TEACHING CODING IN MUSEUMS

ACM InterActivity 2017
Presenters

- Tomas Durkin - Children’s Creativity Museum
- Maureen Bowman - Marbles Kids Museum
- Caitlin Luttjohan - Kansas Children’s Discovery Center
WHAT IS CODING?
Stigma of Coding

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   <<Your notes fields will go here>>
   like,

   EmpNo : <<Notes Text Field>>
   Dept : <<Notes Text Field>>
</body>
</html>
CODING is simply a SET OF INSTRUCTIONS
SIMPLY A SET OF INSTRUCTIONS

Chewing Gum

1. Take gum out of pack
2. Unwrap gum with fingers
3. Take gum into fingers
4. Dispose of wrapper
5. Lift gum to mouth
6. Chew
7. Repeat until flavor is gone OR until satisfied
The green flag floated majestically over the speaker and his audience.

Wow! It floated into the clouds!
when clicked
  set score to 0
forever
  change y by -10
  if touching paddle?
    set y to 180
    set x to pick random -180 to 180
    change score by 1
  if y position < -150
    say game over
    stop all
Code.org video (What Most Schools Don’t Teach)
THE HOUR OF CODE

- Started by Code.org, a non-profit organization and website whose goal is to encourage people to learn computer science
- Bringing Computer Science classes to every K-12 school in the USA, especially urban and rural neighborhoods.
- Increasing the representation of women and students of color
- Since the Hour of Code started, we’ve definitely seen a change in the amount of students who have previously tried coding
TEACHING in MUSEUMS vs SCHOOLS
DWELL TIME

- Museum learning and teaching is much different than in the classroom
- Many resources available for schools now
- Some translate easily for museums, while others don’t
- In School, lesson plans last longer and often scaffold complex subjects
- In Museums, sometime dwell time can be as short as a few minutes, and is often a one-time interaction
FOCUS

- Goal is NOT to teach computer science
- Focus should be to:
  - Inspire
  - Introduce
  - Explore
TRANSITIONING FROM CONSUMERS TO PRODUCERS
GOING FURTHER WITH SCHOOL PROGRAMS, EXHIBITS AND SUMMER CAMPS
Coding at CCM

- Started with Game Design School Program in September 2013
- Innovator of the Month Workshops
- Participated in the Hour of Code
- Video Game Summer Camp
- Launched the Robot Coding exhibit in June ‘15
- Robot Coding School Program
- Girls in STEAM Summer Camp

Maze Design with Scratch

Hour of Code
CREATIVE CODING SCHOOL PROGRAM

- Limited Time Frame: 1 or 2 hour programs
- New students every time
- Varying skill level and experience (previous experience)
- More and more students have tried hour of code, not necessarily first experience
- LEARNING CODING THROUGH MAKING VIDEO GAMES
- PRODUCER OVER CONSUMER
ROBOT CODING IN THE TECH LAB

Teaching coding through exhibits
DRAWING WITH DASH
ROBOT CODING SCHOOL PROGRAM
(1 hour)

- Introduction and warm-up about programming
- Room is arranged for general admission with students rotating between tables
ROBOT CODING SCHOOL PROGRAM
(2 hours)

● Took an existing exhibit and translated from programming a robot through the maze to also designing the maze
● In-depth introduction to what is programming
● Collaborative challenge, students work in pairs
DEEPER LEARNING WITH SUMMER CAMPS

- Opportunity for deeper learning
- Provides educators the chance to teach more advanced topics that build off the previous day’s lessons
- Gives students opportunity to make more complicated projects
SUMMER CAMPS

- Make a video game controller
- Spirograph Art
- Create and Code a Mars Rover
- More Advanced Video Games:
  - Porkposterous Situbacon
  - Space Shooter
FINDING A PARTNER

- Not having to develop these tools in-house
- Having a dedicated support team who is passionate about the product and making it work
- Extending the learning experience at home

Wonder Workshop
TRAINING STAFF

- Teachers / Educators / Facilitators very important
- Don’t have to have a background in programming or computer science
- Block-based languages allow teachers to learn along with their students
- Working with partners to help with staff training
WORKSHOP TIME
CODING IS EVERYWHERE
RESOURCES

- Invent to Learn: Making, Tinkering, and Engineering in the Classroom
- Connected Code Why Children Need to Learn Programming
- Scratch - www.scratch.mit.edu
- Tynker - www.tynker.com
- Wonder Workshop - www.makewonder.com
- Blockly - https://developers.google.com/blockly/
- MaKey MaKey - www.makeymakey.com
- Bloxels - http://www.bloxelsbuilder.com/

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