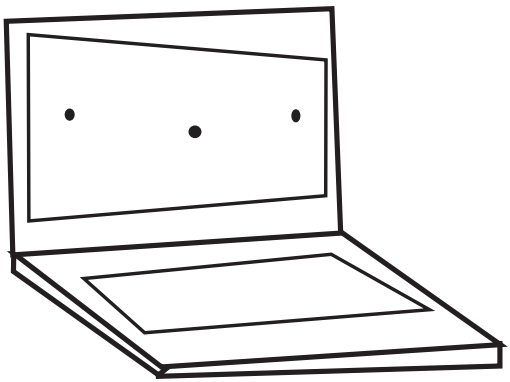
CODER time



LOS ANGELES
PUBLIC LIBRARY

Table of Contents

Coder Time

"I don't know what lies around the bend, but I'm going to believe the best does."

-Anne of Green Gables by L.M Montgomery

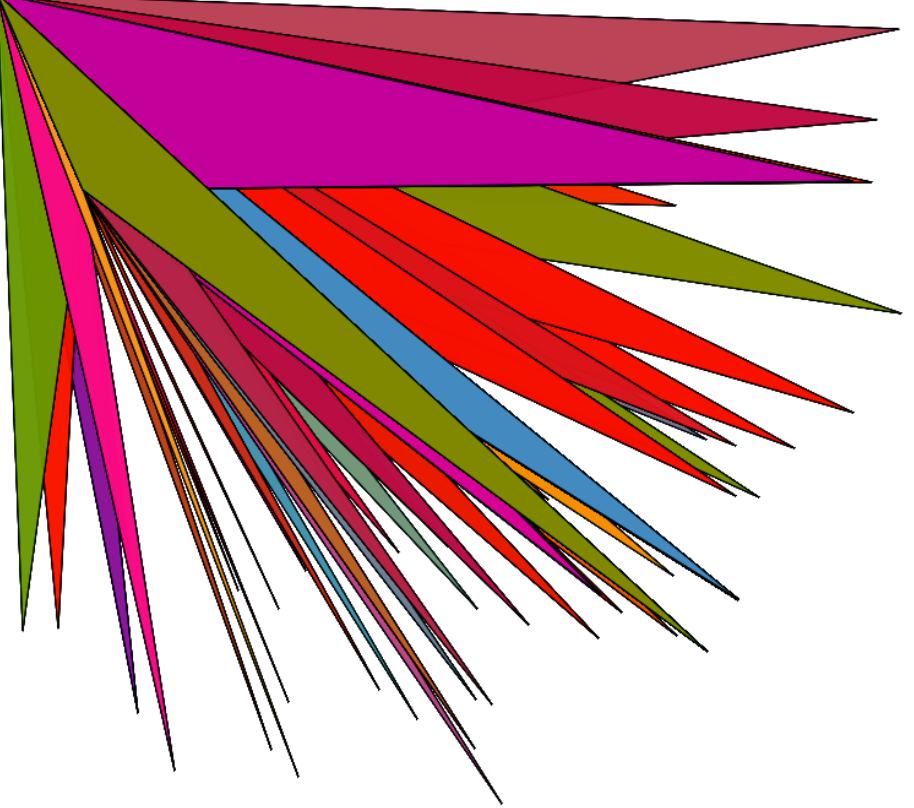
The Coder Time Story

Code, coding, programming- all describe the language used to communicate with computers.

But coding is so much more. When you learn how to code, you also gain an understanding of concepts beyond the language. This kind of thinking will lead you to a smarter relationship with technology and other people.

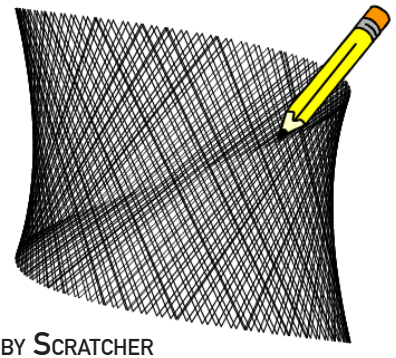
Coding is a tool that will help you do the things you've always wanted to do, because every field needs innovators, thinkers, and leaders.

Code Creates



Code creates cool stuff.
Like...

ART



BY SCRATCHER MACEIRATKA

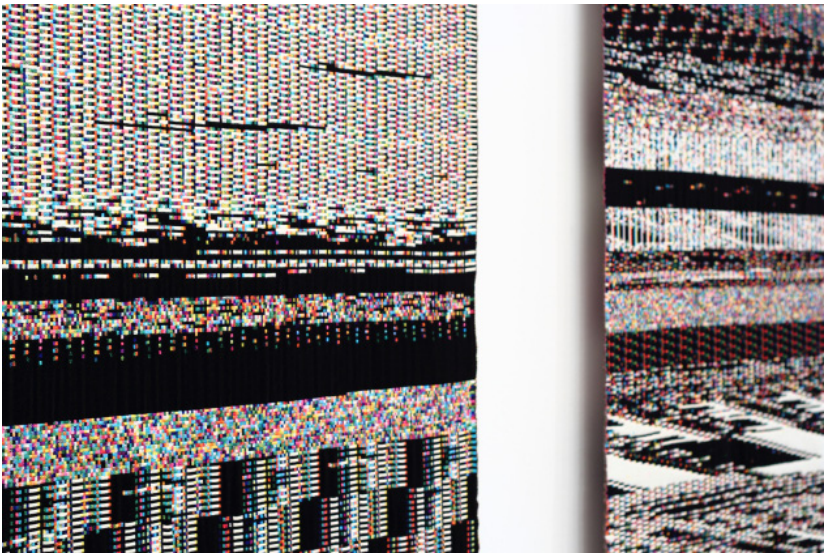
You can start making art right away with Scratch, a coding language for kids. Visit www.scratch.mit.edu to get started!

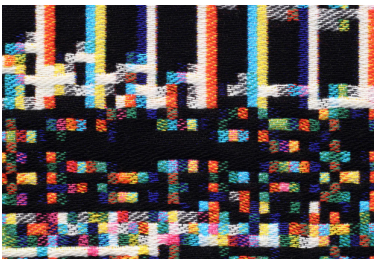
FORM AND CODE: Code is for designers, artists, and architects excited to explore how computer programming can change the way we think of form, ideas, and art. The book, Form+Code in Design, Art, and Architecture, offers a look at how we can use the coding language, Processing, in creative ways. Get inspired here: http://formandcode.com.

Adam Ferriss is an LA artist who uses code to make stuff like this background. Check him out at: http://adamferriss.com.

ART CONT.

FRAGMENTED MEMORY: Phillip Stearns uses code to design woven textiles. Check out his work at: phillipstearns.wordpress.com/fragmented-memory





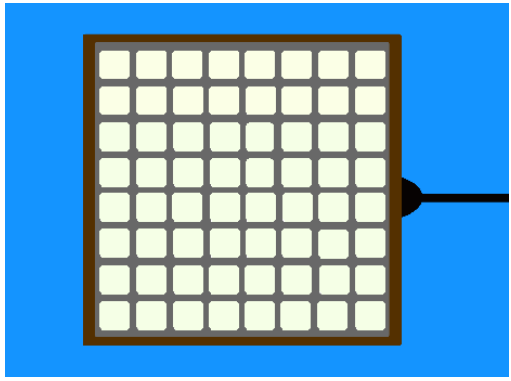
MUSIC

MONOME

Monome was created by Brian Crabtree and Kel-li Cain. It is a family of devices for the computer. With code, these magical boxes come alive. You can create programs that make animation, make music, write poetry, mix video, and more. Learn more at www.monome.org

***

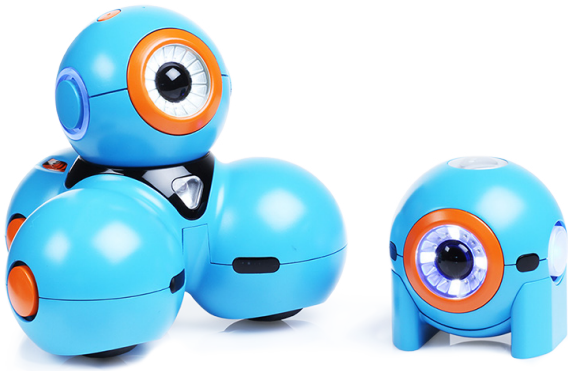
You can play with the Scratch version of a monome at http://scratch.mit.edu/projects/15589252. This project acts like a music sequencer. Make beats!



EDUCATION

"Problem solving through hands-on play time."
-Play-I

Play-i robots, Yana and Bo, teach young kids how to code! Check it out at: https://www.play-i.com.



"By fusing technology with robotics, our toys are teaching and inspiring tomorrow's inventors and innovators. Programming isn't easy, but you don't need to be a rocket scientist to give kids a strong foundation."

- Go Sphero

Learn more at: http://www.gosphero.com/education.

GAMES

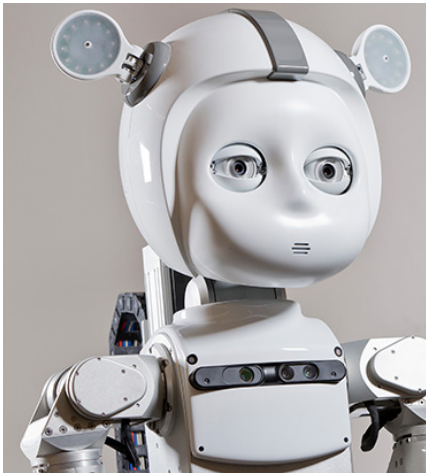
"The great thing about creating a video game is that it encompasses just about every creative activity ever imagined."

- Robin Hunicke, video game designer

Robin Hunicke is a video game designer who creates video games with code to try to create empathy between people and understand how people think and behave. She won the online innovation award for her Playstation 3 game, Journey.

"Bring your voice into my industry so I can play your video games when I retire!"

ROBOTS



Tesca Fitzgerald is interested in coding robots to learn from people. Learn more about Tesca here:

https://www.madewithcode.com/article#tesca-fitzgerald

"There's so much robots can do to help people."
- Tesca Fitzgerald, 17 years old

A BETTER WORLD

"Without code, I would never be able to reach millions of children around the world."

- Erika Kochi, Co-founder of UNICEF's Innovation Unit

Code allowed Erika to build communication system for hundreds of thousands of people. Because of code, 7 million births were registered in Nigeria and thousands of pregnant women were able to receive antenatal care across Rwanda. Learn more about Erika and UNICEF innovation here: unicef stories.org/tag/erica-kochi.

EPA Chica Squad: Four high school girls used code to make an app that helps clean up trash and graffiti in their community. Learn more about what they did here: http://www.womenyoushouldknow.net/

Coder Values

"You have brains in your head.
You have feet in your shoes.
You can steer yourself any direction you choose.
You're on your own.
And you know what you know.
And YOU are the one
who'll decide where to go!"

-Oh! The Places You'll Go! by Dr. Seuss

There's a story
behind and
created by
coding,
and that story
is yours to tell.

All you have to do is:

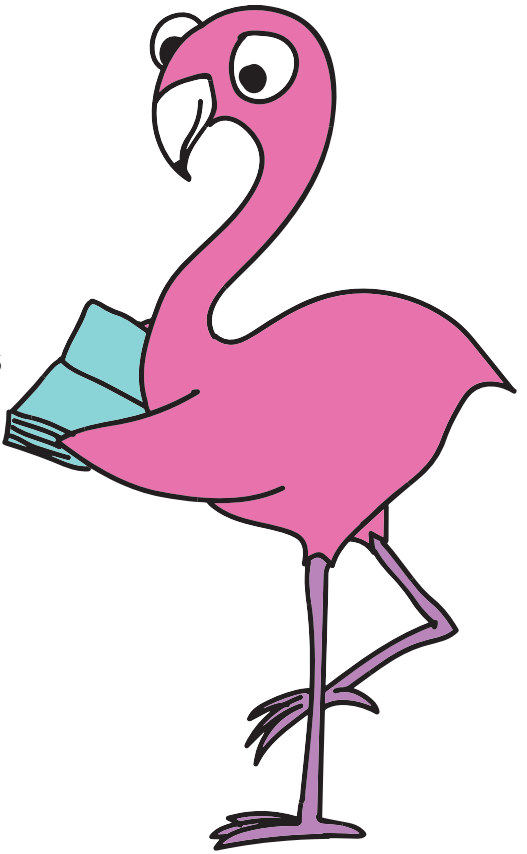
be hungry

IF YOU KEEP TRYING NEW THINGS,
YOU'LL NEVER BE BORED.
DON'T STOP WITH WHAT'S EASY.

read

"The more that you read, the more things you will know. The more you learn, the more places you'll go."

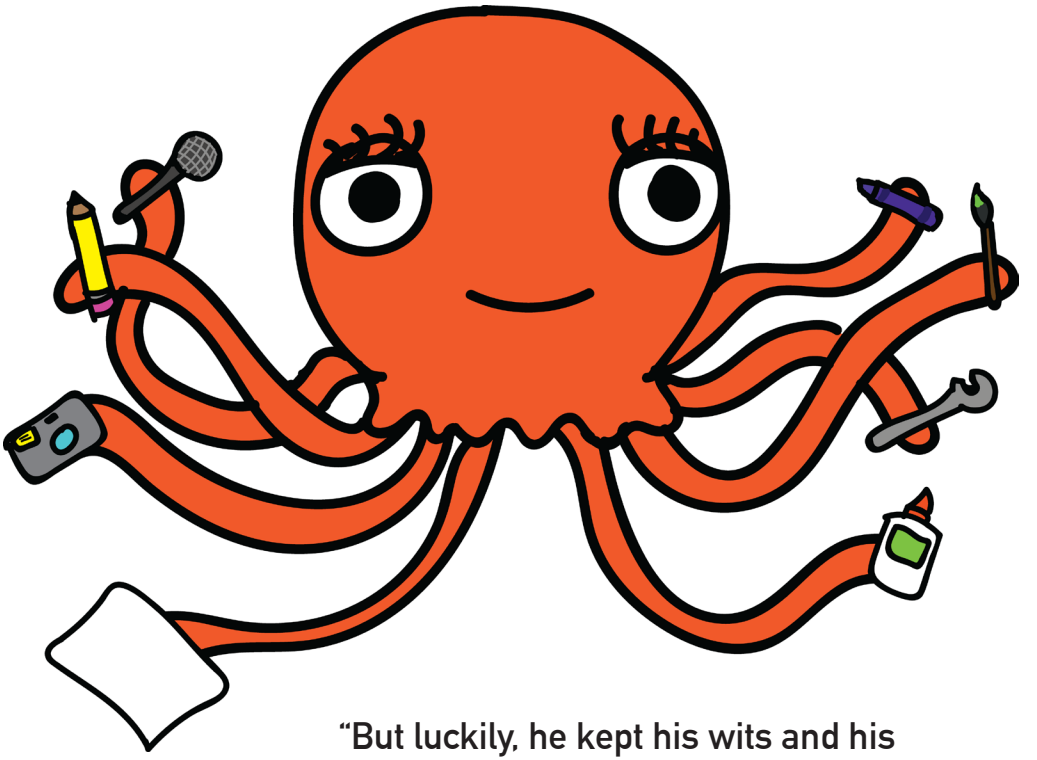
- Dr. Seuss



THE BEST THING YOU CAN DO TO LEARN IS READ.

READ EVERYTHING!

make



"But luckily, he kept his wits and his purple crayon. He made a balloon and he grabbed on to it."

-Harold and the Purple Crayon

USE YOUR HANDS!

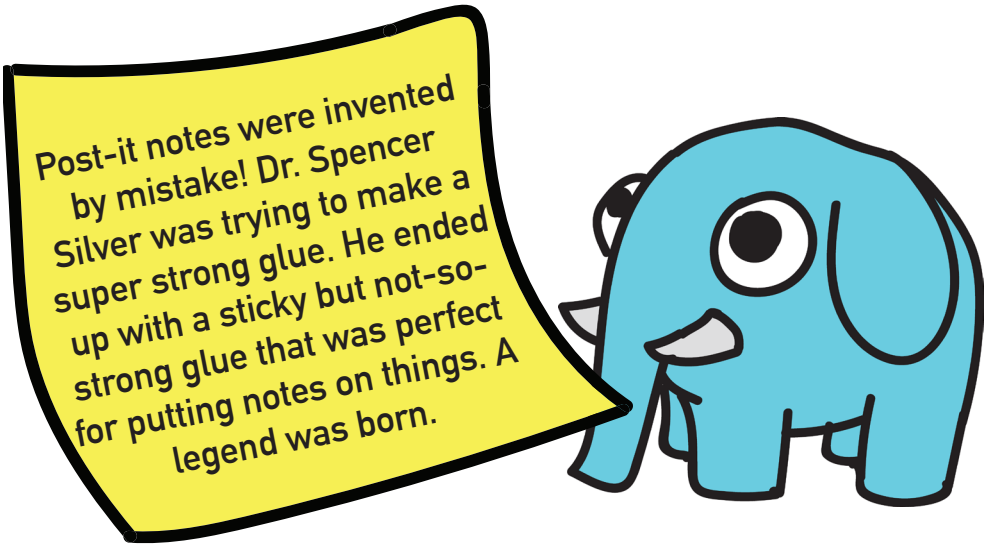
be creative

"When the light turns green, you go. When the light turns red, you stop. But what do you do when the light turns blue with orange and lavender spots?"

-A light in the Attic by Shel Silverstein

What do you imagine?
Complete the drawing.

make mistakes



"Failure tells you what you don't know, frustration is making sense of that failure in the moment, and taking action leads to a new way of knowing...."

- The Art of Tinkering
TInkering Tenets

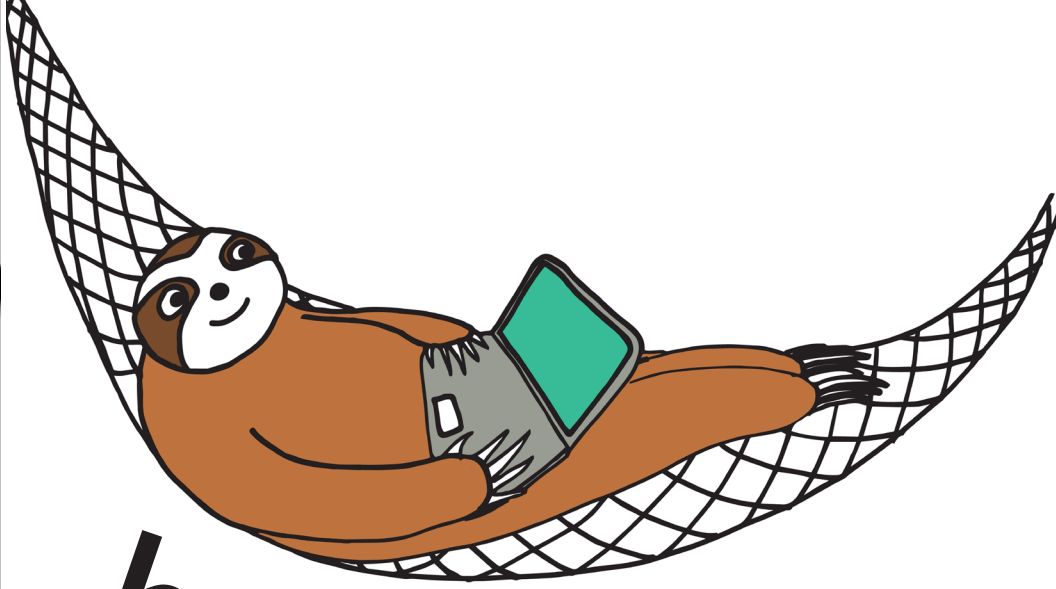
MAKE WITH YOUR MISTAKES.

be persistent

...and the itsy bitsy spider climbed up the spout again.

"Think left, think right, think low and think high. Oh, the thinks you can think up if only you try!"

-Oh! The things you can think! by Dr. Seuss

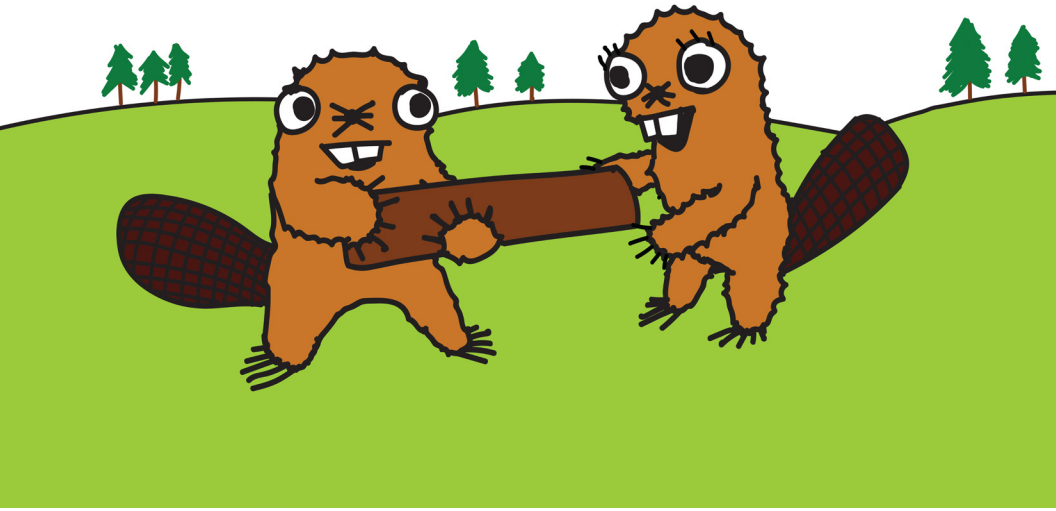


be lazy

Not that kind of lazy!

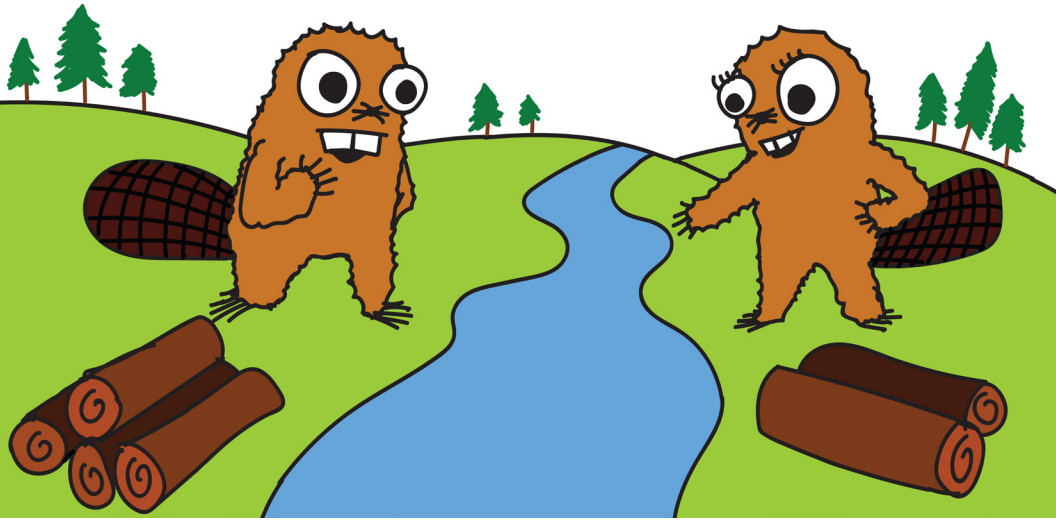
Let the computer do most of the work. Find ways to save time. There's always a better and faster solution.

share



"We share what we make, and

collaborate



HELP EACH OTHER MAKE WHAT WE SHARE.”

- MAKE MAGAZINE

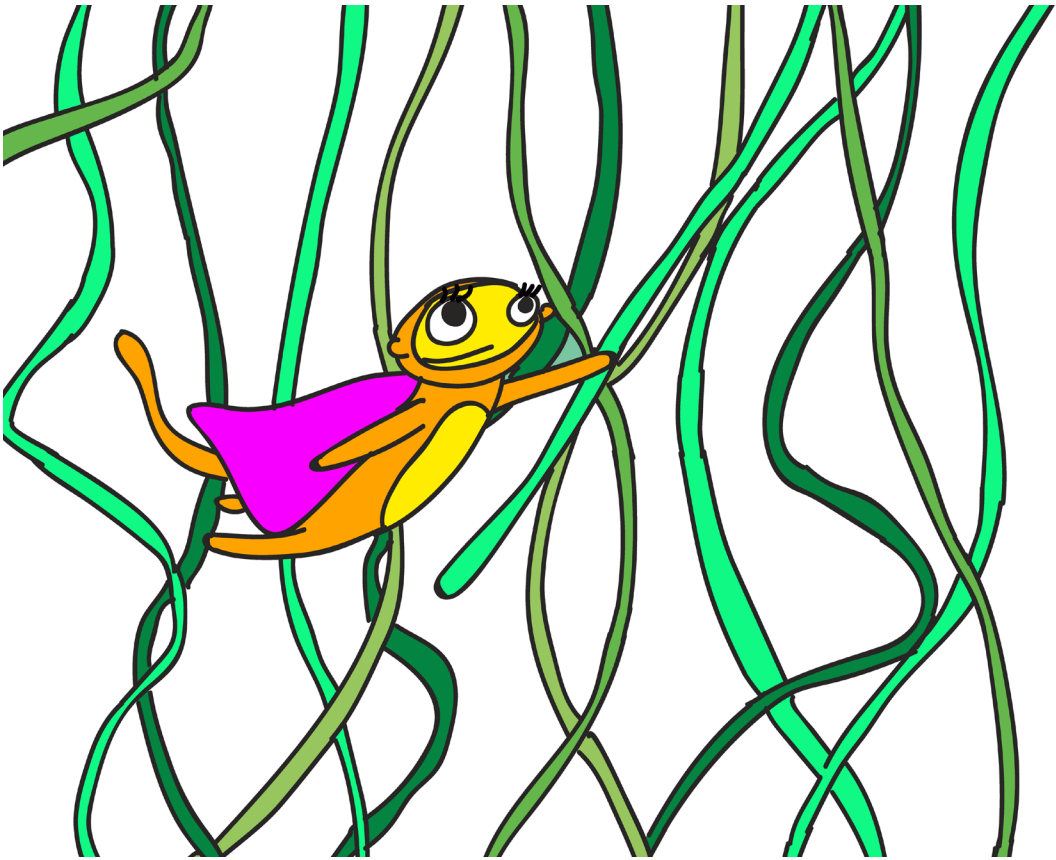
believe code is magic

CODE IS THE CLOSET THING WE HAVE TO MAGICAL POWERS.

YOU CAN MAKE ANYTHING OUT OF ALMOST NOTHING!

be brave

"You're braver than you believe, stronger than you seem, and smarter than you think."
-Winnie the Pooh by A.A Milne



"I AM NOT AFRAID OF STORMS FOR I AM LEARNING HOW TO SAIL MY SHIP."

-LITTLE WOMEN BY LOUISA MAY ALCOTT

Goals

"But all the magic I have known, I've had to make myself!"
-"Magic" from Where the Sidewalk Ends
by Shel Silverstein

Coder Time
Program goals

+ Create a space for code in libraries and schools

+ Provide facilitators with quality resources to begin their coding curriculum

+ Cultivate young minds

Anticipated project outputs

+ 200 kids ages 9-12 from schools and the Children's Literature Department of Los Angeles Public Library will participate in the Coder Time program

+ 9 LA's BEST sites will facilitate Coder Time

+ 180 students will travel to Central library to take part in Coder Time Day, Code0polis.

+ Student projects will be exhibited at Los Angeles Central Library

Coding goals

Coder Time participants will:

+ Write 800 lines of code

+ Learn coding concepts

+ Take what they've learned to create a final project for exhibition at the Los Angeles Central Library

+ Through code, be inspired to continue learning, reading, and making

Community Code of Conduct

1. Have fun!
2. Work hard.
3. Work together.
Help each other.
4. Respect others.
Respect materials.
5. Be responsible.
6. Save your work.

Facilitator Roles

"...When you tinker, you're going to mess up. you're going to get frustrated, fail, and maybe even break a thing or two. We call this getting stuck, and believe it or not, it's a very good thing..."

- Art of Tinkering
Tinkering Tenets

Communication

Empower students to experiment.
If a student is frustrated and struggling, avoid doing things for them, Instead, ask them:

What do you think you should do?
Why do you think it's not working?
What is your program doing?
What do you want it to do?

Praise their problem solving process, not just the outcome of it.

When possible, have the students teach each other. This is very helpful, especially when there is only one facilitator. Helping others makes students feel valued. Promote leadership in the space whenever possible.

Be open and honest. If you don't know the answer to a question, admit it and figure it out together.

Be enthusiastic! Honest enthusiasm is critical to a child's confidence. Coding can be frustrating for beginners (and professionals). A little cheerleading can make a student feel good about their progress and encouraged to continue.

Remember, everyone has bad days. Be persistent.

"It has been a terrible, horrible, no good, very bad day. My mom says some days are like that."

-Alexander and the Terrible, Horrible, No Good, Very Bad Day by Judith Vorst

Practice "Plussing"

Plussing Sessions (from YoungMakers.org)

Plussing sessions provide an opportunity for makers to pause and share their ideas, progress, challenges, and next steps with fellow participants and mentors. Plussing is a termed used at Pixar to mean "finding what's good about an idea and making it even better".

Here are questions you can ask:

- What is your project vision?
- What inspired you to pick this project?
- Do you know of other people who have done projects similar, or is this one-of-a-kind?
- What kinds of projects have you built in the past?
- What do you think the hard parts are going to be? What are the easier parts?

Why have plussing sessions?

- They give makers a chance to talk about their failures in a positive and constructive way.
- They give makers a chance to practice talking about their projects in advance.

It might take some time for students to come up with a project idea. Ask questions like, "What do you like to do?" to create an encouraging environment.

Documentation

Documentation helps programs survive. Coder Time focuses on the learning process, not only the product. That's why it's important to track student progress, reflect on activities, and take photos.

Here are some things you can use:

+ Track student coding progress on Code.org.

+ Encourage students to keep and use a coder journal. In this personalized journal, students can learn, ideate, and reflect.

+ Create a Google Community to document facilitator ideas and reflections.

+ Take photos. Hand a camera to a student and unlock their perspective! Be sure you have the appropriate photo release paperwork beforehand.

+ Build in Progress by MIT Media Lab: http://buildinprogress.herokuapp.com

"We celebrate other Makers — what they make, how they make it and the enthusiasm and passion that drives them."

- MAKE

Resources

"And above all, watch with glittering eyes the whole world around you because the greatest secrets are always hidden in the most unlikely places. Those who don't believe in magic will never find it."

-Charlie and the Chocolate Factory by Roald Dahl

Book list

Novels

Escape from Mr. Lemoncello's Library by Chris Grabenstein
Lauren Ipsum by Carlos Bueno and Ytaelena Lopez

Picture Books

Journey by Aaron Becker
Harold and the Purple Crayon by Crockett Johnson
Hello Ruby by Linda Luikas
Dot. by Randi Zuckerberg
A is for Array by Brandon J. Hanson
Rosie Revere, Engineer by Andrea Beaty
Beautiful Oops! by Barney Saltzberg
Violent the Pilot by Steve Breen
Papa's Mechanical Fish by Candace Fleming
Awesome Dawson by Chris Gall
If I Built a House by Chris Van Dusen
Anything is Possible by Giulia Belloni
How to Bicycle to the Moon to Plant Sunflowers by Mordicai Gerstein
Galimoto by Karen Lynn Williams
Monkey with a Tool Belt by Chris Monroe
Coppernickel, the Invention by Wouter van Reek
Iggy Peck, Architect by Andrea Beaty
Marvelous Mattie by Emily Arnold McCully
What Floats in a Moat? by Lynne Berry
The Most Magnificent Thing by Ashley Spires
The Boy who Harnessed the Wind by William Kamkwamba
Extra Yarn by Mac Barnett
That's How! by Christoph Niemann
Building Our House by Jonathon Bean
The Dot by Peter H. Reynolds
Leo the Maker Prince by Carla Diana
Hip Hop Speaks to Children: A Celebration of Poetry with a Beat, edited by Nikki Giovanni
When the Beat was Born: DJ Kool Herc and the Creation of Hip Hop by Laban Carrick Hill

Graphic Novels

Adventures in Cartooning by James Sturm
Plants vs. Zombies by Simon Swatman

Book list cont.

Graphic Novels Cont.
How Toons by Saul Griffith
Meanwhile by Jason Shiga

Code
Help your Kids with Computer Coding by DK Publishing
Invent your own Computer Games with Python by Al Sweigart
Python for Kids by Jason R. Briggs

Story Books
The Space Child's Mother Goose by Frederick Windsor
Girls Think of Everything by Catherine Thimmesh
Imaginative Inventions by Charise Harper
Here's What You Do When You Can't Find Your Shoe by Andrea Perry Brainstorm!
Stories of Twenty American Kid Inventors by Tom Tucker
Computational Fairytales by Jeremy Kubica
Children solve problems by Edward de Bono
11 Experiments That Failed by Jenny Offill
Captain Arsenio: Inventions and (Mis)adventures in Flight by Pablo Bernasconi
The Ultimate Guide to Charlie and the Chocolate Factory by Valarie Budayr and Roscoe Welply
And Then...Story Starters by M. H Clark

Nonfiction and Reference
The Book of Think by Marilyn Burns
Turn on the Lights- From Bed!: Electronic Inventions by Robert Carrow
The Kids' Invention Book by Arlene Erlbach
Mistakes That Worked by Charlotte Foltz Jones
What a Great Idea! Inventions That Changed the World by Stephen M. Tomecek
The new way things work by David Macaulay

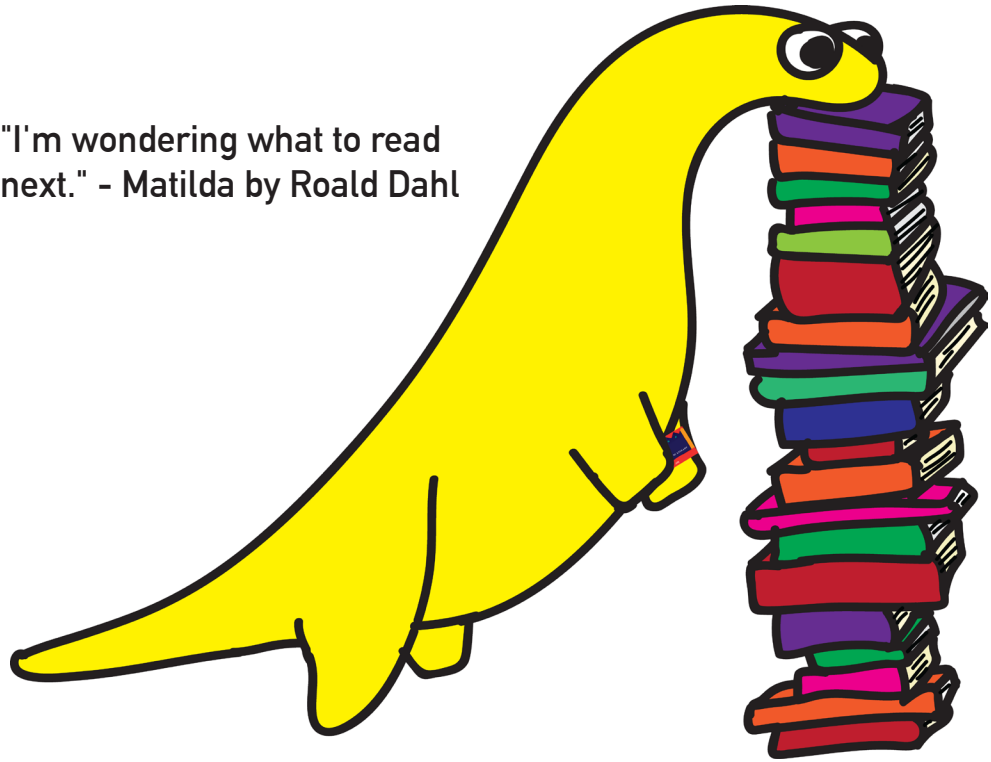
How-to
Learn to Draw Angry Birds by Walter Foster Creative Team
Origami for Fun by Thiranut Deborah Berry
Origami Games: Hands on Fun for Kids by Joel Stern

Bios
STEM Trailblazer Bios

Further exploration

Use your library!

"I'm wondering what to read next." - Matilda by Roald Dahl



"What do you think is the most amazingly incredible thing you'll find inside your wondrous new library, besides, of course, all the knowledge you need to do anything and everything you ever want or need to do?"

- Escape from Mr. Lemoncello's Library
by Chris Grabenstein

Get informed:

Mapping 21st Century skills to core science standards:
http://bit.ly/1Ah3cqc
http://bit.ly/1uDzrym

Early Foundation Framework:
http://bit.ly/1lGosVc

Learn:

Google's resources:
http://bit.ly/1wc4Fxw

Code and handouts:
http://cse4k12.org/

Scratch Learner guide:
http://bit.ly/1qD57TD

Variables:
http://bit.ly/1rhs4tb

Hour of code with Touch Develop:
https://www.touchdevelop.com/hourofcode2

Computational Thinking Illustrated
http://bit.ly/XwHeD1

Treehouse
https://teamtreehouse.com/gateways/lapl/signup

Get Inspired!

Made with Code
https://www.madewithcode.com/

Learn to Teach:

Plussing:
http://bit.ly/1lnNPWE
http://bit.ly/1pzl5u5

Scratch Workshop design:
http://bit.ly/1upeV5n

Scratch Creative Computing Guide
http://bit.ly/1wAOQBL

Khan Academy Computer Science
http://bit.ly/1oORRHG

Creative Computing Scratch Curriculum guide:
http://bit.ly/1eDF2MW

Media Mashup:
http://mediamashup.ning.com/

Scratch booklet:
http://bit.ly/1o8XH7b

Scratch Tutor guide:
http://bit.ly/1quOPxn

Digital Storytelling:
http://bit.ly/1lGolc8

Unplugged:
http://csunplugged.org/intelligent-paper

Family Creative Workshop Facilitator Guide:
http://family.media.mit.edu/guide/FCL_Guide_20140817.pdf

Create with Computers:
http://www.createwithcomputers.weebly.com

Inspiration

Young Makers: www.youngmakers.org
DIY Girls: www.diygirls.org
Linda Luikas of www.helloruby.com
Maker Education Initiative: www.makered.org
Maker Camp: www.makercamp.com
MIT Media Lab: www.media.mit.edu
Coders and Creators everywhere!

Creators of Coder Time

Joanna Fabicon: Children's Librarian II at LA Central Library
Sylvia Aguiñaga: MLIS Graduate Student

Coderzine

Made by Sylvia Aguiñaga
Coder Values illustrated by Scott Fish

Partners

Jennifer Cano and LA's Best
Los Angeles Public Library

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Connect

#CentralCoderTime
@coderzine
codertime.lapl@gmail.com

“Anything can happen child. Anything can be.”
-Where the Sidewalk Ends by Shel Silverstein