Making Maker Learning

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Slides: makinglibraries.si.umich.edu

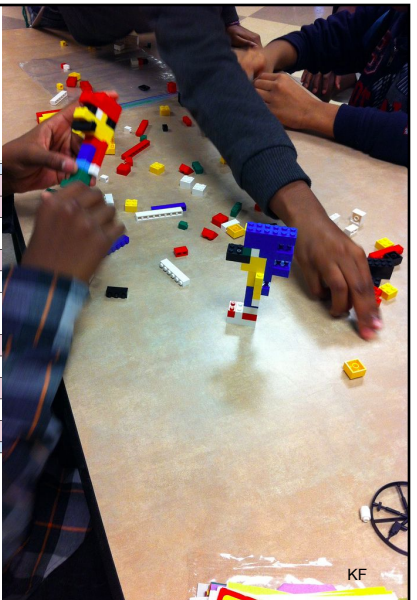Saturday, May 14, 9:30 – 4:30, UMSI Ehrlicher Room

KF
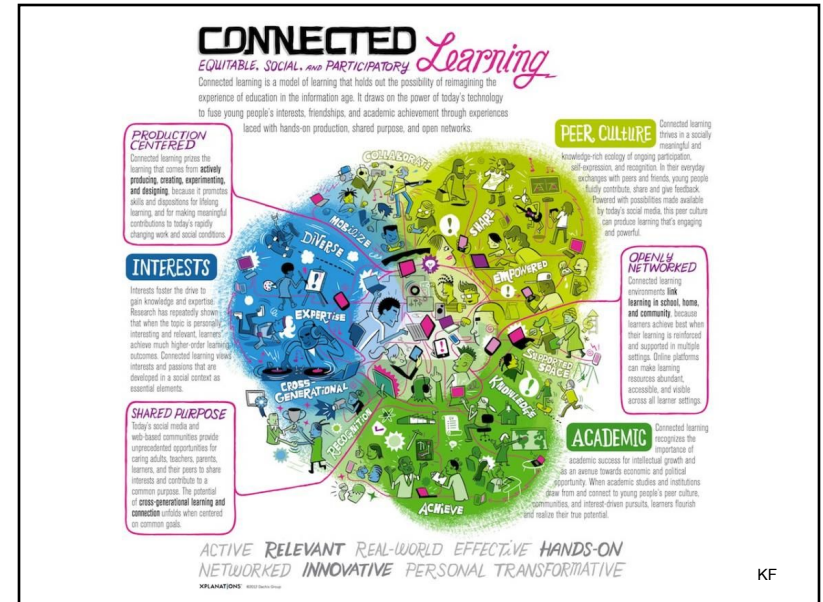
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hello.

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and you are?

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SCECH HOURS	TIME	ACTIVITY
n/a	9:00 – 9:30am	Registration
n/a	9:30 - 9:40am	Welcome; overview of the day
1	9:40 - 10:40am	Defining makers, makerspaces, maker culture Tenets of maker culture
n/a	10:40 - 10:50am	Break
5	10:50 - 11:20am	Identifying learner needs & purpose
15	11:20am – 1pm	Designing for Maker Activities • "PACE" model for planning learner-centered making • Design challenges • Assessment
n/a	1:00 - 2:00pm	Lunch on your own
1	2:30 - 3:00pm	Sample projects; implications for bringing this type of work into your classroom
n/a	3:00 - 3:15pm	Break to reset room
1	3:15 - 4:15pm	Maker activity stations
n/a	4:15 - 4:30pm	Reflection, Closure, Next Steps
TOTAL: 5		

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our approach

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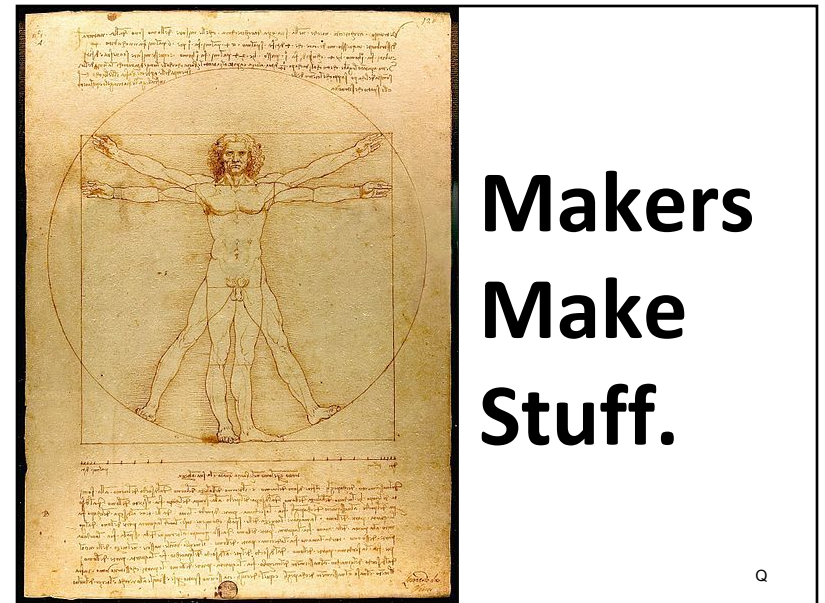CONNECTED *Learning*
EQUITABLE, SOCIAL, AND PARTICIPATORY

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String + Pencil + Index Card = Our Opening Activity

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What did you make?

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"Dogfooding"

How can we support
the Leonardos in our schools?

Makerspaces are one answer.

Slingshot

Anna
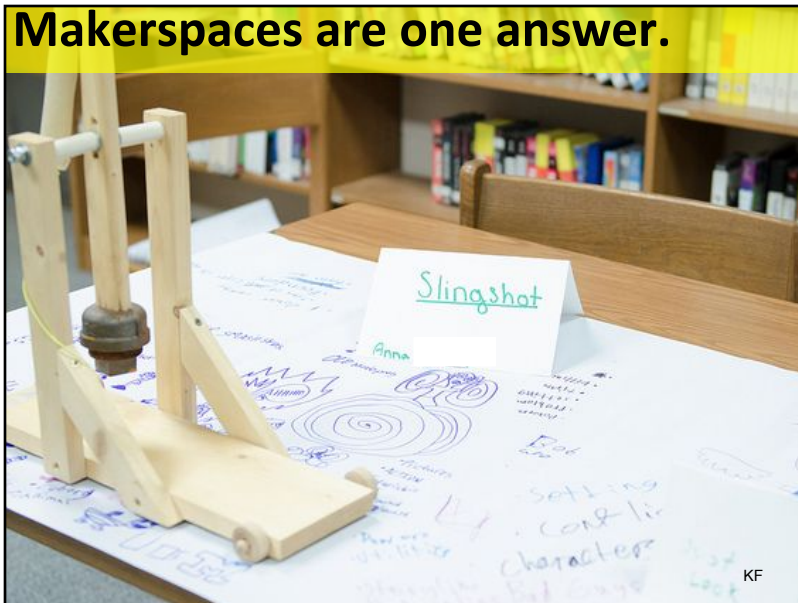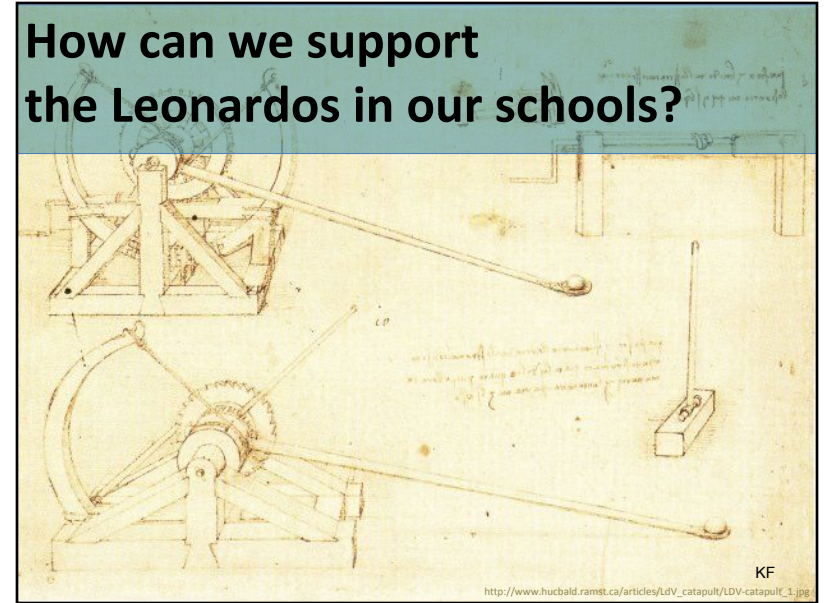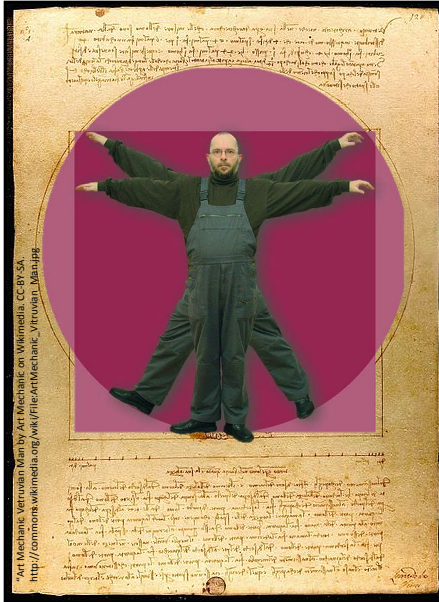
Makers
Make
Stuff.

Makers Transform Stuff.

Q

"Mark's book is pitch-perfect on why the Maker Movement is so important for our collective future."
—BETH COMSTOCK, CMO AND SVP, GE

RULES FOR INNOVATION IN THE NEW WORLD OF CRAFTERS, HACKERS, AND TINKERERS

THE **MAKER** MOVEMENT MANIFESTO

MARK HATCH
CEO, TECHSHOP

http://bit.ly/makermanifestochapter

Q

MAKE

Making is fundamental to what it means to be human. We must make, create, and express ourselves to feel whole. There is something unique about making physical things. These things are like little pieces of us and seem to embody portions of our souls.

LEARN

You must learn to make. You must always seek to learn more about your making. You may become a journeyman or master craftsman, but you will still learn, want to learn, and push yourself to learn new techniques, materials, and processes. Building a lifelong learning path ensures a rich and rewarding making life and, importantly, enables one to share.

Q

This is a makerspace.

Q

This is, too.

And so is this.

And this.

This, too.

Slide 1:

Tools
+
Support
+
Community

People
+
Process
+
Place

Q

Dale Grover, Maker Works, Ann Arbor, Michigan

Slide 2:

Tools
+
Support
+
Community

People
+
Process
+
Place

EXPLORATION + FORMAL AND INFORMAL LEARNING + PEER LEARNING + EXPOSITION + CONTENT?

Q

Dale Grover, Maker Works, Ann Arbor, Michigan

Slide 3:

All this for 15 cents—

300 New Ideas

300 New Pictures!

Making isn't new …

http://upload.wikimedia.org/wikipedia/commons/0/04/Popular_Science_Monthly_1916_Ad.jpg

A

Slide 4:

COLOR OLIVI.

Colorem oliu commodum pictoribus, Inuenit insignis magister Eyckius.

Image: http://radicalhorizon.wordpress.com/2013/01/09/is-conceptual-art-removing-the-need-for-skill-in-todays-art-world/ Public domain.

A

Slide A:

Fabrication Tools

This space reserved for your maker activity

Needle/Yarn Work

Sewing, e-Textiles, Fashion

Electricity, Circuitry, Microcontrollers, Robotics

Wood/Metal Shop Tools

Paper Cutting and Engineering

Cooking, Canning, Preserving

?

Horticulture

Photo, Music & Video Production

Programming/Coding

Appliance Repair

Slide Q:

Some Things to Consider ...

Slide Q:

#1: Know Your Purpose Before You Buy Anything.

Entertain? Inform? Educate?

Enhance academics? Fill a void in academics?

Have one-off projects or build a community?

Welcome new makers? New services for existing makers?

Slide K:

Example: Michigan Makers

- Create community around making
- Balance DIY exploration with guidance from mentors
- Create sustainability and replicability
- "Have something for every member of the family"

#2: Consider Short- And Long-term Projects (and start small).
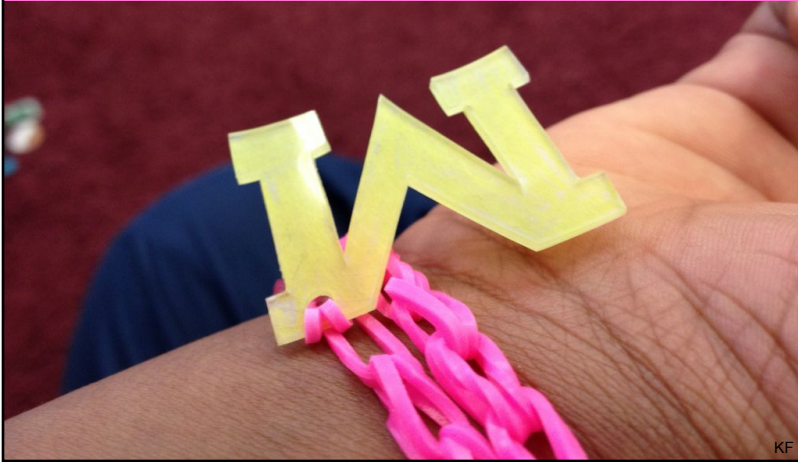
 # 3: Embrace Open – and Open Source -- Thinking.

Corollary: Look for Partners & Sherpas.

Ann Arbor District Library

University of Michigan 3-D Lab

Michigan Makers

Detroit Public Library & Mt. Elliott Makerspace

All Hands Active Hackerspace

Maker Works

Dearborn Tech Shop

Corollary:
Partner Skills, Too: Look For Mashups.

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#5: Not all making is serious business.

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Corollary: Sometimes, making allows for self-soothing and re-centering.

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- Sewing
- STEM Challenge/Scratch
- Minecraft with Kyle
- Video Project
- Raspberry Pi
- Stop-Motion Animation
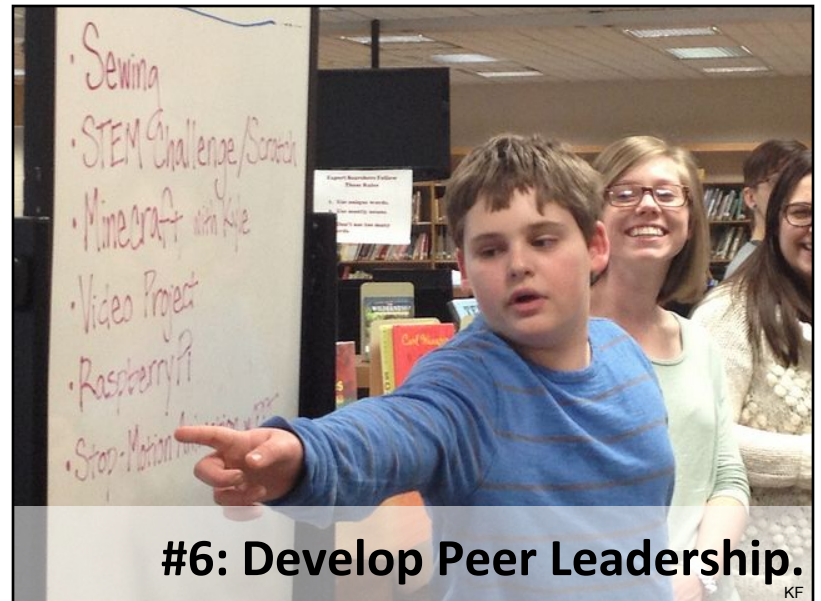
#6: Develop Peer Leadership.

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Corollary: Redefine "Teacher" And "Learner."

Corollary: Match Mentors with Learners.

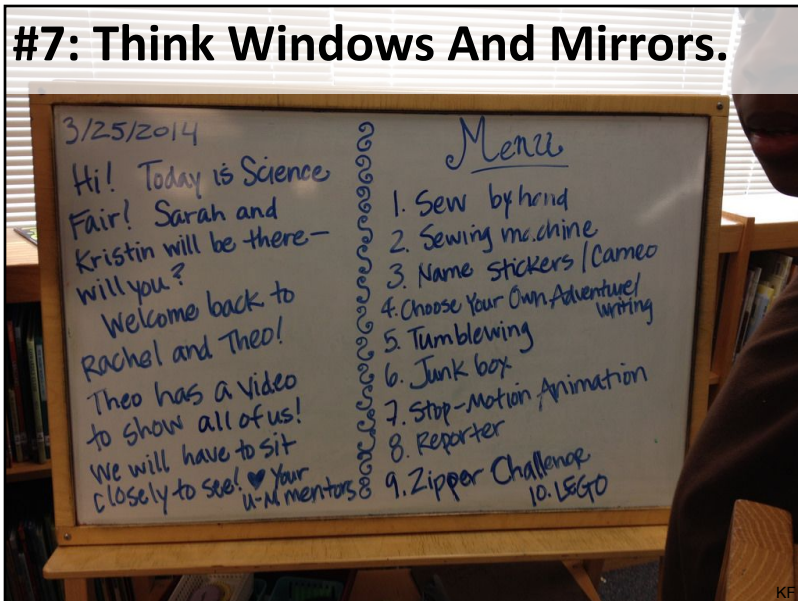Marshmallow Towers

Egg Drop Challenge

#7: Think Windows And Mirrors.

3/25/2014

Hi! Today is Science Fair! Sarah and Kristin will be there— will you?

Welcome back to Rachel and Theo!

Theo has a video to show all of us! We will have to sit closely to see! ♥ Your U-M mentors

Menu
1. Sew by hand
2. Sewing machine
3. Name stickers / Cameo
4. Choose Your Own Adventure! writing
5. Tumblewing
6. Junk box
7. Stop-Motion Animation
8. Reporter
9. Zipper Challenge
10. LEGO

#5: Think Windows And Mirrors.

There is something missing in our definition, vision, of a human being: the need to make.

We are creatures who need to make.

Because existence is willy-nilly thrust into our hands, our fate is to make something--if nothing else, the shape cut by the arc of our lives ….

Making is the mirror in which we see ourselves …

Frank Biedart, "Advice to the Players,"
https://harvardmagazine.
com/1999/09/poetry.html
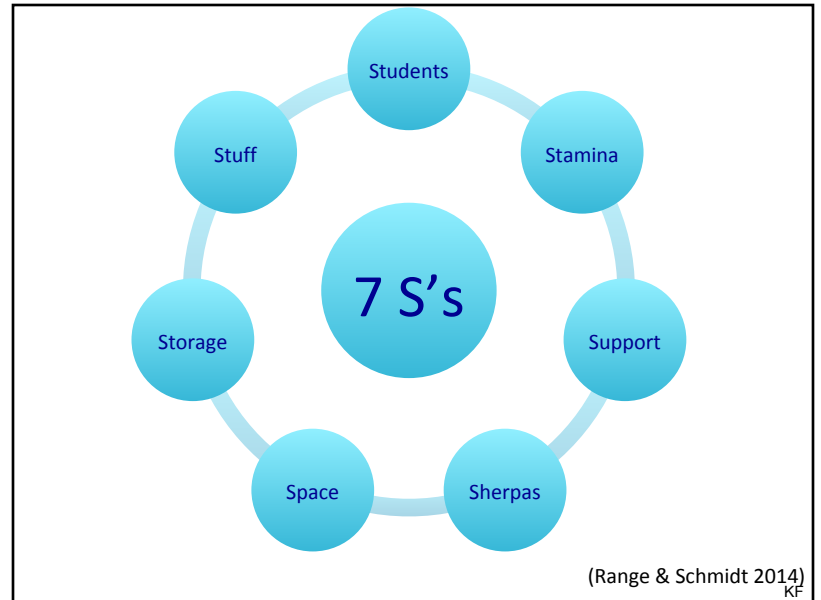
#8: Celebrate Daily Progress.

#9: Celebrate Long-term Progress.

Corollary: Celebrate by just making something.

Students

Stamina

Stuff

7 S's

Support

Storage

Space

Sherpas

(Range & Schmidt 2014)

You've been sitting for a while.
Let's take a break!
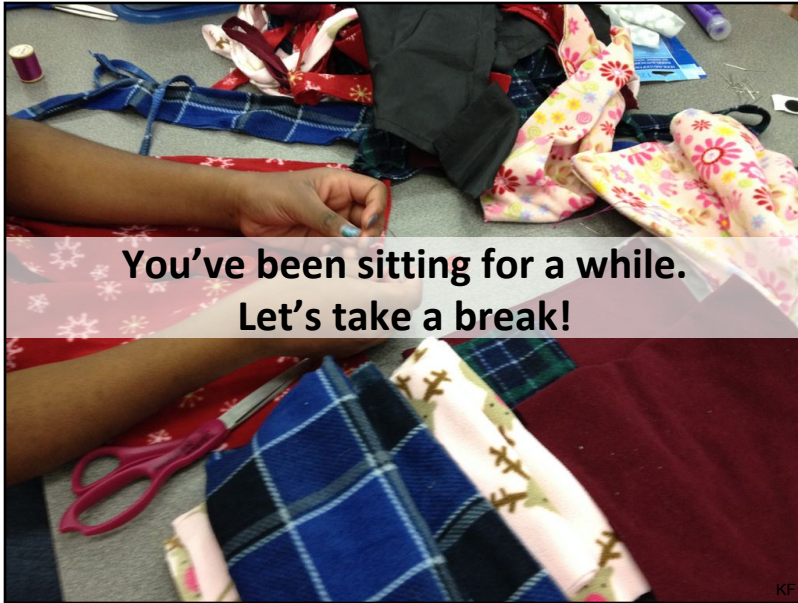
break until 10:55

slides tonight at
http://makinglibraries.si.umich.edu

determining purpose

why does
this matter?
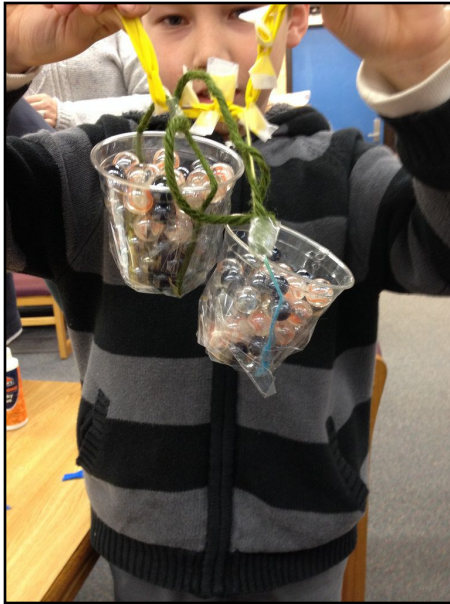
Our makerspaces hit the mark when makers are working from their "center of gravity"

(Dewey 1900)

Mindset and culture come before the tools. What mindset do you want to develop in your patrons/learners? How do you know what folks want?

Data Points

- School Curriculum
- Library Circ Patterns
- Petting Zoos (pool your resources!)
- Mel.org → Databases > DemographicsNow
- ESRI Tapestry (http://www.esri.com/landing-pages/tapestry)
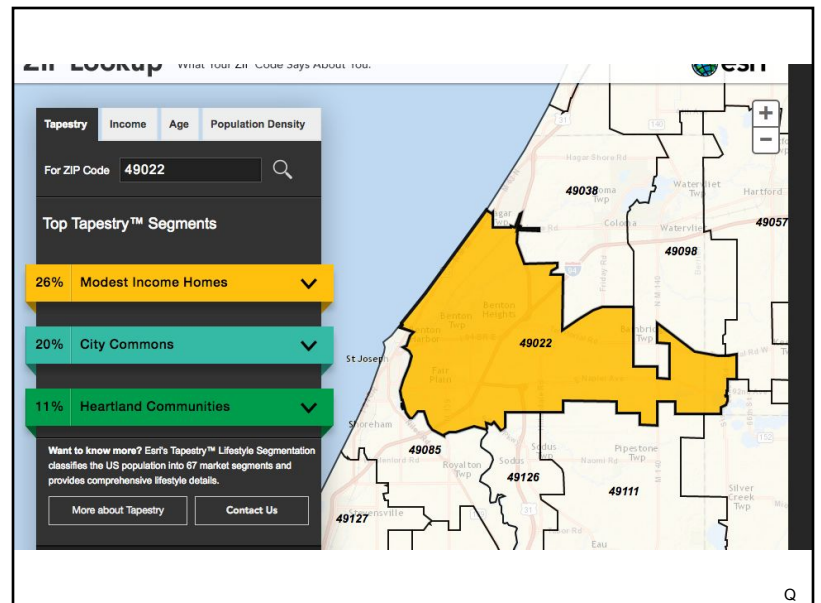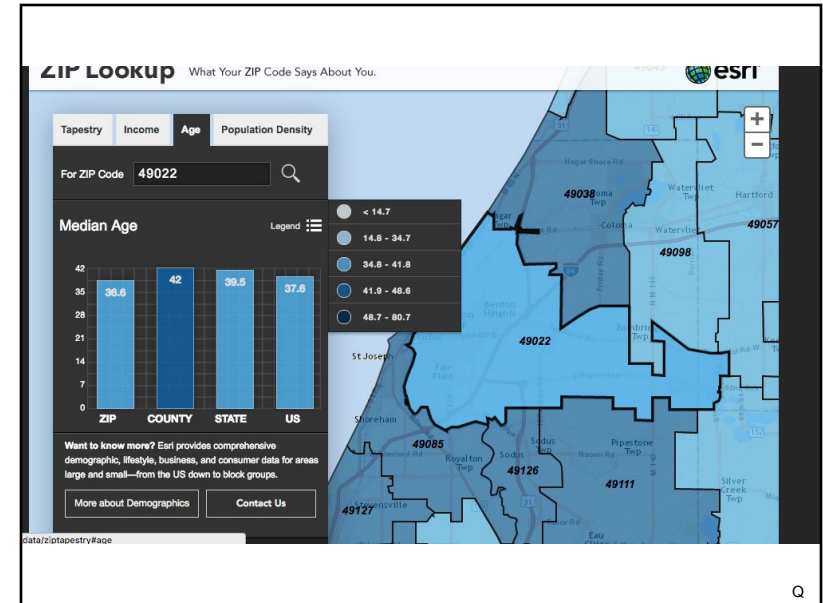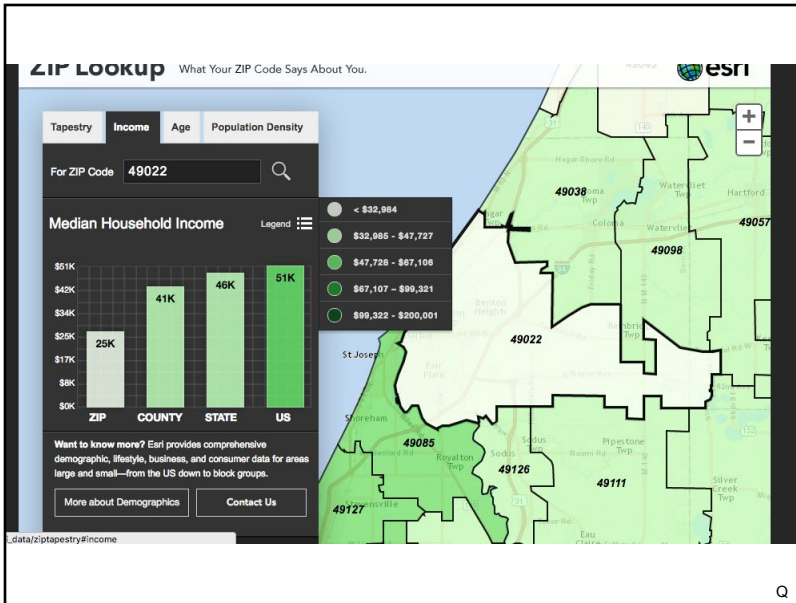
Consider a charter or manifesto for your makerspace (with adults or kids).

Based on _____, I see that our students/patrons need opportunities to _____.

Therefore, we'd like to launch a maker program that will give them the chance to _____.

In this program, we will prioritize _____.

We will know that we are successful if _____.

turn and talk.

Q

hacKIT
#madeinmich

Q

ok.
now how do we structure this?

A

Some context!
For us, making prioritizes:

Process over product

Agency over teacher-directed work

Choice over following directions

Experimental mindset over "failure if it doesn't work the first time"

A

Remember our activity from this morning?

A

Whose work stood out to you as being great?

A

What criteria did you use to determine whose was best?

A

If we were to repeat the exercise and share those criteria, what do you think might happen to the range of ideas we saw?

A

It's really hard to compare open-ended work, isn't it?

A

But what gets assessed gets attention, right?

A

So how do we assess in our maker efforts?

Maybe we don't measure what they make.

Maybe we measure their thinking instead.

A

Seven Strategies

1. **Title: Subtitle**

2. **Process Journals**

3. **Stand-Up Meetings**

4. **Design Challenge**

5. **Gallery Walking**

6. **Artist Statements**

7. **Portfolios**

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Slide 1

Title: Subtitle

artistic: explanatory

creative: factual

Taking Flight: Paper Airplane
MonkeyMatic: A New Toy Using Centrifugal Force
Origami Leia: A New Star Wars Toy

KF

Slide 2

Title: Subtitle

(artistic: explanatory)

(creative: factual)

Tweet a photo of your index card creation.
- Title & subtitle it.
- #madeinmich

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Slide 3

Slide 4
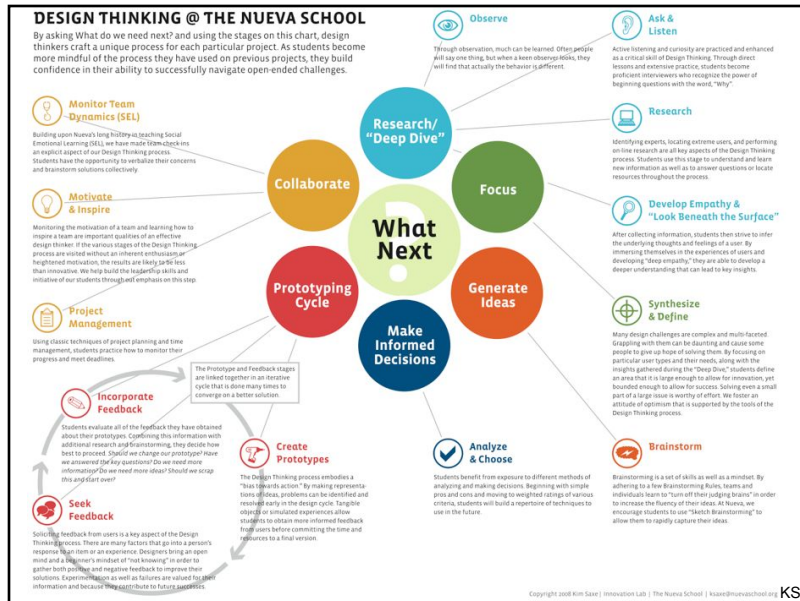
Design Challenges

- Common challenge for each student
- Open options for completion to give space for agency and choice
- Agreed-upon metrics for success
- Built on curriculum learning
- Preceded by direct instruction and/or interspersed with mini-lessons as needed
- Time limits serve to motivate creativity within constraints

KS

#1 Design Challenge Seeds

- Design an invention that would fix _____

- Create a prototype that would _____

- Research and identify a solution that _____

- Create a stamp/statue/logo/mascot for _____ based on what you know about

#1 Design Challenge Examples

- We have studied how _____ influenced society by harnessing/inventing _____. What new global challenge do you see needing to be solved? Create a prototype for your solution.

- People with Parkinson's have difficulty eating soup because their hand shakes. Research existing solutions and design an alternative …

Your Challenge!

- Start by collecting data from group members about something that new students struggle with at your school or library.

- Use that data to focus on a single problem.

- Brainstorm solutions.

- Build a prototype.

- Be prepared to explain the choices you made.

- Use a sticky note to create a catchy title and informative subtitle, like this: Friend Tracker: An App to Help New Students Find Kindred Spirits

Or … create your own challenge and be ready to explain it to others.
Or … be a group reporter!
KS

Assessment in design challenges can come from …

- Product pitches

- Advertising copy for product

- Infomercials for product

- Letters

- Any of the other techniques

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Gallery Walking

- ½ present, ½ view

- Consider half-page "Hamburger-style" table tents
  - Possible content:
    - What is the object?
    - What does the creator want the viewer to notice in particular?
    - I am proud of _____.

  - Keep to one sentence

  - In-process or after project completion

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Maker Gallery Walk Guidelines

- Lend support, not critique
- Ask questions
- Listen intently
- Give advice only if asked for it

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lunch 1-2pm

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Gallery Walk until 2:20

- Framing gallery walk/exposition etiquette with kids
- Move your creation to the back of the dining hall (leave your workspace as is)
- Remember your caption! Fun title: Informative subtitle
- Take turns staffing your station

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Artist Statements

Patsy Mink

Our monument focuses on Patsy Mink, who influenced education for women by writing and helping pass laws against discrimination and segregation to women in schools during her time as the first minority woman in Congress. The book represents her giving young women equal education as two young girls intently read the book. In the real monument, we would assign a sculptor to create a lifelike model of Patsy Mink in white marble, along with the two little girls looking at the book. The book would be made of lighter stone while the steps are made of a gray stone.

– Cate A, Rachel K, Natalie T, Zannie W

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Artist Statements Can Convey

- Purpose/intent

- Process (if succinct)

- Inspirations

- Unpacking of your thinking about the product you made

Great resource for your teaching:
http://www.artbusiness.com/artstate.html

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Artist's Statements at multiple points in process

Formative Assessment
- "Ticket out the door"
- Index card
- A few sentences or a paragraph
- Cloze sentences:
  – "The visuals I chose are meant to _____."
  – "I chose this medium because _____."
  – "The visuals in my slide deck are meant to _____."
  – "I'm including this primary source image because ____."

Summative Assessment
- Multiple paragraphs
- Extended thought
- Reflects on the finished product and on the process

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Leivick, Joel. *The Rapture.* 2012. Series of photographs. Thomas Welton Stanford Art Gallery, Stanford.

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Artist's Statement

This group of pictures was completely unexpected. I arrived in Italy last autumn as a Visiting Artist at the American Academy in Rome, with plans for a project involving fascist-era beachfront architecture in Ostia, and perhaps something centered on gardens in the funky postwar outskirts of Rome. But on our first day there I made my own pilgrimage to the Pantheon, one of my favorite places to be in Rome, and usually a primary destination.

A constant stream of visitors enters and exits the Pantheon all day. For the most part, they have their recording devices held high over head as they enter, forgoing the old-fashioned step of looking at something first, then photographing it. No, these pilgrims have their memories immediately farmed out to digital data storage, safely ensconced for retrieval at some later date. There was something charming about it, something universal and soothing, not comical exactly but focused and intense, a hint of the divine in an otherwise mechanized world: Everyone gazing vicariously into the oculus, the eye of God. I fell into a rhythm, studying the screen of my own camera and watching for the moments of rapture and deep concentration, moving invisibly from one subject to the next. I was lost in my own rapture, my mind quiet but for the occasional visit from the ghost of Walter Evans, whose pictures of subway riders during the early 1940s were never far from my thoughts.

The 45 photographs in this exhibition were made on four days in October 2012 with the Sony Nex-7 digital camera. I want to thank my wife Terry Hogan for her love and thoughtfulness, Daniel Leivick for his advice and assistance in many aspects of this exhibition, Liz Celeste, Craig Weiss, Elizabeth kohnke, Gail Wight, the Stanford University Department of Art and Art History, and the American Academy in Rome.

Joel Leivick, Robert and Ruth Halperin Professor in Photography, Department of Art & Art History, Stanford University.

Dedicated to my friend Richard Gordon.

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Knowledge In the Room

- Exit tickets using Google Forms
- Space and schedule: Open and flexible vs Fixed time slots
- Michigan Office Supply (do I have name right?)has 3D printer repair contracts
- Tech Support for 3D Printing: Standard Operating Procedures, On Boarding processes (front end time saves you time later), evaluate and test run setup of 3D printers
- LEGO programs - name your project, describe it. Have a show and tell!
- If worried about LEGOs being hard to clean up, set out a picnic blanket or sheet and put LEGOs on top. Scoop up the blanket and you catch them all!
- Show and Tell: Public speaking and communication skills
- Seesaw app (http://web.seesaw.me/): send work right to parents , real time digital portfolios/records
- Artsonia (https://www.artsonia.com/): One teacher made $500 for her classroom!?!
- Maker Camp = MAKE Magazine + Google Plus (http://makercamp.com/), Live making videos, field trips (Hallmark Studio), interesting maker kits/freebies

A/K

break

A

maker activity stations until 4:15

use your purpose statement as a lens through which to see tools that are a good fit

slides will be posted at: http://makinglibraries.si.umich.edu/

KS

reflection, closure, next steps, evaluation

contactmichiganmakers@umich.edu
makinglibraries.si.umich.edu
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