A Simple Maker Project:

ELECTRICITY

LED MAKER KIT INSTRUCTIONS: MAKE the world a little **BRIGHTER**!

1. Place LED (Light Emitting Diode) by pushing both pins through paper. HINT: you may need to poke two holes in paper first.
2. Position Lithium Coin Battery so that the longer pin touches the + side of the LED light, and the shorter pin touches the – side.
3. Use Tape Strip to hold in place.

BE SAFE: *Use as directed. Keep Lithium Coin Battery out of the reach of small children. Seek medical attention if ingested.*

Less than $1.00 per person for a maker program!

The price can be lower if you purchase in bulk, or use bookmarks and stickers you already have.

MATERIALS	WHAT WE GOT & WHERE WE PURCHASED	PRICE / KIT
LED LIGHTS	Gikfun 4 color 10mm Bright LED Light for Arduino. Available through Amazon; $8.98 for a pack of 20 lights.	$0.45
LITHIUM COIN BATTERIES	CR2032 Lithium 3V Batteries. Available through Amazon; $10.05 for 50 batteries (10 cards with 5 batteries each).	$0.20
BOOKMARKS	We used free promotional bookmarks, but in future we would use plain cardstock cut into strips so that makers can decorate their bookmark around the light feature.	$0.02
TAPE OR STICKER	We used the clear stickers our Technical Processing department puts over spine labels. You could use anything sticky that can lay over the battery – from scotch tape to the clear or colorful 2" sticker of your choice.	$0.03
TOTAL		$0.70

REFERENCES: www.instructables.com: LED Bookmark

Two Sample Concept Paths:

CONCEPT PATHS ALLOW US TO:

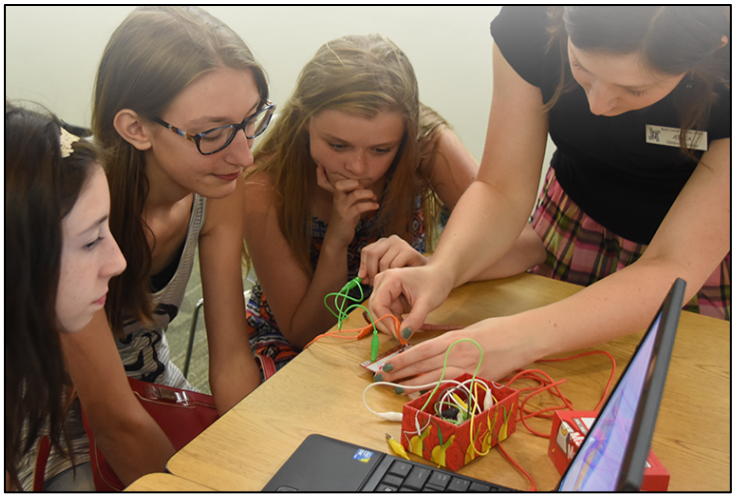
- Provide technology access to different age groups and skill levels
- Provide programs of varying lengths
- Build concepts and skills using increasingly more sophisticated technologies

CODING

1. Ozobots or Scratch
2. Sphero
3. Mindstorm
4. Arduino or Raspberry Pi

ELECTRICITY

1. Makey Makey
2. Snap Circuits
3. Circuit Scribe or Little Bits
4. Arduino or Raspberry Pi



OTHER CONCEPT PATHS:

- Fabrication (Eggbot, 3D Printing, CNC, Laser Cutting)
- Design (Vector Graphics, CAD, Photoshop/Gimp)
- Audio / Video Production (simple cell phone videos to professional level)

Maker Vocabulary:

DEFINING, ILLUMINATING, AND JARGON-BUSTING

21st CENTURY LITERACIES: Just as literacy has always defined the shared collection of cultural and communicative practices of a people, these literacies recognize (and forecast) changes to computer-based information environments. These include using technology tools; designing and sharing information online; and creating, critiquing, and evaluating multimedia texts.

CAD: Acronym for Computer Animated Design

CNC: Acronym for Computer Numerical Control router, a cutting machine.

CODING: Creating or altering computer programs.

FAB LAB: Short for Fabrication Laboratory. MIT-trademarked makerspaces.

HACK: To alter computer code or objects to do something they were not originally intended to do.

HACKERSPACE: A place for hacking, collaborating, learning, and sharing.

MAKE: To bring into existence by shaping or changing material, combining parts, etc.

MAKER: A person who makes.

MAKERSPACE: A place for making, collaborating, learning, and sharing.

PROGRAMMING: The action or process of writing computer programs.

PUBLIC LIBRARIAN: Public employee who facilitates access to library resources and information.

PUBLIC LIBRARY: Public institution providing access to the tools and resources needed to obtain information and information literacies.

RASTER IMAGE: Image created from bitmapped pixels. These can degrade and become pixelated.

VECTOR IMAGE: Image using geometric formulas. These are scalable (change size without degradation).

STEM: Acronym for Science, Technology, Engineering, & Math.

STEAM: Acronym for Science, Technology, Engineering, Arts, & Math. Georgette Yakman describes this as "Science and technology, interpreted through engineering and the arts, all based in elements of mathematics."

STREAM: Acronym for Science, Technology, Reading, Engineering, Arts, & Math. Emphasizes reading/writing.

Maker Resource List:

Compton, E., Boese, A., Lewis, J., Teeri, S., & Yusko, S. (2014). *Making in the Library Toolkit: Makerspace Resources Task Force (YALSA).* Retrieved from: http://www.ala.org/yalsa/sites/ala.org.yalsa/files/content/MakingintheLibraryToolkit2014.pdf

Ellington, L. (Presenter). (2016, February 2). Creating a Mobile Makerspace Program. First Tuesdays. Podcast retrieved from: https://www.sos.wa.gov/library/libraries/firsttuesdays/broadcasts.aspx

NOTE: North Central Regional Library (NCRL) developed its Mobile Makerspace program out of a desire to engage teen patrons with educational programming. To serve patrons in 30 branches across 5 counties, the program needed to be able to travel and operate with a limited number of employees. Join Luke as he describes the STEM tools acquired and NCRL's makerspace-style approach. More importantly, he will identify the pitfalls and what NCRL is doing today.

Feynman, R.P., Leighton, R. (1997). *Surely You're Joking, Mr. Feynman!: Adventures of a Curious Character*. New York: W. W. Norton & Company.

Jensen, Karen. (2016, February 1). Small Tech, Big Impact: Designing My MakerSpace. *School Library Journal*. Retrieved from: http://www.slj.com/2016/02/technology/small-tech-big-impact-designing-my-maker-space/#_