Tech in the Suburbs

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Dakota County Library - Wescott

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Goals of Class

To share ideas of science & technology programs for all ages & to inspire library staff to branch out

To suggest programs, services & equipment/software for a variety of price ranges

To encourage library staff to dream small or big and to think outside the box

To suggest reaching out to potential community partners for sources of expertise, funding and teachers or volunteers
Areas covered

- Programs
- Equipment, Software & Kits
- Funding & Community Support
Technical ‘how-to’ steps

Specific details of presenting the programs (Can put you in touch with librarians who have offered the programs)
Programs
Big Truck Day (Truck ‘Petting Zoo’)

City & County Trucks:
- Fire Truck
- Police Car

Other vehicles:
- Snowplow
- Other maintenance vehicles
Homeschool Science/STEAM on Saturdays (Youth)

Average cost: $250. Some free. Some higher priced.

Less expensive alternatives:

Look at local community or 4-year colleges to see if they have someone to do the program for free

Check with any local high-tech company to see if they have an expert who might do a program

Find hands-on STEM activities on the Internet and librarians teach programs and/or show videos
Homeschool Science/STEAM on Saturdays (Youth)

Homeschool Science programs offered once monthly on a weekday during the school year. STEAM on Saturdays is often a repeat of Homeschool Science but offered Saturday once monthly on a Saturday afternoon.

Presenters:
- Raptor Center
- Minnesota Zoo
- Science Museum of Minnesota
- Rad Zoo
- Bakken Museum
- Bell Museum
- KARE 11 Weather
- Meteorologist/author Mike Lynch
- Mad Science
- 3M Visiting Wizards
- Leonardo’s Basement
- The Works
- Rich Valley Radio Controlled Airplane Flying Club
- Dakota County Parks
- Warner Nature Center
- STEAM Bunnies
- University of Minnesota
Homeschool Science/STEAM on Saturdays (Youth)

Topics:
- Raptors
- Motion
- Magic Chemistry Show
- Animals of the North
- Kitchen Grossology
- Zoomobile
- Static Electricity
- Honeybee Project
- Engineering Careers
- Yo-Yos
- Bugs
- Minnesota Meteorology
- Moon Rocks & Meteorites
- Migration
- Fish Dissection
- Forensics
- Physics
- Nano Particles
- Cockroaches & Tarantulas
- Cryogenics
- Heart
- Air Power
- Currents
- Creating with Junk
- Invertebrates
- Fire & Ice
- Astronomy/Star Watching
- Air & Vacuum
- Acids & Bases
- Wind Turbines
- NASA’s Pictures
- Water Conservation
- Frogs, Volts & Vinegar
- Amazing & Unusual Animals
- Minnesota Monarchs
- Honeybees
- Circuits
- Dinosaurs
- Model Aviation
- Minnesota Geology
- Energy
- Eclipses
Movie Making (Youth)

Kids, tweens or teens work as a group or in pairs to create their own movies. Upload to cloud service.

LEGO Movie App with iPads
OgoBild/Animate It software
iMovie/Green Screen (general class & book trailers) for Macs
Coding & Pre-Coding (Youth)

Scratch/ScratchJr (free)

Hour of Code (free)
- Anna & Elsa
- Minecraft
- Star Wars
- Many more!

Mindstorms

Ozobots or Sphero

Bee-Bots for pre-coding and Pro-Bots

Use library computers or have students bring their own PCs, smartphones or tablets.
Electronics (Youth)

Makey Makey

Snap Circuits
Robotic Demos
(High School Robotics Team)

Free programs!

Intro to Robotics Programming
(High School Robotics Team)
Light Painting (Youth or Adults)
Light Painting (Youth or Adults)

- "Paint with Light" (Maker Camp)
- "How to Do Light Painting"
- “Light Painting 101” (instructables)

< YouTube & Vimeo Movies (search light painting or a light painting artist from Finland: Hannu Huhtamo)

Free A.R. light painting app for iPad >
Virtual Reality (Youth)

Virtual Reality creates a new virtual world. Usually a headset, goggles or glasses are used to view the world.

DCL purchased Viewmaster Deluxe headsets (early 2017 cost: $32.99 x 10 = $329.90) and one iPod Touch ($199) for those who don’t have their own device.

Programs:
- Explore Virtual Reality
- Space Travel in VR
- Build a Virtual Reality World
- Virtual Reality Games
- Photos in Virtual Reality

VR Kit for Checkout
Library VR/Panoramic Tour/Video

- Take 360 panoramic photo tours
- Upload tours onto Roundme website
- View video tour of library in Roundme app or share access
Augmented Reality (Youth)

Augmented Reality inserts a digital world into the existing, real world. A smartphone, tablet or laptop can be used.

For instance, a company might offer an A.R. app that can insert furniture into your home for you to consider how it would look.

Instructions for putting together a bookshelf might light up the pieces you need to put together next.

You might ‘try on’ clothing and decide on your order without physically doing so. Or, change hairstyles or makeup.

Look for free or low-cost A.R. apps for kids or tweens involving dinosaurs, movies, dogs & cats, fairies, space, sports & more.
TV’s “Project Runway” designer Christopher Straub acted as a mentor to youth designers who took cast-off clothing and designed a new creation with sewing machines brought in. He spoke patiently with each child or teen and emphasized what he liked about their design.

Lower-cost Alternatives: Find sewers or designers locally from the community, school system or fabric store to work with kids. Ask for old clothing donations from staff.

Programs:
- Holiday Sewing with Christopher Straub
- Bags by Christopher Straub
- Teen Fashion Sew-It-Up & Review with Project Runway’s Christopher Straub

Example of tween/teen program with library staff and volunteers: Sewing Style Battle
“A day-long workshop with the Dakota County Star Quilters and librarians, making a t-shirt quilt out of treasured t-shirts. Work alone or team up with a member of another generation.”

Sewing machines (2) from the library’s iLAB and other machines were brought in by class participants.

Cost: A supply list was provided to participants and they purchased their own supplies.

Other sewing program:
Simple DIY Throw Pillow
Viking Braiding Meets 3D Printing/Lucet (Adults)

3D print a lucet ahead of time and bring it to class to learn how to do Viking braiding
STEAM Fests & Tech Toys (Youth)

Purchased robotics, electronics and tech toys in small quantities.

STEAM Fests: drop-in sessions over 2 hours for kids and families to stop at tables and try different activities using technology or arts/crafts.

Examples: Ozobots, Sphero, Snap Circuits, iPad art apps, art projects (supplies & instructions provided), button making, LED throwies.

Tables are run by librarians, circulation staff and Volunteers.
Family Engineering Nights (Youth & Adult)

- More structured than STEAM Fests
- Family teams working on assigned challenges to invent a product or solution
- Drop-in stations on engineering as a career or tasks to complete
- Look at STEM curriculum sites for ideas.
NASA Moon Rocks (Youth & Adult)

- NASA Lunar and Meteorite Sample Disk Program
- Certification program attendance required
- Special storage requirements
- No prior publicity without security guard
- Special shipping requirements
- Cost: Free except for above requirements
Auto Maintenance (Youth & Adult)

DCL’s program was a teen program offered for free at a local technical college. It’s a way for the college to get teens/potential students on campus.

Alternative: Check with local or retired mechanic to offer program or community volunteer with knowledge.

Cost: Free

Alternative: Offer bicycle maintenance.
iPad Lab Classes (Youth & Adult)

- iPad Lab with 10 iPads & Instructor iPad
- iPad Basics
- iPad Digital Art
- Accessibility Options on the iPad
- Ebooks on the iPad
- Office Productivity on the iPad
- Free Apps for iPads
- iPad Storytime
- Little Learners App Discovery
- Star Wars iPad Art
- Teen iPad Lab Fun:
  - Games Galore
  - Digital Art
  - Garage Band
  - iMovie
  - Book Trailers
iLAB Makerspace Classes (Youth & Adult)

Beginning classes on:

Photo & Film Digitization

Paper Cutting (Silhouette)

3D Printing

3D Scanning

3D Modeling (Tinkercad)

Sewing & Fabric Cutting

Green Screen & iMovie

Audio Production
Business/Tech Classes (Adult)

Twin Cities creative artist
Becka Rahn:

Etsy: Creating your own Etsy shop

Spoonflower: Creating your own digital fabric design

Melding technology & art

Science Museum of Minnesota
Twin Cities Media Alliance

Classes on building websites, creating Facebook pages for business, branding a business, marketing a business, search engine optimization and more!
Business/Tech Classes (Adult)

Lower cost alternatives:

- Librarians learn topics & teach

Community expert or volunteer teaches

Find ‘best of the best’ YouTube or Vimeo videos to share

Check with SCORE (Counselors to America’s Small Business) for free or low-cost presenter options.
Preserving Digital Memories (Adult)

Steps you can take to organize, protect and preserve your irreplaceable family photos, home movies and other digital content against technology obsolescence, physical and natural disasters, and accidental deletion.
Preserving Digital Memories (Adult)

Cost:  Free

Alternatives:

Librarians learn & teach file organization, saving & conversion

Partner with local historical or genealogical society; ask if they have volunteer to teach
Create Classes out of library databases

Examples:

- Ancestry
- Learn Together: Spanish (Mango Languages)
- Lynda.com
Equipment, Software & Kits
VOX Books

Picture Books and Juvenile Non-Fiction: $38-43

Audio books within a print book. Push a button to listen while reading.

Built-in speaker for parent & child or group, plus headphone jack for quiet listening.

Charges last 75-100 plays.
AWE Early Learning Computers

- All-in-One touchscreen
- 70+ software titles
- English, Bilingual Spanish or French
Launchpads

Tablet preloaded with apps for kids, teens or adults. No WiFi needed (locked down).

Learning apps & games.
Digital Photo Frames
Digital Photo Frames

Digital Photo Frames (very useful, inexpensive promotional tool)

At Service Desk counters for people to look at while approaching the desk or in line

Can be moved around to other display areas

Promotes databases, new services, collections, programs & events

Useful for outreach events (e.g., chamber of commerce, 55+ fairs)

Advertises Friends of the Library, who purchased the frames for us

Storytime welcome sign with early literacy info

Cost: $200 each (2014). Cost lower today but depends on size & features.
## Digital Signage (Large, Wall-Mounted)

<table>
<thead>
<tr>
<th>Digital Signage (larger)</th>
<th>Used to push out system-wide messages</th>
<th>Eye-catching</th>
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<tbody>
<tr>
<td>Can be customized for time/temperature as well as library information</td>
<td>Cost: $1000s but varies with hardware/software/installation options</td>
<td>Lower cost alternative: Smaller digital photo frames (under $100)</td>
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Reader Bar

Used 2012-2017

Back counter of the Service Desk

Samples of iPad, Android, Kindle & Nook tablets (or for less expensive, two of the most popular)

Used for promotion of ebooks/downloadables as well as demos to the public on how ebooks/downloadables work
Designated rooms for the iLAB:

Audio & Video Production Area

3D Printing & Scanning, Sewing & Fabric Cutting, Film & Slide Conversion, Videocassette Conversion, Paper Cutting
iLAB/Makerspace

Equipment & Costs:

- **Ultimaker 2+ 3D printers (2)** $2500 each
- **NextEngine 3D Scanner (1)** $3000
- **Janome Schoolmate Sewing Machines (2)** $650 each
- **Accuquilt GO! Big Electric Fabric Cutter (1)** $500
  - Accuquilt Dies $500
- **Silhouette Cameo 2 paper cutter (1)** $300
Equipment & Costs (continued):

- Epson Photo, Slide & Negative Converter (1) $200
- Wolverine Photo, Slide & Negative Converter (1) $60
- Mac Pro Quad-Core (2) $2800 each + monitors (2) $400 each
- iMac 27” (1) $2000
- Green screen package $155
- GoPro HERO4 camera (1) $400
iLAB/Makerspace

Equipment & Costs (continued):

- Guitar Amp Interface $200
- MIDI Controller $170
- Mic bundle $220
- Intuos Creative Drawing Tablet (1) $350
- Software $4400
- Tables $2200
iLAB/Makerspace

WhisperRoom Sound Booth $14,000

Misc. expenses

TOTAL iLAB Makerspace: $40,000

Ongoing costs: 3D printer filament ($30/spool); paper & fabric cutting mats
iLAB/Makerspace

Less expensive alternatives:

- Purchase one piece of equipment each year to fit in the main library or an out-of-the-way nook
- Seek funding from local craft/hobbyist groups or service organizations
- Ask a local store selling sewing machines if they’d donate the next model that they discontinue selling
- Check into local Target or Walmart grants
- Crowd Funding Sites
iLAB 2Go! Kits

Cost: Under $2000 for 28 kits (14 unique titles, 2 copies of each).

Cost includes tote bins, books and non-traditional items.
iLAB 2Go! Kits

MaKey MaKey Kit
iLAB 2Go! Kits

Snap Circuits Jr

Snap Circuits Kit
iLAB 2Go! Kits

Virtual Reality Kit
iLAB 2Go! Kits

Oral History Interview Kit

Portable Audio Recorder
iLAB 2Go! Kits

Spirograph Kit
Fractal Patterns Kit
iLAB 2Go! Kits

Rocks & Minerals Kit
iLAB 2Go! Kits

Fashion Design & Drawing Kit
iLAB 2Go! Kits

Superhero & Comic Design

Comic Design & Drawing Kit
iLAB 2Go! Kits

Design Studio Pro Kit
iLAB 2Go! Kits

Crochet

A to Z of Crochet

Complete Photo Guide to Crochet

Crochet Kit
iLAB 2Go! Kits

Knitting Kit
iLAB 2Go! Kits

Circular Loom Knitting

Circular Loom Knitting Kit
iLAB 2Go! Kits

Lucet Braiding

Lucet Kit (Lucet was 3D Printed on the Library’s 3D Printer)
Niche Academy - Side Slider or Full Academy Widgets

- Tutorials for the public and/or staff
- Videos or printed materials
- Materials can be locally created or matched with Niche Academy’s videos
Funding & Community Support
Funding possibilities

- Grants (STEM/STEAM/science)
- Local big box or tech company employee & matching grants
- Demco Grants Search (by STEM or Technology)
- Chamber of Commerce
- Friends of the Library
- Booksale
- Foundations
- Regional library cooperatives
- Service organizations
- Crowd Funding Sites
- Give to the Max Day (Minnesota)
Expertise in tech areas (e.g., Robotics, Media Production, Coding)

Programs: Attendance, Assistance, Space for Alternative Programs (e.g., auto maintenance)

Volunteers
Artists & Crafters

- Programs (e.g., quilters, knitters or other fiber arts experts or high-tech artists)
- Expertise in developing makerspace or kits
- Volunteers to help teach, tutor or be a resource at a program table
Chamber of Commerce

- Funding
- Promotion through company networks
- Expertise in tech areas
- Equipment/supplies
- Volunteers/teachers
City or County Departments

- Funding
- Community contacts
- Media resources & support: Equipment, Community TV
- Low-tech Programs (e.g., Parks/Survival Programs)
Community Service Organizations

- Funding
- Community contacts
- Volunteers
- Programs
Local Utility Companies

- Energy Usage & Information Kiosks
- Energy Monitor Kits
- Programs
Retired/55+ Groups, Senior Centers or Senior Living Facilities

- Expertise/skills for programs
- Volunteers
- Fundraisers
- Community contacts
- Space for Programs
High-Tech Companies

Funding: Gifts & Grants

Programs in their area of expertise

Equipment
Friends of the Library

- Funding
- Grant holder as 501(c)(3)
- Community contacts
- Support
Library Boards or Library Advisory Groups

Support (financial or other)

Community contacts
Volunteers/Volunteens

- Assistance with programs
- Expertise (sewing, building, electronics, etc.)
- Promotion
Go forth and create!
Contact

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