Sparking Curiosity

Learning STEM in Maryland Libraries
Presenters

• Tracy Alexander – Cecil County Public Libraries
• Deb Spurrier – Frederick County Public Libraries
• Conni Strittmatter – Harford County Public Libraries
Children must be taught how to think, not what to think.

Margaret Mead
STEM for Preschoolers

- Asking the right questions.
- Hands-on exploration
- Infused in all learning experiences
- Already a big part of preschool learning!
STEM - A New View

Maryland libraries are reaching out with STEM-focused programs.
Preschool Science

“With adults and older children, teaching may be verbal. But not with young children. To truly understand the definition of a word, children must act physically on a concept in which the word was used. When children have test a concept by exploration and manipulation, then it has meaning.”

“Science is taught in preschool not to train future scientists and engineers (although we may be doing this), but rather, to equip the child with basic survival skills in this modern, complex world.”

Sam Ed Brown “Bubbles, Rainbows and Worms: Science Experiments For Preschool Children”
Preschool Science Focuses On:

● Developing Scientific Thinking
● Exploring Concepts with Experiments
● Observing Demonstrations
● Manipulating Tools, Supplies and Models
● Fostering Partnerships Between Guardian and Child
What a Scientist can do:

- Experiment
- Solve problems
- Measure
- Record
- Discover
- Test
- Sort
- Invent
- Examine

Sources:
- fitkidsclub.blogspot.com
- deceptivelyeducational.blogspot.com
- luvprek.blogspot.com
STEM Occupational Program

- “Be a Vet”
- “It’s Electric”

Exploring different aspects of an occupation using various tools and scenarios and incorporating imaginative play.

Program includes having a speaker come and talk to the group. The professional brings tools and other materials used throughout a normal work day. Children are given an opportunity to ask questions as well.
Digital Camp

Tablet and Computer Basics for Pre-Schoolers and Caregivers
Digital Camp

Digital Literacy

Family Literacy

Community Building
Digital Camp

Tech in Libraries

Tech in Schools

Digital Divide
Digital Camp

Tech in Libraries

Tech in Schools

Digital Divide

Table and e-reader ownership

% of Americans ages 16+ who own e-book readers, tablet computers, and at least one of those devices

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Source: Most recent findings come from Pew Research Center Internet Project Library User survey, July 18-September 20, 2013. N= 6,224 Americans ages 16 and older. Interviews were conducted in English and Spanish and on landline and cell phones. Margin of error is +/- 1.4 percentage points for the total sample.

Note: The 2010 and 2011 surveys were conducted among those ages 18 and older.
Digital Camp

Tech in Libraries

Tech in Schools

Digital Divide
Digital Camp

Parts of a Computer & Mouse Skills
Typing & Emailing
Searching & Browsing

Tablet Skills
eBooks
Digital Photography
Experiment and Explore & Story Times

Programming focused on building:
- Curiosity
- Problem Solving
- Experiences
Experiment and Explore & Story Times

Including STEM in story times:
- Normalizes STEM
- Encourages parents
- Associates STEM with reading
FCPL Stories & STEM

✓ Integrating a STEM activity time after preschool storytime.
✓ Experiments
✓ Technology
Little Hikers

Connecting preschoolers with nature at the local library.
Little Hikers

• 3–6 year olds

• Explore preschool concepts through interaction with their natural world
  • Letters
  • Numbers
  • Shapes

• Public Speaking

• Connections with books
Little Hikers

- Promote STEM learning and concepts.
  - Weather
  - Seasons
  - Living vs Non-Living
  - Predictions
  - Observations
Little Hikers

• Include a “Maker Moment”
  • Dexterity
  • Creativity
  • Documenting discoveries

• Inform parents this is a “you might get dirty” kind of program in the description.
Little Makers invites preschoolers to tinker, design and create through exposure to STEM concepts, exploring new materials and tools, and practicing the creative process.
Little Makers

- 3-6 year olds
- Focusing on one area of STEM each week
- Asking those “what” questions
- Fostering imagination
- Public Speaking
- Connections with books
Little Makers

- Make something out of nothing
- Solve a problem
- Sometimes work as a team
- Exposure to technology and resources.
Circulating STEM
Sending STEM Home with Pre-School Families and Care Providers
Harford County Public Library’s

Little Leapers

Themed kits for kids Birth - 5 focus on

- STEM ideas and disciplines
- Pre and Early Literacy Skills
- Family Engagement
Little Leapers

Harford County Public Library’s All About Me; Colors, Shapes, and Numbers; My Sense; Baby Animals

I am an...
Architect
Bird Watcher
Botanist
Entomologist
Marine Biologist
Mechanical Engineer
Nurse
Chemist
Paleontologist
STEM All Around
Making STEM Always Available at the Library
Drop in play promotes:

- Self guided exploration
- Imaginative problem solving
- Less intimidating atmosphere
- Unexpected teamwork
Going around the library measuring different items in the branch.

Matching animal x-rays with the correct photograph.
Early Childhood Learning Spaces
STEM Outreach Opportunities

Taking our resources into local preschools.
Monthly Storytimes with STEM

- Partnership with local preschools.
- Hands-on
- Great way to work together!
Questions?

The future belongs to the curious; the ones who are not afraid to TRY it, EXPLORE it, POKE at it, QUESTION it and TURN it inside out.