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## CODING AS A PRACTICAL LIBRARY PROGRAM

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### Steps to Planning Coding Programs

- Pre-Planning
  - Know Your Community - Needs & Opportunities
  - Know Your Library
  - Know Your Goals
- Planning
  - What kind of program, in what format?
  - What audience(s)?
  - What technology does it need? What do you already have?
  - What's your budget, both costs and funding sources?
  - Who are your instructors?
  - How do you market it?
  - What challenges can you prepare for?
- Measuring - what to measure and how?
- Implementing
- Learning
  - What worked? What didn't? What *almost* did?
  - What lessons did you learn? How can you do it better next time?
  - What other people do you need to get involved?
- Keeping Up - ideas for the next time

### Libraries to Look At

Arlington Heights (IL) Public Library - <code>breakers for teens  
<http://www.ahml.info/content/breakers-diy-video-game>

Boise Public Library - BoiseCodes initiative  
<http://www.boisepubliclibrary.org/boisecodes/>

Denver Public Library - Adult classes & teen DevCamps  
<http://www.denverlibrary.org/event/adult/learn-python-3>

Grand Rapids (MI) Public Library - Teen (Tech)Knowledgey Camp  
<http://www.grpl.org/teen-techknowledgey-camp/>

Louisville (KY) Free Public Library - Code Louisville  
<http://www.codelouisville.org/>

unBound, Meridian (ID) Library District - tech-centric branch w/classes & programs  
<http://mldunbound.org/>

DoSpace, Omaha Public Library - tech-centric branch w/classes & programs  
<http://www.dospace.org/>

San Jose Public Library - Partnerships with KidzKode.org and MathAndCoding.org  
[https://events.sjpl.org/calendar?event\\_types\[\]=34320](https://events.sjpl.org/calendar?event_types[]=34320)

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## Pre-Planning

### Community Needs

Ask local agencies, workplace investment/development boards & small business owners:

- What jobs aren't being filled?
- What skills do these folks need to have? Specific languages/platforms?
- What neighborhoods or communities are most in need?

Ask patrons what skills do they think they need? What jobs would they apply for if they had the skills?

Is someone already doing this training in your community?

Do they need space/computers? How can you partner?

### Opportunities

Are there large companies/tech firms that need people? Are they willing to do pre-hire training programs?

Are there local high schools/tech schools/colleges with students who need or could provide training?

What are the local K-12 schools already doing to promote STEAM/coding? How about local afterschool programs or summer camps? Can you piggy-back on their efforts?

### Library

**Staff skills:** Who can teach? Who can participate and then become a teacher? Look at ALL of your staff for possible instructors - explore their hidden talents.

**Enthusiastic staff:** They don't have / don't want the skills, but they think this is *awesome* and can be supportive allies for word of mouth & staff buy-in.

**Physical space:** Where could you do this programming? Now or with additional funds?

**Technology:** What do you already have to facilitate coding programs? Older laptops are fine - basic coding doesn't need more than a text editor.

**Marketing:** How do you already promote programs? Will the audiences you're already reaching want this, or will you need to find new ways of marketing to new audiences? What else could you try?

### Goals

What do you want to achieve through this program?

- Demystifying coding through fun
- Pre-coding concepts
- Coding basics
- A finished product or portfolio
- Job preparation
- School support

How will you measure starting knowledge? Ending knowledge?

How will you measure outcomes?

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## Planning

### Type of Program

**Demystifying Coding:** Using non-technical or simple technical tools to introduce the basic concepts of coding (e.g., DIY jewelry, early ed games/toys, “unplugged” activities)

**Coding Basics/Intermediate:** In-person or online classes in HTML/CSS, Javascript, Python, Ruby/Rails, website development/design, CMS modules/customized themes, Excel macro development, app/webkit development, something identified in surveys

**“Fun” Coding:** Game development, app making, Minecraft coding, robots, toys & games

**Meetups or Peer2Peer learning:** Interested folks come together to teach each other with some or no library facilitation

### Format of Program

- Hands-on, standard computer class style
- Online learning, with or without facilitation
- Interactive Q&A or meetup style
- Games & activities
- Crafts and other non-tech projects
- Unconferences or miniconferences?

### Audience

- Kids
- Teens
- Job-Seekers - older teens & adults
- General interest adults
- Family / Multi-generational

### Technology

What do you need? What do you already have?

What can you get donated or borrow?

Can you work in someone else’s space?

### Budget

#### Costs

- Technology
- Space
- Staff
- Outside Instructors
- Support materials (craft supplies, paper, etc.)

#### Available Funds

- Line item - programs, technology, support
- Friends/Foundation funds
- Grants
- Sponsors
- Gifts / Trust funds

### Instructors

- Staff
- Volunteers
- Community Partners
- Paid Instructors
- Online Resources

#### Look for Options

- [MathAndCoding.org](http://MathAndCoding.org)
- [KidsKode.org](http://KidsKode.org)
- [StemBusUSA.org](http://StemBusUSA.org)

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**Marketing**

What new marketing modes do you need to reach new audiences?

- Social media
- Schools & camps
- Job/career centers

Who can you partner with?

Who can be part of your word of mouth campaign?

**Challenges**

What challenges do you already see?

What back-up plans can you prepare now? What alternatives do you have to canceling?

Who can pick up if you need to drop the ball?

**Measuring**

What do you measure?

- Door / Seat Count
- Participation / Completion Rates
- Satisfaction Ratings
- Testimonials
- Job Acquisition / School Success #s

How do you measure it?

- Surveys
- Quizzes
- Projects
- Built-in Measures in Online Platforms/  
Software

**Learning**

What worked? What *almost* worked? What didn't work at all?

Where do you need more brains for brainstorming solutions? Outside-the-library people?

What can you do again or expand on easily, to build on your success? What needs work?

What did you learn about this kind of program? About your library? About your community?

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## Resources

### Online Resources

Lynda.com	Tynker.com
Treehouse.com	edX.org & its partners
Code.org (Hour of Code / Beyond an Hour)	w3schools.com
CodeAcademy.com	JSFiddle.net
Stemfinity.com	

### Traditional Tools

Text Editors (Sublime Text, Notepad)	Scratch, Scratch Jr.
Dreamweaver (optional)	JavaScript, Python, HTML/CSS
myPHP & mySQL	Arduino, Raspberry Pi

### Gadgets & Toys

Dot & Dash	Cubetto
Code-a-Pillar	Makey Makey
Puzzlets	LittleBits

### Robots, Games & Apps

Lego Mindstorms	Cubelets @ modrobotics.com
Sphero / SPRK edition	Minecraft
Kibo Robots	AppyPie.com
Finch Robots	Stencyl.com

### Unplugged Coding

Computer Programming Unplugged @ STEM In Libraries <a href="http://steminlibraries.com/2015/03/14/week-two-computer-programming-unplugged/">steminlibraries.com/2015/03/14/week-two-computer-programming-unplugged/</a>	Code Crackers @ STEM in Libraries <a href="http://steminlibraries.com/2015/10/21/code-crackers/">steminlibraries.com/2015/10/21/code-crackers/</a>
DIY Coding Jewelry @ Design Mom <a href="http://www.designmom.com/2016/03/diy-coding-jewelry/">www.designmom.com/2016/03/diy-coding-jewelry/</a>	Conditionals with Cards @ code.org <a href="http://code.org/files/ConditionalsHoC.pdf">code.org/files/ConditionalsHoC.pdf</a>
	<i>Karel J Robot</i> series by Joseph Bergin

### Employment Data & Job Skill Resources

State / local workplace development/investment boards (WIB)  
Examples from California: [www.cwdb.ca.gov/local\\_boards.htm](http://www.cwdb.ca.gov/local_boards.htm)

Bureau of Labor Statistics / Occupational Outlook Handbook - [www.bls.gov/ooh](http://www.bls.gov/ooh)

US Department of Labor - [www.doleta.gov](http://www.doleta.gov)

- [www.Workforce3one.org](http://www.Workforce3one.org) - resource for WIBs
- [www.CareerOneStop.org](http://www.CareerOneStop.org)
- [www.myskillsmyfuture.org](http://www.myskillsmyfuture.org)
- [www.mynextmove.org](http://www.mynextmove.org)
- [www.doleta.gov/grants/find\\_grants.cfm](http://www.doleta.gov/grants/find_grants.cfm)

### Training Resources

- Training Journal - [www.trainingjournal.com](http://www.trainingjournal.com)
- Association for Talent Development - [www.td.org](http://www.td.org)
- Society for Human Resource Management - [www.shrm.org](http://www.shrm.org)
- National Human Resources Association - [humanresources.org](http://humanresources.org)

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**Library Resources**

Library Resources

- ALA TechSource
- Library of the Future / ALA Transforming Libraries
- International, national, state, and local library organizations
- Professional journals

## Library Conferences

- code4lib
- LibTech
- Computers in Libraries / Internet Librarian

**Related Resources**

Nonprofit Technology Network (NTEN)  
[www.nten.org/](http://www.nten.org/)

Chronicle of Higher Ed  
[chronicle.com/blogs/wiredcampus/](http://chronicle.com/blogs/wiredcampus/)

**Mainstream Resources**

*The Atlantic*  
[www.theatlantic.com/technology/](http://www.theatlantic.com/technology/)

*The Economist* (Tech Quarterly)  
[www.economist.com/technology-quarterly](http://www.economist.com/technology-quarterly)

The Huffington Post  
[www.huffingtonpost.com/tech/](http://www.huffingtonpost.com/tech/)

*The New York Times*  
[www.nytimes.com/technology](http://www.nytimes.com/technology)

The Wall Street Journal  
[www.wsj.com/news/technology](http://www.wsj.com/news/technology)

The Washington Post  
[www.washingtonpost.com/business/technology](http://www.washingtonpost.com/business/technology)

**Tech News**

TechCrunch.com

ZDNet.com

ArsTechnica.com

Slashdot.org

Hacker News  
[news.ycombinator.com](http://news.ycombinator.com)

**Gadgets**

Gizmodo.com

Engadget.com

CNET.com

Gizmag.com

The Verge - Tech  
[www.theverge.com/tech](http://www.theverge.com/tech)

Kickstarter Technology projects  
[www.kickstarter.com/discover/categories/technology](http://www.kickstarter.com/discover/categories/technology)

**Tech Conferences**

CES  
[cesweb.com](http://cesweb.com)

Digital Entertainment World (DEW)  
[dewexpo.com](http://dewexpo.com)

E3, the Electronic Entertainment Expo  
[e3expo.com](http://e3expo.com)

Game Developers Conference (GDC)  
[gdconf.com](http://gdconf.com)

Mobile World Congress  
[mobileworldcongress.com](http://mobileworldcongress.com)

Nonprofit Technology Conference (NTC)  
[www.nten.org/ntc/](http://www.nten.org/ntc/)

SXSW Interactive  
[www.sxsw.com/interactive](http://www.sxsw.com/interactive)

TecHomeX  
[techomex.com/](http://techomex.com/)