, you'll understand how powerful coding can be and have plenty of robots at your beck and call.

Get a comprehensive, in-depth introduction to the core Python language with this hands-on book. Based on author Mark Lutz's popular training course, this updated fifth edition will help you quickly write efficient, high-quality code with Python. It's an ideal way to begin, whether

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you're new to programming or a professional developer versed in other languages. Complete with quizzes, exercises, and helpful illustrations, this easy-to-follow, self-paced tutorial gets you started with both Python 2.7 and 3.3—the latest releases in the 3.X and 2.X lines—plus all other releases in common use today. You'll also learn some advanced language features that recently have become more common in Python code. Explore Python's major built-in object types such as numbers, lists, and dictionaries Create and process objects with Python statements, and learn Python's general syntax model Use functions to avoid code redundancy and package code for reuse Organize statements, functions, and other tools into larger components with modules Dive into classes: Python's object-oriented programming tool for structuring code Write large programs with Python's exception-handling model and development tools Learn advanced Python tools, including decorators, descriptors, metaclasses, and Unicode processing

Comics! Games! Programming! Now updated to cover Scratch 3. 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 3, features an updated interface, new sprites and programming blocks, and extensions that let you program things like the micro:bit. 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

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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. Covers Scratch 3

The projects in *Junk Drawer Engineering* demonstrate that you don't need high-tech equipment to make learning fun—just what you can find in your recycling bin and around the house. Educators and parents will find this title a handy resource to teach children problem-solving skills and applied physics, all while having a lot of fun.

Scratch is a fun, free, beginner-friendly programming environment where you connect blocks of code to build programs. While most famously used to introduce kids to programming, Scratch can make computer science approachable for people of any age. Rather than type countless lines of code in a cryptic programming language, why not use colorful command blocks and cartoon sprites to create powerful scripts? In *Learn to Program with Scratch*, author Majed Marji uses Scratch to explain the concepts essential to solving real-world programming problems. The labeled, color-coded blocks plainly show each logical step in a given script, and with a single click, you can even test any part of your script to check your logic. You'll learn how to:

- Harness the power of repeat loops and recursion
- Use if/else statements and logical operators to make decisions
- Store data in variables and lists to use later in your program
- Read, store, and manipulate user input
- Implement key computer science algorithms like a linear search and bubble sort

Hands-on projects will challenge you to create an Ohm's law simulator, draw intricate patterns, program sprites to mimic line-following robots, create arcade-style games, and more! Each chapter is packed with detailed explanations, annotated illustrations, guided examples, lots of color, and plenty of exercises to help the lessons stick.

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Learn to Program with Scratch is the perfect place to start your computer science journey, painlessly. Uses Scratch 2

Build your own computer games with Scratch 3! Learn how to make fun games with Scratch--a free, beginner-friendly programming language from the MIT Media Lab. Create mazes, road-crossing games, and two-player games that keep score. Colorful pictures and easy-to-follow instructions show you how to add cool animations and sound effects to your games. You'll have hours of fun catching snowflakes, gobbling up tacos, and dodging donuts in space--while learning how to code along the way! Covers Scratch 3

Get kids building their own computer games in no time with DK Workbooks: Coding in Scratch: Games Workbook. Computer coding is quickly becoming a necessary and sought-after skill and many schools have incorporated it into their curriculum, beginning as early as kindergarten to ensure students understand the languages and uses of computer coding. This workbook is full of fun exercises and step-by-step guidance, making it the perfect introductory practice book to build vital skills in one of the fastest growing industries. Designed to support the Common Core State Standards, the DK Workbook series is developed with leading educational experts to build confidence and understanding. Each leveled workbook, for children ages 3 through 9, is packed with activities and challenges, offering the beneficial repetition and cumulative learning that lead to mastery. Children will learn about the history of programming, what coding is,

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arcade game design, and game development. Fact boxes on each page give a simple overview of the topics being covered, helping children get their bearings, review the basics, and often see an example of the task at hand.

Practical Deep Learning teaches total beginners how to build the datasets and models needed to train neural networks for your own DL projects. If you've been curious about machine learning but didn't know where to start, this is the book you've been waiting for. Focusing on the subfield of machine learning known as deep learning, it explains core concepts and gives you the foundation you need to start building your own models. Rather than simply outlining recipes for using existing toolkits, Practical Deep Learning teaches you the why of deep learning and will inspire you to explore further. All you need is basic familiarity with computer programming and high school math—the book will cover the rest. After an introduction to Python, you'll move through key topics like how to build a good training dataset, work with the scikit-learn and Keras libraries, and evaluate your models' performance. You'll also learn:

- How to use classic machine learning models like k-Nearest Neighbors, Random Forests, and Support Vector Machines
- How neural networks work and how they're trained
- How to use convolutional neural networks
- How to develop a successful deep learning model from scratch

You'll conduct experiments along the way, building to a final case study that incorporates everything you've learned. The perfect introduction to this dynamic, ever-expanding field, Practical Deep Learning will give you the skills and confidence to dive

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into your own machine learning projects.

Scratch 3 Programming Playground Learn to Program by Making Cool Games No Starch Press

It's easier to learn how to program a computer than it has ever been before. Now everyone can learn to write programs for themselves - no previous experience is necessary. Chris Pine takes a thorough, but lighthearted approach that teaches you the fundamentals of computer programming, with a minimum of fuss or bother. Whether you are interested in a new hobby or a new career, this book is your doorway into the world of programming. Computers are everywhere, and being able to program them is more important than it has ever been. But since most books on programming are written for other programmers, it can be hard to break in. At least it used to be. Chris Pine will teach you how to program. You'll learn to use your computer better, to get it to do what you want it to do. Starting with small, simple one-line programs to calculate your age in seconds, you'll see how to write interactive programs, to use APIs to fetch live data from the internet, to rename your photos from your digital camera, and more. You'll learn the same technology used to drive modern dynamic websites and large, professional applications. Whether you are looking for a fun new hobby or are interested in entering the tech world as a professional, this book gives you a solid foundation in programming. Chris teaches the basics, but also shows you how to think like a programmer. You'll learn through tons of examples, and through programming

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challenges throughout the book. When you finish, you'll know how and where to learn more - you'll be on your way. What You Need: All you need to learn how to program is a computer (Windows, macOS, or Linux) and an internet connection. Chris Pine will lead you through setting set up with the software you will need to start writing programs of your own.

Learn how to program in Python while making and breaking ciphers—algorithms used to create and send secret messages! After a crash course in Python programming basics, you'll learn to make, test, and hack programs that encrypt text with classical ciphers like the transposition cipher and Vigenère cipher. You'll begin with simple programs for the reverse and Caesar ciphers and then work your way up to public key cryptography, the type of encryption used to secure today's online transactions, including digital signatures, email, and Bitcoin. Each program includes the full code and a line-by-line explanation of how things work. By the end of the book, you'll have learned how to code in Python and you'll have the clever programs to prove it! You'll also learn how to:

- Combine loops, variables, and flow control statements into real working programs
- Use dictionary files to instantly detect whether decrypted messages are valid English or gibberish
- Create test programs to make sure that your code encrypts and decrypts correctly
- Code (and hack!) a working example of the affine cipher, which uses modular arithmetic to encrypt a message
- Break ciphers with techniques such as brute-force and frequency analysis

There's no better way to learn to code than to play with

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real programs. Cracking Codes with Python makes the learning fun!

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