

Board Games

<https://KidsCodeCS.com/coding-steam-tools>

Some of the best ways to learn about programming are through board and card games. You don't need electricity or a computer. Here are fun games for little kids, bigger kids, and families. Playing these games as a family with younger kids also can help them more quickly understand the games, more than if they were to play the games by themselves.

Also look up chess, Go, Backgammon, and other traditional games which are fun to play and teach problem solving and strategy skills.



Robot Turtles

Robot Turtles is a great board game with some neat extensions like an online community where you can create your own game boards. These games sometimes let you replace the object you direct in the game with a person like your child, or a parent, adding another level of fun and engagement.
<http://thinkfun.com/robotturtles/>

Giggle Chips

A set of highly creative game cards created by a mom and her young doodling daughter that teach computer science concepts in a fun visual way.
<http://gigglechips.bigcartel.com/>



Code Monkey Island

This board game is full of programming, mysteries, and fun for kids ages 8 and older. If played as a family, it's likely younger kids will understand the game and have fun, too. Use cards to move a monkey around the island as kids learn strategic thinking, logic, and how to adapt.
<http://codemonkeyplanet.com/>

Code Master

This single player game, from the makers of Robot Turtles, has 60 levels you work through to learn programming logic. Only one path leads to the crystal and wins the game.
<http://thinkfun.com/codemaster>

Bits and Bytes

Bits & Bytes is a fun card game to teach kids basic computing skills: logic, problem solving, and critical thinking. The game is absorbing and flexible. No need for a computer.
<http://bitsandbytes.cards/>

Notable Women in Computing Card Deck

A traditional card deck with the photo, name, and short biography of women who have contributed to technology instead of the usual royalty and pips for the number cards. They can be used to play Fish and other classic card games. The makers also offer a card with women from the Middle East and Africa, as well as posters for both cards. It's also possible to download the poster and cards to print locally if you can't pay \$10 USD for cards or \$25 USD for the posters.
<http://notabletechnicalwomen.org/>

CodingFarmer

Players make their way to a farmhouse, navigating their tractors past rushing streams and dangerous rocks, while recharging at windmills, and relaxing at rest stops. Game can be played with instructions in English or Java code.
<http://bit.ly/2cMghWd>

CodingIsGood

Two-player card game for 10 years old on up. Basic, Intermediate, and Advanced cards let kids challenge each other in their knowledge of Python, an accessible programming language.
<http://bit.ly/1YhWVKo>

littlecodr

This deceptively simple card game for kids 4-8 lets them lay out a series of steps for their siblings and parents to follow. When they master the basic game, you can add more advanced cards.
<http://littlecodr.com/>

Robots

<https://KidsCodeCS.com/coding-steam-tools>

Robots are fun to build for many kids. These robots also can be programmed to move around rooms, perhaps through an obstacle course, as a fun way for kids to learn programming. They're also fun for parents to try with their kids or for older kids to master on their own.

Dash and Dot

These cute round robots from the Wonder Workshop are for kids elementary school age. Kids play with them to have fun and learn about technology. The Dash and Dot robots can be programmed with Blockly, a fairly easy language to master like Scratch. With Blockly you create a step, for example, play a sound, then define the sound as a lion roar. The combination of steps determines how the robot will move, when it will move, and what it will do.

<http://bit.ly/2cYpAWi>

Code-a-pillar

This Fisher-Price toy is a learning toy in the shape of a caterpillar. Kids experiment as they develop problem solving, planning, and critical thinking skills. Change its segments to make the caterpillar go different places.

<http://bit.ly/2cAbAjf>



© and ™ Lucasfilm Ltd.

Sphero

While they have evolved their cute round robots to celebrate Star Wars this fall, all their robots are fun, easy to use, and have a good path for kids (and adults) who want to do more. You'll need a phone or tablet to connect to your Sphero and direct it. Sphero software also includes OVAL, a C-like language if you want to learn to write code.

<http://sphero.com>



LEGO Mindstorms

Take the LEGO idea — easy to snap together parts to build things — and add icon based programming, wheels, legs, and other mobile pieces and you have LEGO Mindstorms. While you can build simple robots, it's more fun to build more complicated robots to do things and perform tasks. They can respond to touch and be controlled by a remote control. Mindstorms also includes an active online community with lots of ideas to try.

<http://mindstorms.lego.com>



Cubetto

This robot requires no computer screens, only play. Program the Cubetto robot with touch, pressing down block shapes in order to tell the robot what to do, in what order, and when. You also don't need to know English, or any language, to make the robot move. It's a clever idea geared towards younger kids. However, adults might find it fun to figure out, as well.

<https://primotoys.com>

STEAM Books

<https://KidsCodeCS.com/steam-books-2016>

Books can be a fun way to learn about computer science and programming. And fun for kids to work with parents on projects. Most programmers use books to look up code snippets and confirm how a language works. Here are a number of programming and computer science books that make great ideas for holiday gifts.



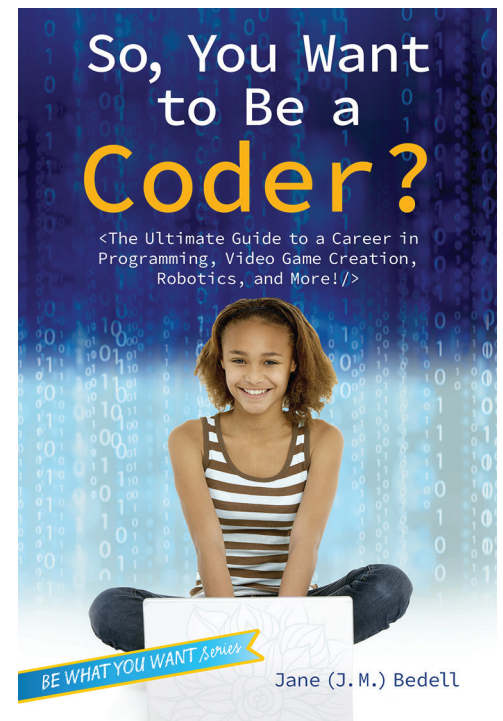
Lauren Ipsum

No Starch Press has re-issued a wonderful book, Lauren Ipsum, which explains computer science concepts in a fun and often wacky way similar to Alice in Wonderland. Teachers, parents, and kids will have to stop and re-read the text to realize they've learned a key concept used in computer science and computing.

<https://nostarch.com/laurenipsum>

The Big Book of Maker Space Projects

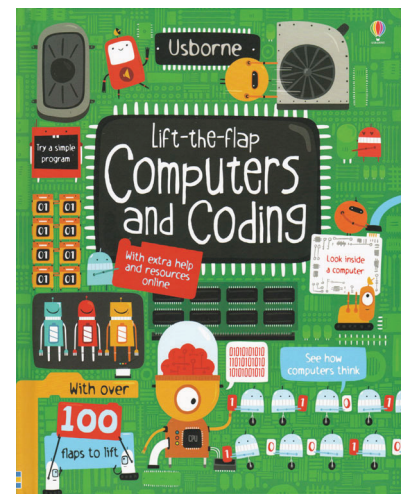
A shiny new book written by two school librarians who love hands-on, low-cost projects for all ages. Projects are classroom tested. They include wishlists on their



So You Want to be a Coder?

There are lots of ways to learn software programming languages and computer science. This book is about the other part of software programming: What do they do all day? What skills do programmers use and need to know?

<http://bit.ly/1ZxErnz>



Lift-the-Flap Computers and Coding

Over 100 flaps to learn how computers and programming works. Great for all ages (because most people don't know much about computers).

<http://bit.ly/2ceT6o9>



book site to make it easy to find what you need. Recyclable hacks, e-textiles, musical instruments, paper and sewing circuits, much more.

<https://colleengraves.org/bigmakerbook/>



CS Detective

In this detective story, you'll learn how to use algorithmic tools to solve a mysterious robbery case. Also look for his Computational Fairytale books.

<https://nostarch.com/searchtale>



LAUNCH

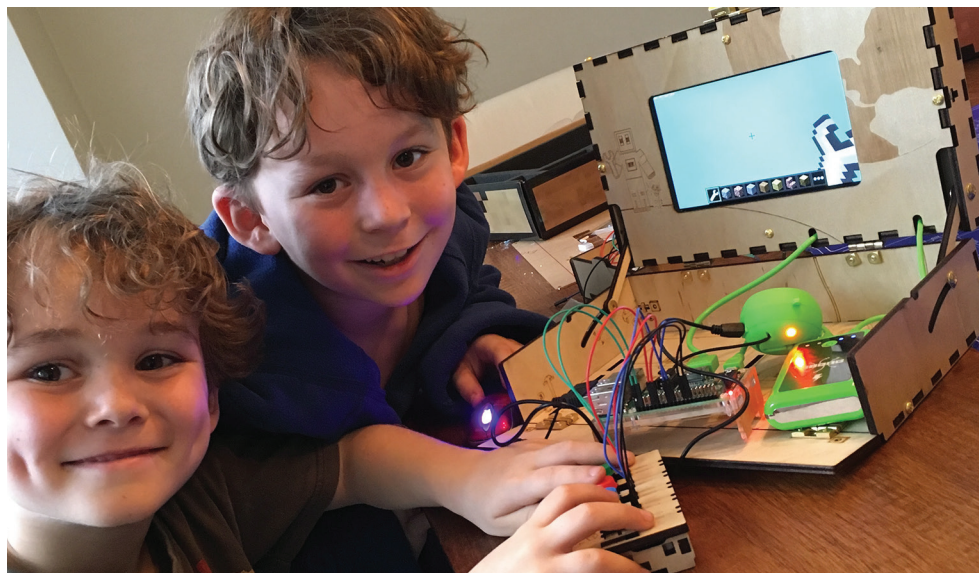
This book explores how teachers (and parents) can use design thinking to teach kids problem solving skills and how to tap into their creativity.

<http://thelaunchcycle.com/>

Electronic Kits

<https://KidsCodeCS.com/coding-steam-tools>

Today electronic kits often don't require soldering and other semi-risky skills. Kids and adults can snap together kits then tinker with hardware and software. It's great hands on fun, as well as a way to learn more in depth how computers work. Kits range in complexity from snap together to basic boards with lots of online tutorials. They make fun holiday gifts for older kids who have patience and persistence. Or adults with those skills.



Piper

Follow real engineering blueprints to build your own computer then use Pipercraft, a Minecraft mod, to configure it. You also can build gadgets with electronic boards. Steve Wozniak, co-founder of Apple, apparently loves Piper. Includes wood case.

<https://playpiper.com/>



Kano

This is a very simple snap together computer kit. The brains are powered by a Raspberry Pi and Kano includes an excellent operating system designed for kids. Also includes an online community to share ideas.

<https://kano.me>

Tech Will Save Us

Educational tech toys that are kits kids can build to mix building, craft, science, tech, coding, and fun. Their Mover Kit is like a DIY Jewelbots.

<https://techwillsaveus.com>



Little Robot Friends

These cute little robots respond to light, touch, voice, and infrared inputs. They also blink, beep, and buzz. Plus coding.

<http://littlerobotfriends.com/>

Jewelbots

An unusual but really neat idea for kids who want to create friendship bracelets with functionality they can code.

<http://jewelbots.com/>

Redfern

They sell their Crumble board with robot kits with motors, LEDs, and sensors. All programmable with a Scratch-like drag and drop language.

<https://redfernelectronics.co.uk/>



Find lots more to learn and do at <https://www.KidsCodeCS.com>

Coding Apps

<https://KidsCodeCS.com/coding-steam-tools/>

You can learn a little software programming and have lots of fun with any number of coding apps available for your phone or tablet computer. Plus there are websites like Tynker where you can build games. And there's also a fun service, Bitsbox, that delivers every month a bunch of games you can code and play.

Here are a few ideas to investigate.

There are many more at the link at the top of this article.

Hopscotch

This iPhone and iPad app uses blocks you drag and drop to create effects. Blocks are customized to do different things. It has a strong community of kids who often come up with creative ways to make games and have fun. Ages 5+

<http://gethopscotch.com>

Codea

If you are self-sufficient, don't mind looking up help, and like to take things apart, Codea is an iPad app to create games. You can adapt existing code or create from scratch. The app has lots of game functionality with few limits on what you can create. Ages 10+.

<http://twolivesleft.com/Codea/>

Erase All Kittens

A silly fun game where you learn and use HTML and CSS to save kittens who have mysteriously disappeared from the internet.

<https://eraseallkittens.com/>

Swiftie, Touch Lua, Python 3.4

For kids ready to code, there are apps that let you learn how to code with Swift (Swiftie), Lua (Touch Lua), and Python (Python for iOS). SoloLearn has a number of apps and languages. Look them up in the App Store and Google Play.



Bitsbox

Kids learn to code by making games on the Bitsbox.com website then play them on their phone or tablet. The games are quite clever with fun bright graphics. And it's easy for kids to adapt the code once they figure out the game, to learn and become comfortable with code. A new box of games arrives each month.. Ages 5 and up.

<http://bitsbox.com>

Tynker

Many US kids are familiar with Tynker in their classrooms because it was developed with the help of teachers and school districts, to meet their curriculum standards. Similar to Scratch and Hopscotch, Tynker is a block language where you drag and drop blocks then configure the blocks to do things. The main virtue of block languages apply here: it's easy and fun to move blocks around, find sprite images, and make the blocks do things. Ages 5+

<https://www.tynker.com/>

Move the Turtle

Geared towards little kids, you move a turtle around the screen by setting direction and the number of steps to create artwork and solve problems. With a little help to get started, most kids will figure it out. The game teaches basic coding ideas and sets them up nicely for block languages like Scratch, Hopscotch, and Tynker. <http://movetheturtle.com>

Run Marco!

A coding adventure game, in English plus 26 other languages. Kids use conditional logic and critical thinking skills to help Marco get through his adventures.

<https://allcancode.com/runmarco>

The Foos

This iPhone and iPad app helps kids ages 5-10+ work through levels where they can play and learn basic programming and computer science skills.

<https://thefoos.com/>