Responsible Screen Time in Museums?

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Children and Screen Time: Research Overview

ACM Interactivity
Pasadena, CA
May 3, 2017

Scott Burg
Rockman et al

Rockman et al
Independent · Insightful · Informative

Screen Time – Historical Context

"The modern world has overwhelmed people with information that is confusing and harmful to the mind."

"Disrupting the balance of young children's minds."

"Ruining conversation and the pattern of family living."

Headlines – How bad is it?

- **Screen Addiction Is Taking a Toll on Children**, New York Times, 7/6/15

- **Screen time Is Making Kids, Moody, Crazy and Lazy**, Psychology Today, 8/18/15

- **TECHNOLOGY ADDICTION: Concern, Controversy, Finding Balance**, Common Sense Media, 5/3/16

- **Electronic media keeping kids from communicating with parents**, Science Daily, 5/27/16

  Is our screen-time anxiety more detrimental than screen time? Washington Post, 5/30/16

- **It's 'digital heroin': How screens turn kids into psychotic junkies,** Dr. Nicholas Kardaras, New York Post, 8/17/16

Headlines – Or is it that bad ?

- **Children benefit from the right kind of screen time**, New Scientist, 3/26/14

- **Research says screen time can be good for your kids**, Forbes, 7/17/13

- **Screen time for kids is probably fine**, FiveThirtyEight, 6/18/15

- **Sorry Kate Winslet, some screen time can be good for kids**, The Daily Telegraph, 11/4/15

- **Parents: Reject technology shame,** The Atlantic, 11/4/15

Some statistics

• Average child spends 3 hours per day watching television and 5-7 hours total on screens (NIMH).

• The average age a child first watched a television in the 1970's was 4 years; in 2012, it was 4 months (Rideout, V. J., & Hamel, E. (2006).)

• Between their first and second birthday, on any given day, 64% of babies and toddlers are watching TV and videos, averaging slightly over 2 hours. Thirty-six percent have a television in their bedroom. (Rideout, 2011)

•Among children 8 years of age and younger, 75% use smartphones (Common Sense Media, 2015

Categories of screen time

- **Passive consumption**: watching TV, reading, and listening to music

- **Interactive consumption**: playing games and browsing the Internet

- **Communication**: video-chatting and using social media

- **Content creation**: using devices to make digital art or music

*The common sense census: **Media use** by **tweens** and **teens***
*V Rideout - Common Sense **Media**, San Francisco, CA, 2015*

What kind of screen time is it?

- Screen Time as a sum of all screen-related activities might not be the most accurate and useful measure.
- Computer use and video game play should not be classed as the same type of activity as TV viewing.
- Active vs. passive screen time
- Active screen time
    - Physical and cognitive
    - Physical inactivity and screen time may not be directly linked
- Passive screen time
    - Conflicting evidence on educational and physiological impact
- Extent to which a child actively engages with media may be a function of the child, rather than the specific form of media.

Analysis from Australian Institute of Family Studies Longitudinal Study of Australian Children (LSAC). (2004-2010)

Parents survey

Cooney Center – Families and Media Project (2014)

• Nearly half (44%) of the screen media 2- to 10-year olds considered educational

• Ed. media occurs most frequently with among very young children (2-4 yr. olds)

• Children spend more time with TV than any other platform

• Children still read! An average of 40 minutes per day (29-print, 8-computer, 5-e-platforms)

• As children get older, the amount of time they spend with screen media goes up (from 1:37 to 2:36 a day), and the proportion that is educational goes down (from 78% to 27%)

AAP Position on Screen Time

American Academy
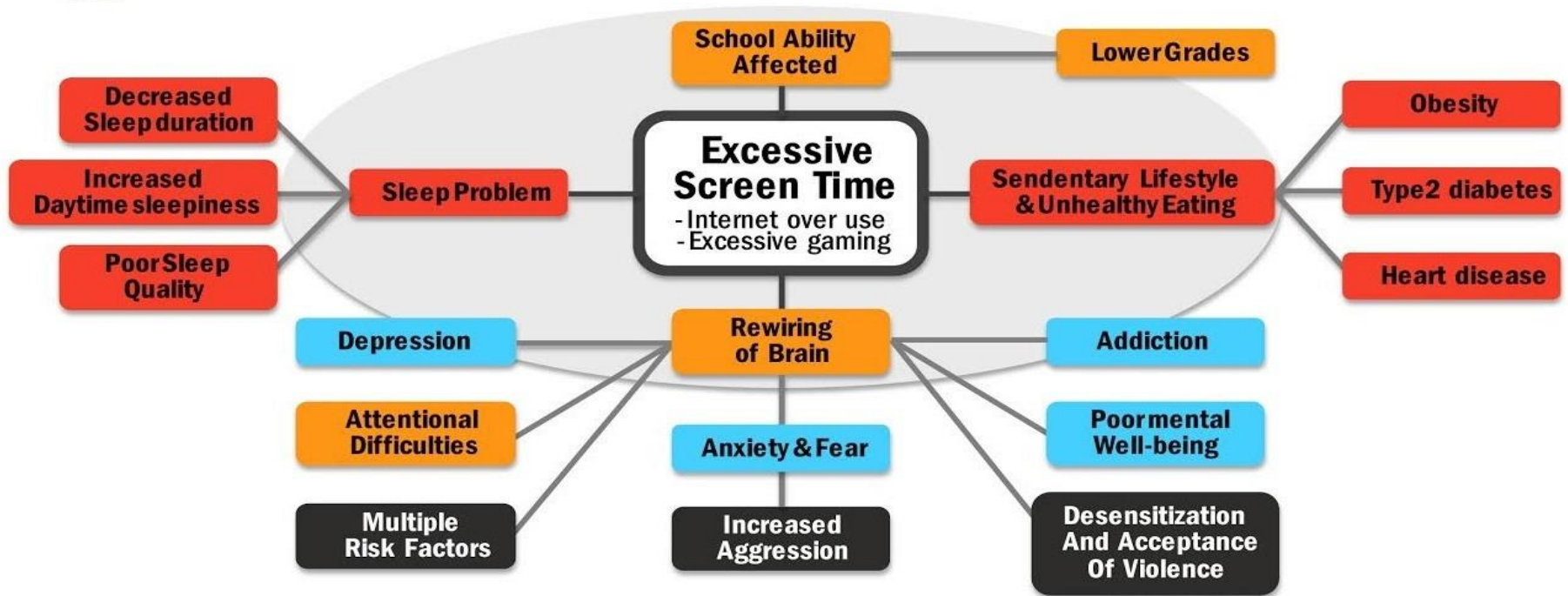of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

- Latest report: October 2016
- Shift from previous recommendations
- Well designed media used by parents and children together, could be a tool for social interaction and learning.
- Adopting a more realistic approach
  - Recognizes ubiquity of technology in our lives
  - Toddlers may benefit from new technologies (video chat)
  - Most preschoolers already using tablets and other technology
- Role of parents in interpreting and contextualizing
- Differentiate between entertainment and educational media

NAEYC-FRC Report

- Television shows and electronic resources can serve as powerful tools for teaching and learning, when incorporating what is known about effective reading instruction (Corporation for Public Broadcasting 2011)

- It is the educational content that matters—not the format in which it is presented (Wainwright & Linebarger 2006).
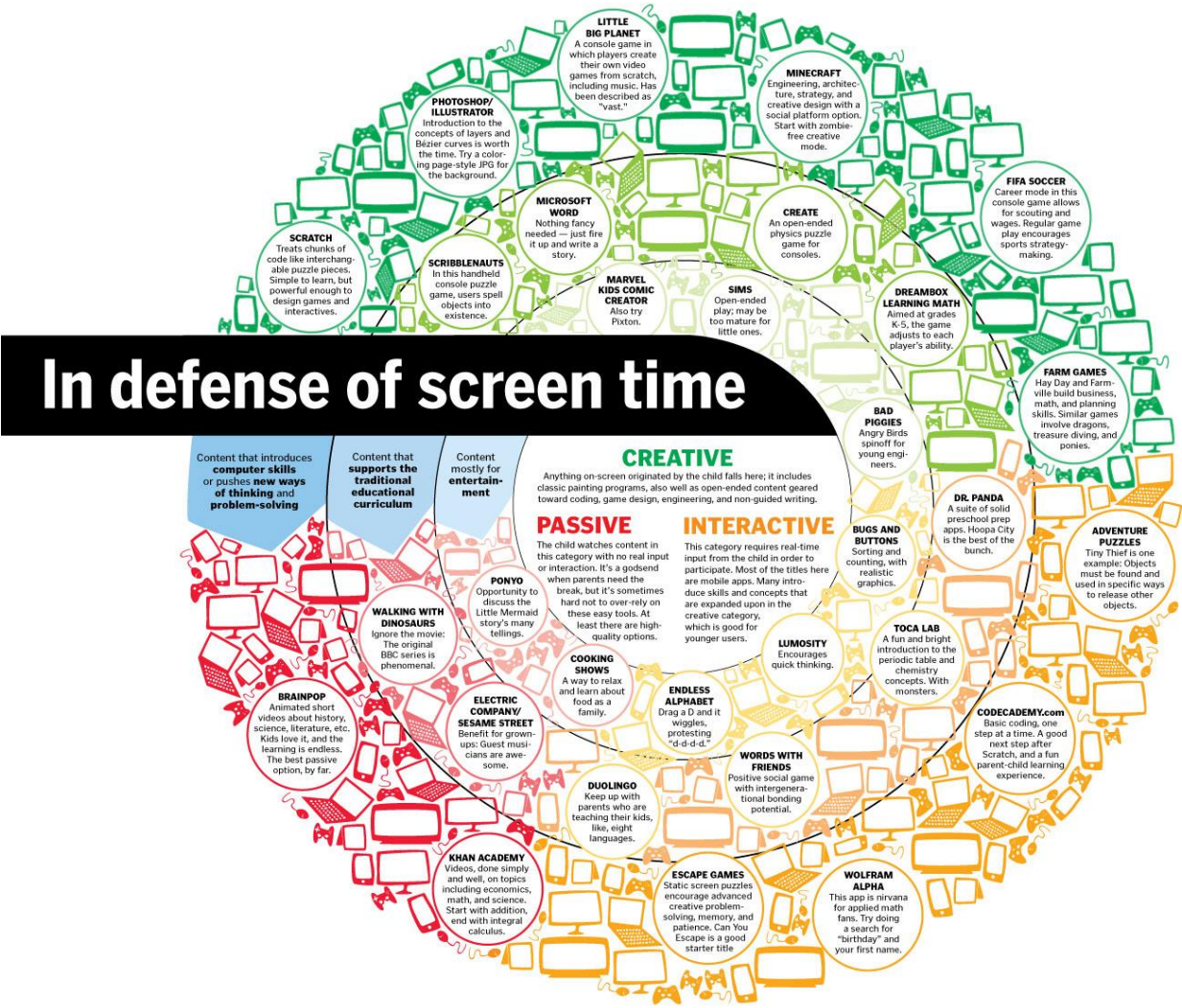
Impacts of screen time

Impacts of screen time

In defense of screen time

Content that introduces **computer skills** or pushes **new ways of thinking** and **problem-solving**

Content that **supports the traditional educational curriculum**

Content mostly for **entertainment**

CREATIVE
Anything on-screen originated by the child falls here; it includes classic painting programs, also well as open-ended content geared toward coding, game design, engineering, and non-guided writing.

PASSIVE
The child watches content in this category with no real input or interaction. It's a godsend when parents need the break, but it's sometimes hard not to over-rely on these easy tools. At least there are high-quality options.

INTERACTIVE
This category requires real-time input from the child in order to participate. Most of the titles here are mobile apps. Many introduce skills and concepts that are expanded upon in the creative category, which is good for younger users.

LITTLE BIG PLANET A console game in which players create their own video games from scratch, including music. Has been described as "vast."

PHOTOSHOP/ILLUSTRATOR Introduction to the concepts of layers and Bézier curves is worth the time. Try a coloring page-style JPG for the background.

MINECRAFT Engineering, architecture, strategy, and creative design with a social platform option. Start with zombie-free creative mode.

MICROSOFT WORD Nothing fancy needed — just fire it up and write a story.

CREATE An open-ended physics puzzle game for consoles.

FIFA SOCCER Career mode in this console game allows for scouting and wages. Regular game play encourages sports strategy-making.

SCRATCH Treats chunks of code like interchangeable puzzle pieces. Simple to learn, but powerful enough to design games and interactives.

SCRIBBLENAUTS In this handheld console puzzle game, users spell objects into existence.

MARVEL KIDS COMIC CREATOR Also try Pixton.

SIMS Open-ended play; may be too mature for little ones.

DREAMBOX LEARNING MATH Aimed at grades K-5, the game adjusts to each player's ability.

FARM GAMES Hay Day and Farmville build business, math, and planning skills. Similar games involve dragons, treasure diving, and ponies.

BAD PIGGIES Angry Birds spinoff for young engineers.

DR. PANDA A suite of solid preschool prep apps. Hoopa City is the best of the bunch.

BUGS AND BUTTONS Sorting and counting, with realistic graphics.

ADVENTURE PUZZLES Tiny Thief is one example: Objects must be found and used in specific ways to release other objects.

PONYO Opportunity to discuss the Little Mermaid story's many tellings.

WALKING WITH DINOSAURS Ignore the movie: The original BBC series is phenomenal.

TOCA LAB A fun and bright introduction to the periodic table and chemistry concepts. With monsters.

LUMOSITY Encourages quick thinking.

BRAINPOP Animated short videos about history, science, literature, etc. Kids love it, and the learning is endless. The best passive option, by far.

COOKING SHOWS A way to relax and learn about food as a family.

ELECTRIC COMPANY/SESAME STREET Benefit for grown-ups: Guest musicians are awesome.

ENDLESS ALPHABET Drag a D and it wiggles, protesting "d-d-d-d."

CODECADEMY.com Basic coding, one step at a time. A good next step after Scratch, and a fun parent-child learning experience.

WORDS WITH FRIENDS Positive social game with intergenerational bonding potential.

DUOLINGO Keep up with parents who are teaching their kids, like, eight languages.

KHAN ACADEMY Videos, done simply and well, on topics including economics, math, and science. Start with addition, end with integral calculus.

ESCAPE GAMES Static screen puzzles encourage advanced creative problem-solving, memory, and patience. Can You Escape is a good starter title

WOLFRAM ALPHA This app is nirvana for applied math fans. Try doing a search for "birthday" and your first name.

Impact on cognitive development

- TV watching is correlated with poor language development. Two or more hours per day of screen time before the first birthday is associated with a six-fold increase in language delay. (Aamodt & Wang, 2011)

- Live interactions between a child and an adult conducted over a digital device such as a tablet or smartphone enable children to learn new words (Roseberry, 2013)

- Violent content and evening media use were associated with increased sleep problems for children aged three to five years. (Garrison, 2011)

- Interactivity and adult modeling help children to learn a task better than passive viewing of the same material (Lauricella, A. R., et. al. 2010)

Link between research and recommendations

- Evidence cited is overwhelmingly from quantitative sources, especially for risk-focused advice (harm reduction is often the starting point).

- Positive visions of screen time tends to be crowd-sourced (i.e. self-reported experiences of parents), advocated by industry (e.g. Apple), or claimed as 'common sense' with no links to evidence.

- The organizations with the closest links between evidence and recommendations are those that commission their own research. (e.g. Common Sense Media)

- Children's ages, interests, developmental abilities and gender are intrinsic parts of media use, however very few recommendations acknowledge these differences.

Parents, children and screen time

- Parents' own digital skill level determines how, and with what results, they mediate their children's digital media use. (restrictive vs. mediation; Livingstone, 2015)

- Parental values around digital media can be as influential as parents' skill levels in how they approach media in the home and in their children's lives.
  - Digital media use offers opportunities for parents and children to share expertise and to learn from one another, if both are open to doing so (Fletcher and Blair (2014).

- The gender of both parent and child influences parental mediation.
  - Studies have shown that girls tend to be monitored and restricted more than boys, even when they are the same age (Eastin et al. (2006); Kirwil (2009); Livingstone et al.,2016: forthcoming).

- Parents of young children are more likely to engage in all forms of parental mediation, including technical restrictions, social restrictions, active mediation and monitoring. (Pasquier et al. 2012).

Conclusions

- Media use is no longer an optional extra

- 'Screen time' cannot be homogenized as a uniform or inevitably problematic activity.

- Move beyond a heavy focus on risk with little exploration or recognition of opportunities, and thus to move beyond the dominant message to parents that their main responsibility is to limit and control.

- A heavy focus on restrictions leaves parents unsupported in finding opportunities for children and parents to learn, connect and create together using digital media.

Scott Burg

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Hi.

I'm Darrell.

NISE
NATIONAL INFORMAL
STEM EDUCATION
NETWORK

Berkeley
UNIVERSITY OF CALIFORNIA

howtosmile.

NASA WAVELENGTH
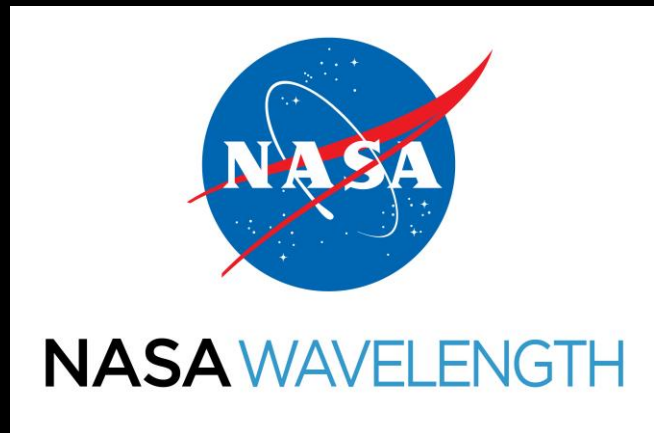
1. SCREEN? WHAT SCREEN?

(Projector-based simulated environments, with optional tangible interfaces)

Connected Worlds - NYSCI

Future Energy Chicago - MSI

Sportsology - SMM

Sketch Town - TeamLab

2. CAN I USE YOUR PHONE? THX

(BYOD – Participatory mobile games and self-guided museum interpretation)

Google Cardboard and YouTube 360

Penetration of VR headsets among U.S. population 18+
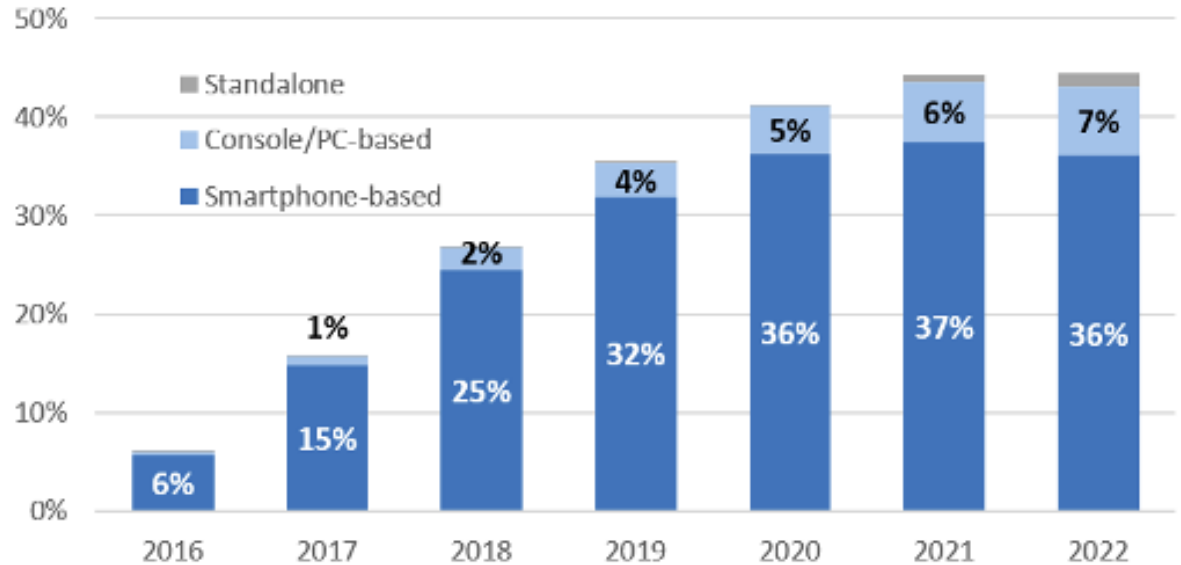
Source: Strategy Analytics VR Headset Growth Expectations Report

http://fortune.com/2016/10/13/virtual-reality-headsets/

Google Cardboard and YouTube 360

Rugged Rovers – Science Museum of London

Estimote proximity beacons

OR

Mobile sites & responsive design

SCAN WITH THE TINE APP TO ADD OR VIEW A MESSAGE

TINETAG.COM
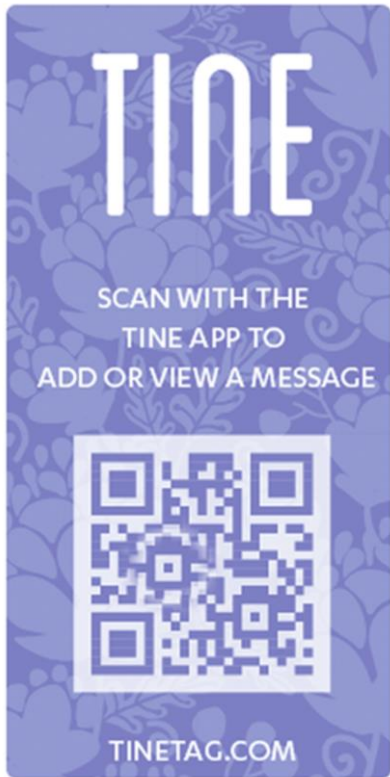
3. BUY OFF THE RACK TO SAVE $$$.

(Call a company, download an app)

Navori Digital Signage

Staff & iPads (21-tech)

OR

Kiosk Pro App & iPads

Technology Examples

Connected Worlds – NYSCI
Future Energy Chicago – MSI Chicago
Sportsology – Science Museum of Minnesota
Sketch Town – TeamLab
SECRET – Children's Museum of Houston
Google Cardboard
360 Juno Mission YouTube Video – JPL
Rugged Rovers – Science Museum of London
Estimote Beacons
Navori Digital Signage
Kiosk Pro App
21-Tech – Children's Museum of Houston

To nurture creativity and collaboration in all children and families

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IMAGINE   CREATE   SHARE

CHILDREN'S CREATIVITY MUSEUM

Empowering children to be producers of digital media, not just passive consumers
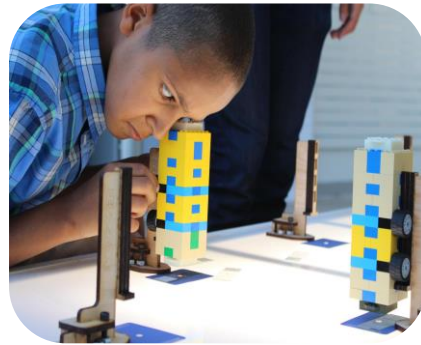
BOARD GAME DESIGN WORKSHOP

May 29 | 11:00am to 2:00pm

Meet expert game designers from Blue Orange Games and learn what goes into creating their popular games like Fast Flip, Rally Up and Super Genius. Then create your own game that you can play with your friends and family!

LEARN MORE

MUSEUM HOURS
WEDNESDAY - SUNDAY
10:00am to 4:00pm

- Animation Studio
- Music Studio
- Robot Coding
- Mystery Box Challenge
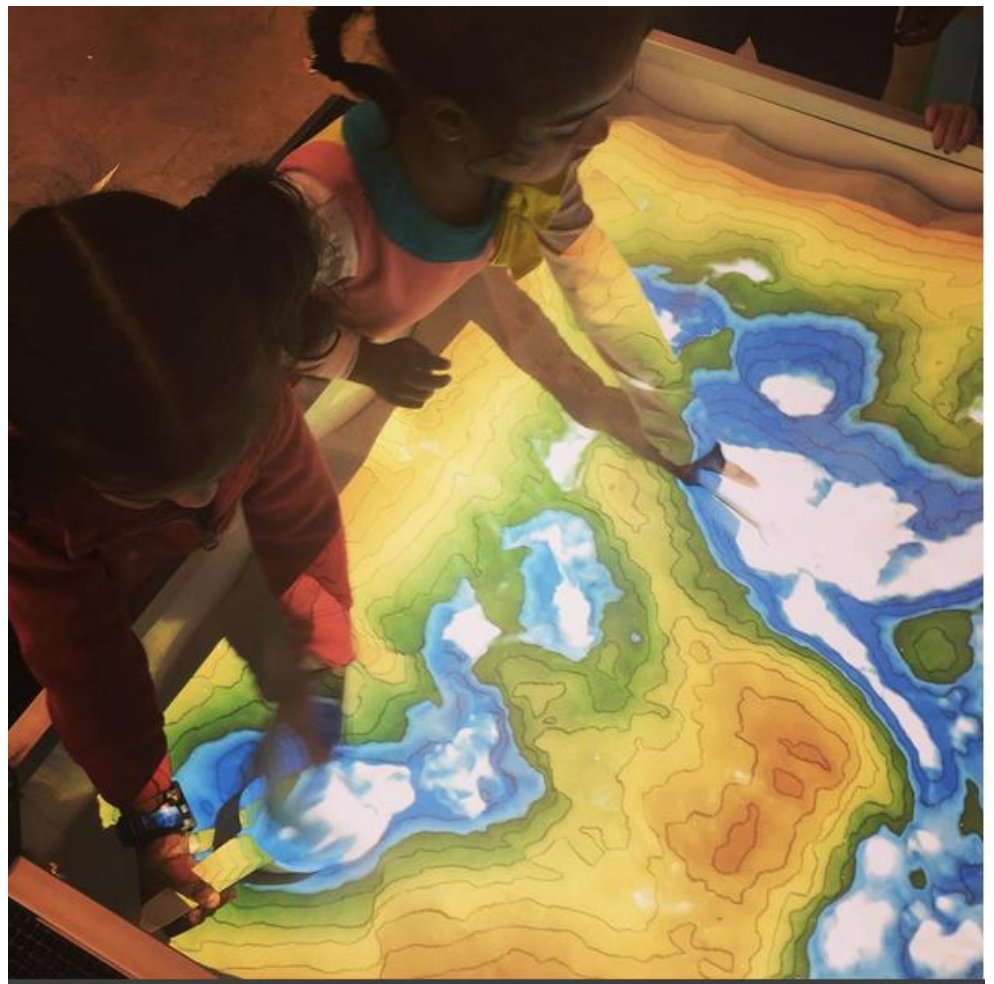- STEAM workshops

Make Your Own Video Game

- One-hour workshop
- Facilitated
- Peer-learning
- Peer-sharing
- Sibling/Parent engagement

CHILDREN'S CREATIVITY MUSEUM
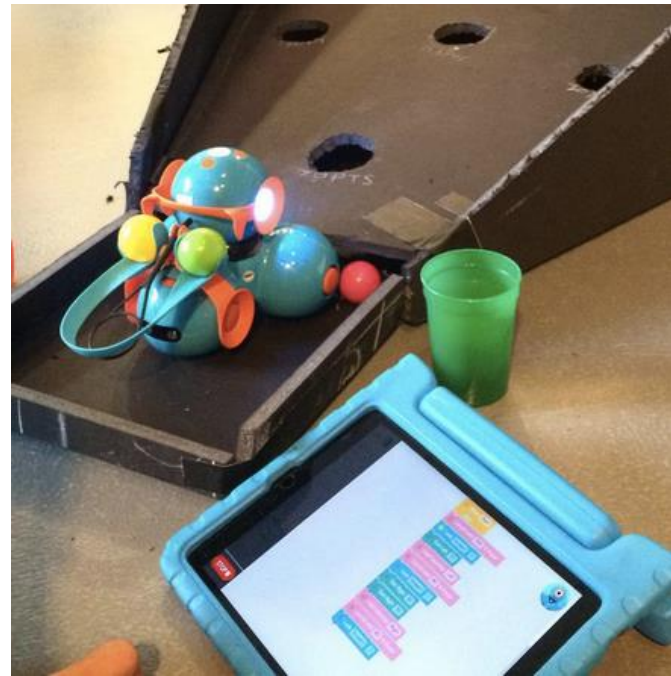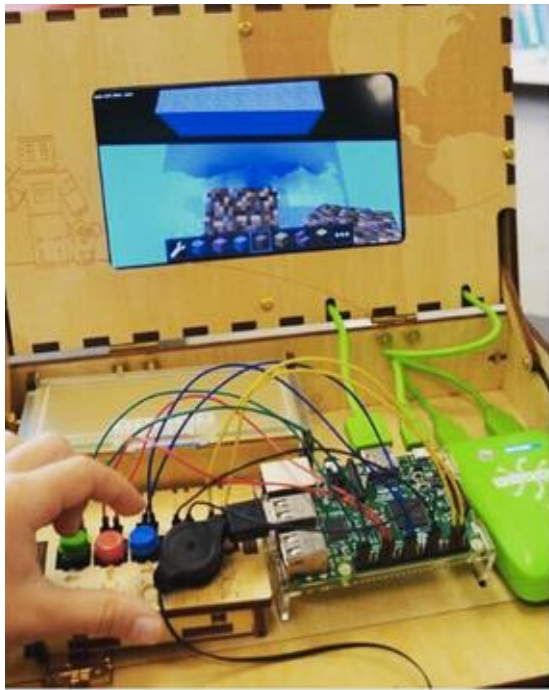
HOUR OF CODE

AR SandBox

IMLS

Sketch Town
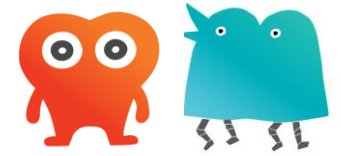Team Lab USA +
Hitachi America

Decision Making Guidelines

- Facilitated
- Mixed age engagement
- Digital + Analog
- Skill mastery
- Advances story-telling
- Advances sharing
- Screen devices are usually "opt-out" (separate rooms)

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