

Creativity and Systems

How to continually redefine MakerEd
James | SteamHead Teacher Makerspace



Carrie

Maker Mentor Thinker Tinker

Carrie

From San Francisco

Arrived in China 6 years ago
10+ years career in Silicon Valley

Currently Director of MakerEd at Shenzhen American International School

Producer of School Maker Faire in Shenzhen



James

From Los Angeles

Arrived in China 6 years ago
3 years training systems engineers, 3 years mentoring little people

Currently runs a non-profit makerspace for teachers

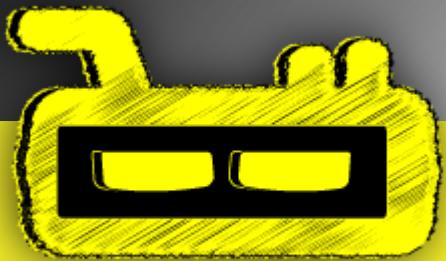


James Maker Mentor Thinker Tinker

James

Our goal: Bring Design
Thinking into Education

Design Thinking: the
planning and creation
of things



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What we
have now

Classroom

- 20 to 40 students
- Subject based learning
- Standardized testing

**4:30pm
School**

- Art
- Music
- Swimming
- Dancing
- Math
- English

writing math bells
essays literacy student
test history ages
quiz K-12 instruction reading
research desk grades rows
curriculum college university
graduate punishment
teaching reward books
principal geography schedules groups
traditional parent/teacher
teacher science
learning credits
homework

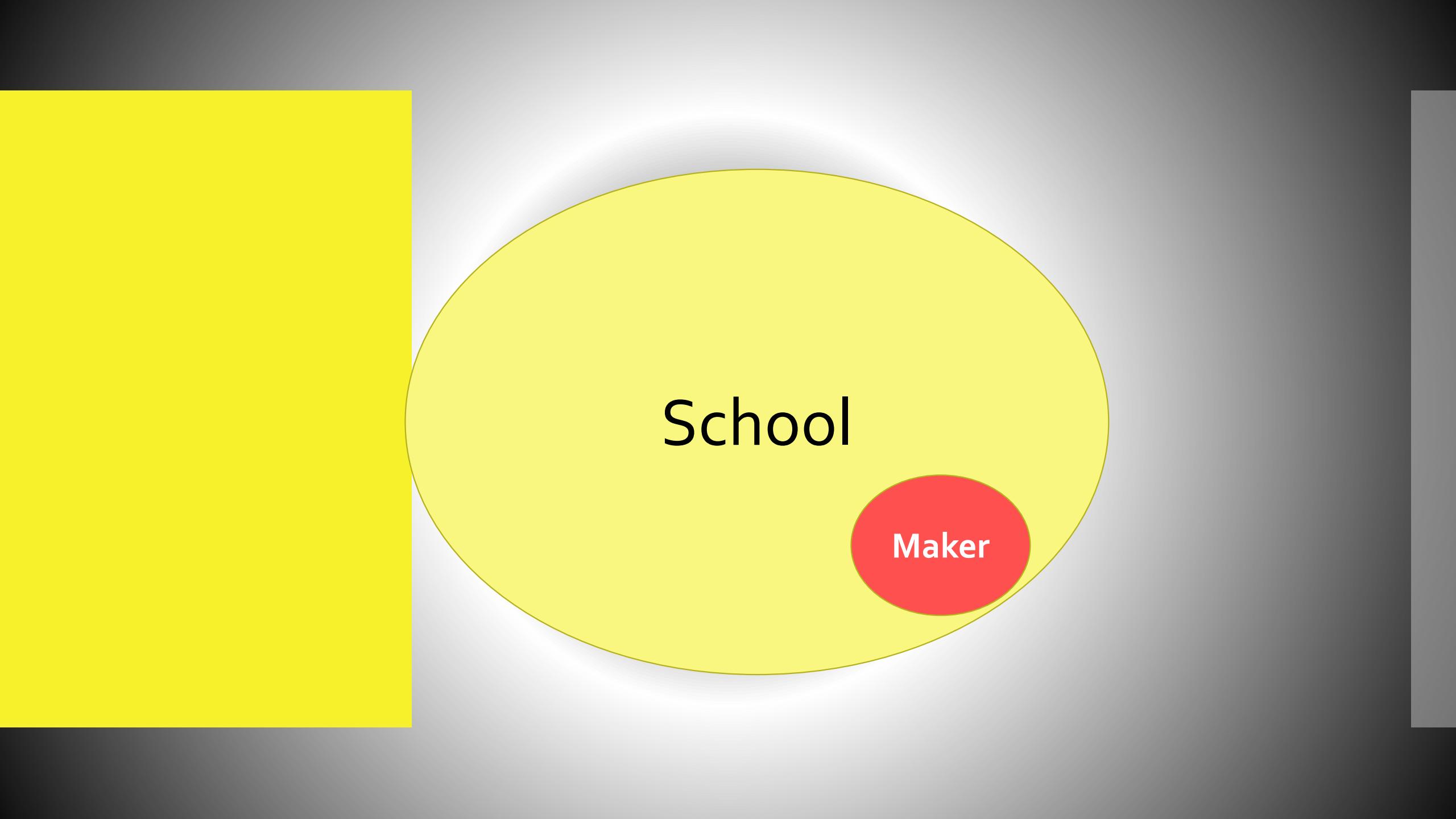


innovate experiment
design invent collaboration
fail wood lasercut
textiles coding
DIY mentors build
robots LED 3D construct
prototype fun share
Arduino create hack
electronics
community motivation
make metal computers
CNC



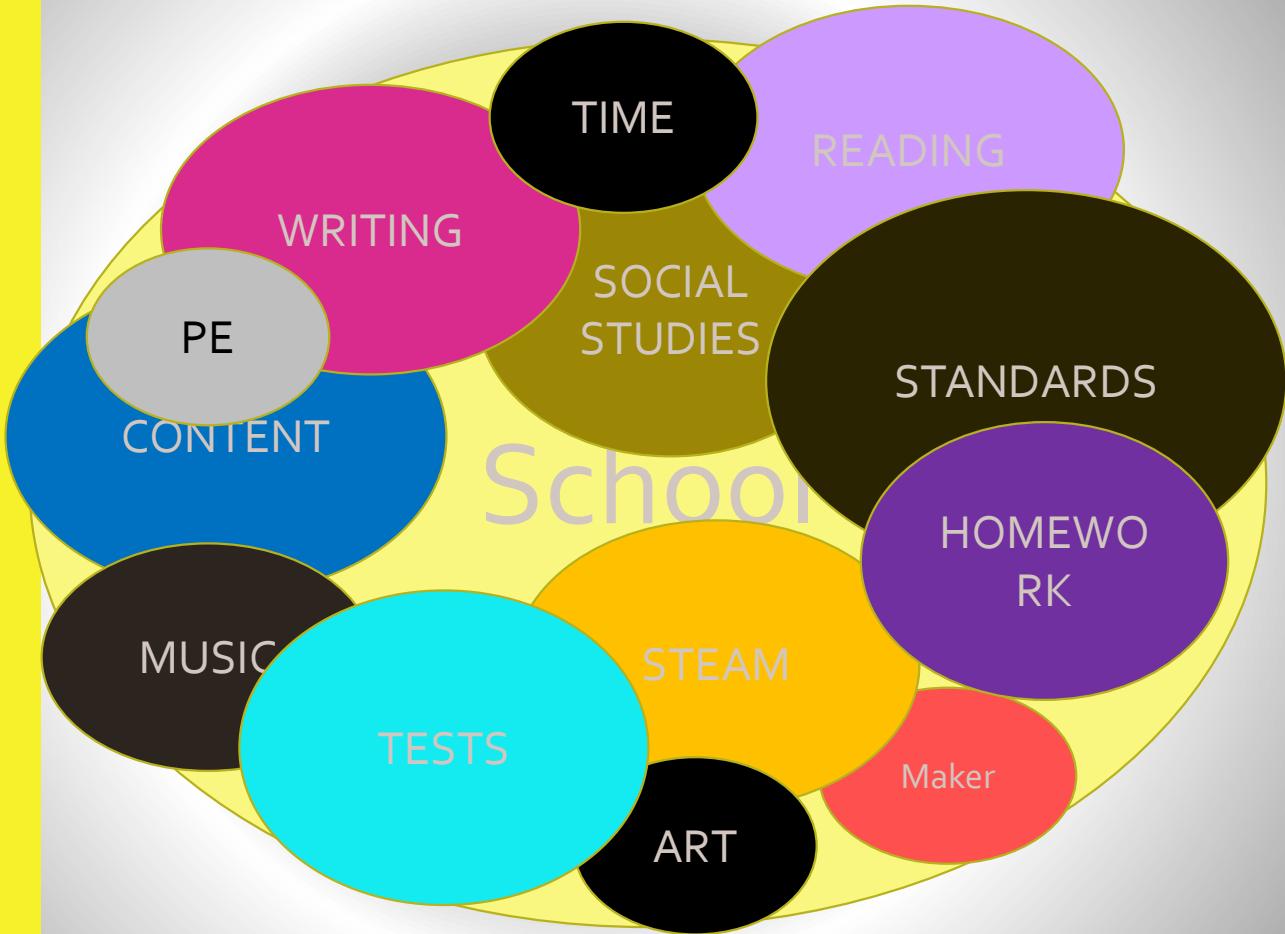
Worldwide, an amazing achievement





School

Maker



What are
we seeing
in
Shenzhen?

School

Project Based
Learning,
Cross Curriculum
Collaboration,
Hands on Learning,
Authentic Problem
Solving,
Room to Fail,
Design Thinking

Maker
Movement

Doing Projects vs. Project Based Learning



Traditional Unit with Culmination Project



Project Based Learning Unit

Project Launch

Engaging and authentic task designed to provide the context for learning

Activities

Workshops

Lectures

Homework

Research

Labs

BENCHMARK

REFLECTION

Simulations

Discussions

Modelling

Reading

Interviews

Quiz

BENCHMARK

REFLECTION

Creating

Feedback

Building

Writing

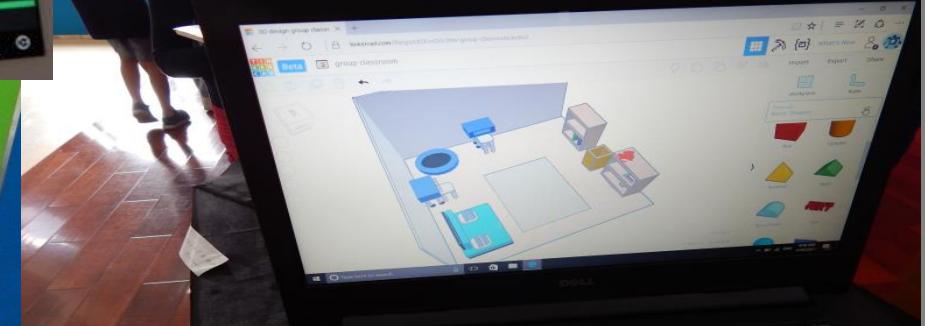
Preparing

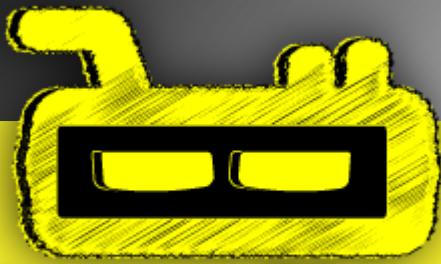
Drafts

Culminating Event and Presentations

Authentic demonstration of deeper learning

REFLECTION





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Recent Innovation Support

Innovation in China

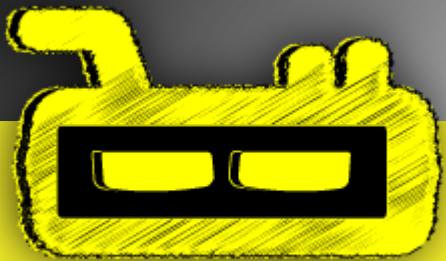
Highways, **High Speed Rail**, Metro Lines, Public Bikes

Small business services, websites, social media business tools

Government innovation grants

City planning, **New district development**, experimental schools

Today: How educators
are cooperating in
Shenzhen to bring
design into schools



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Recent
Innovation

Innovation in China

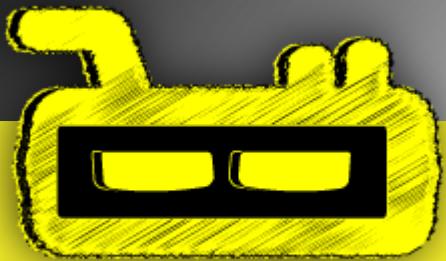
Education

Biz

School

Workshops

Startups



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Working
together

Innovation in China

Education

Biz

School

Workshops

Startups



Collaborations

**Public International
School School**

YuCai #4 SAIS

Caine's Arcade



Working Together

美拍 @MakerSAIS



Game
Instructions

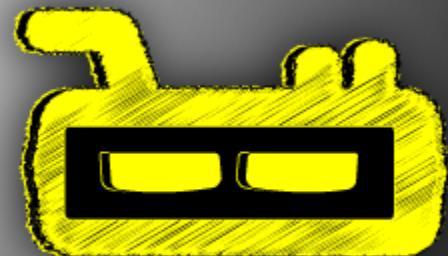
Literacy and
Writing

Wheels
and
Gears

Physics

Cardboard
Crafting

Geometry

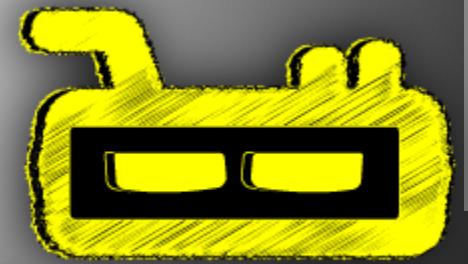


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**Community International
Partner School**

SteamHead QSI Shenzhen

美拍 @SteamHead



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Car
Frames

Design
Drawing

Wood
Craft



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Car
Frames

History of
Vehicles

Design
Drawing

Art
Fundamentals

Wood
Craft

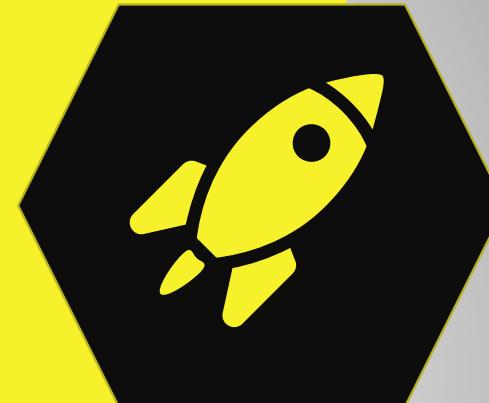
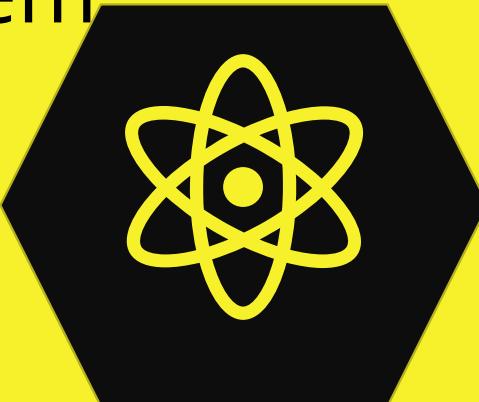
Materials
Science



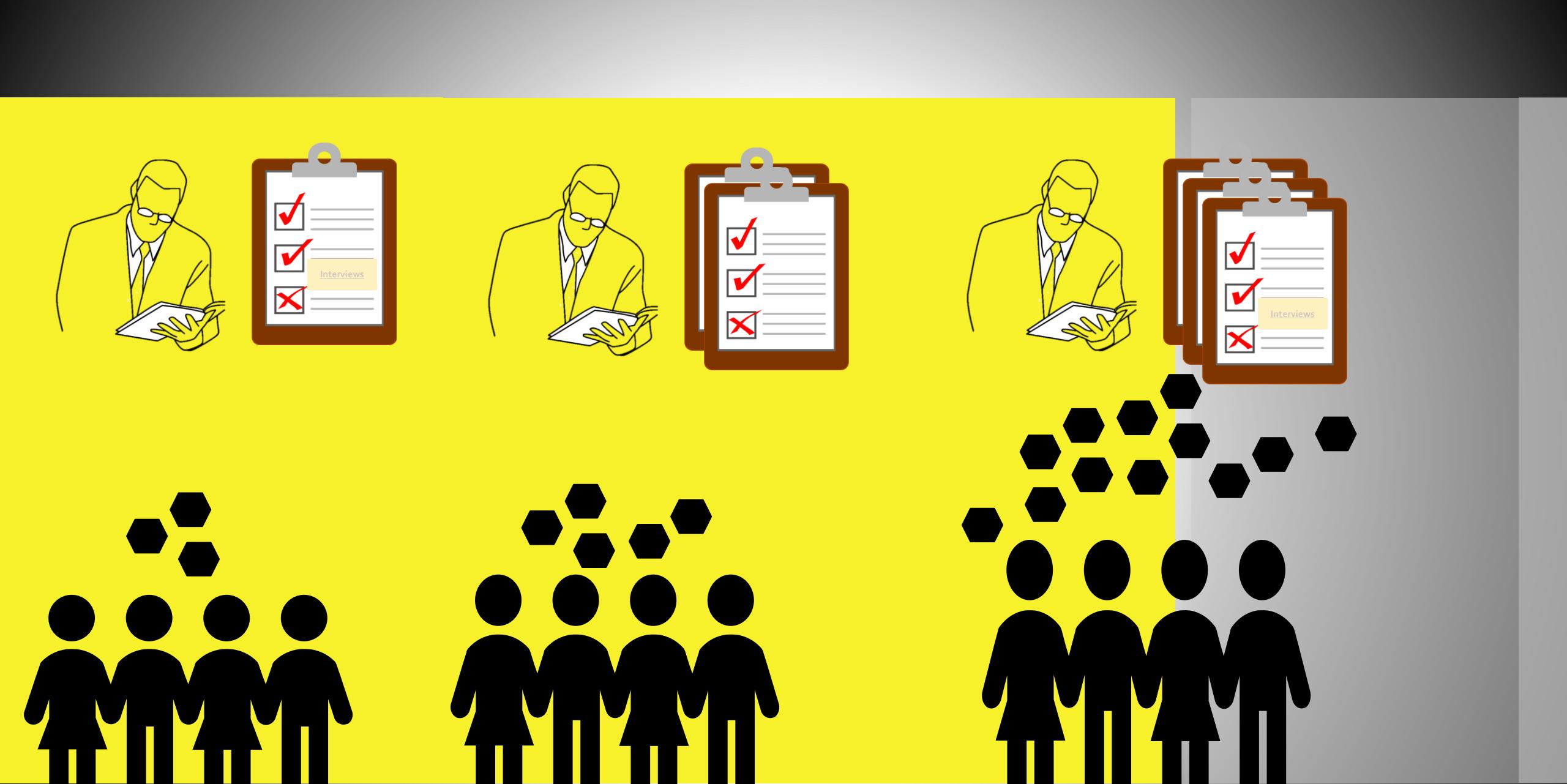
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Maker Badges

A free, Open Badges system
for Maker Education



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Grade 4 ->

Grade 6 ->

Grade 10 ->

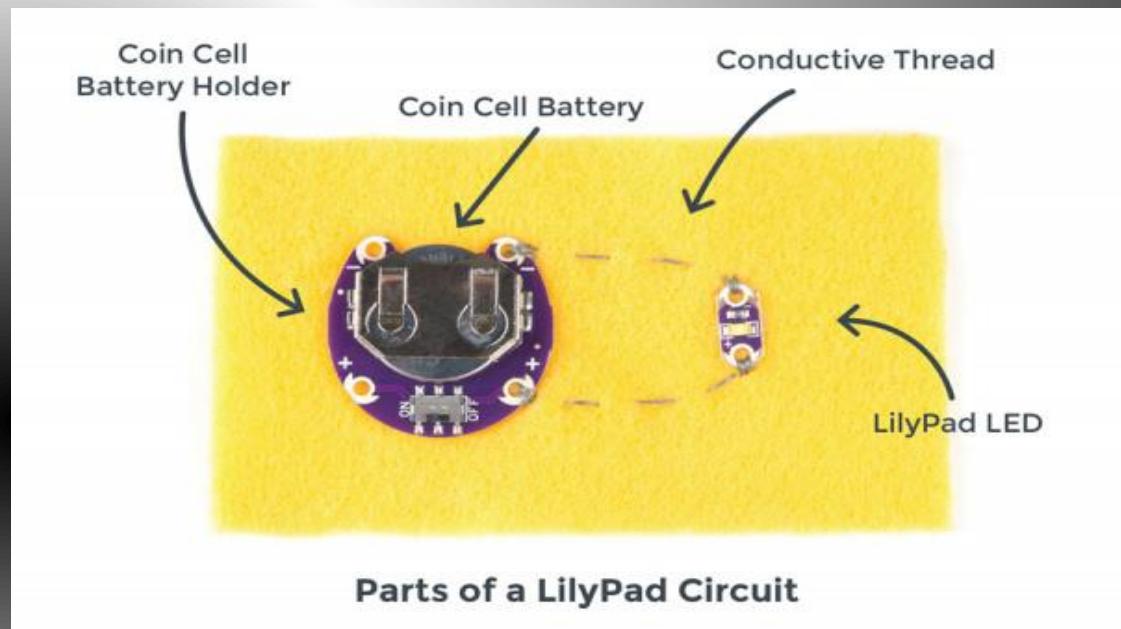
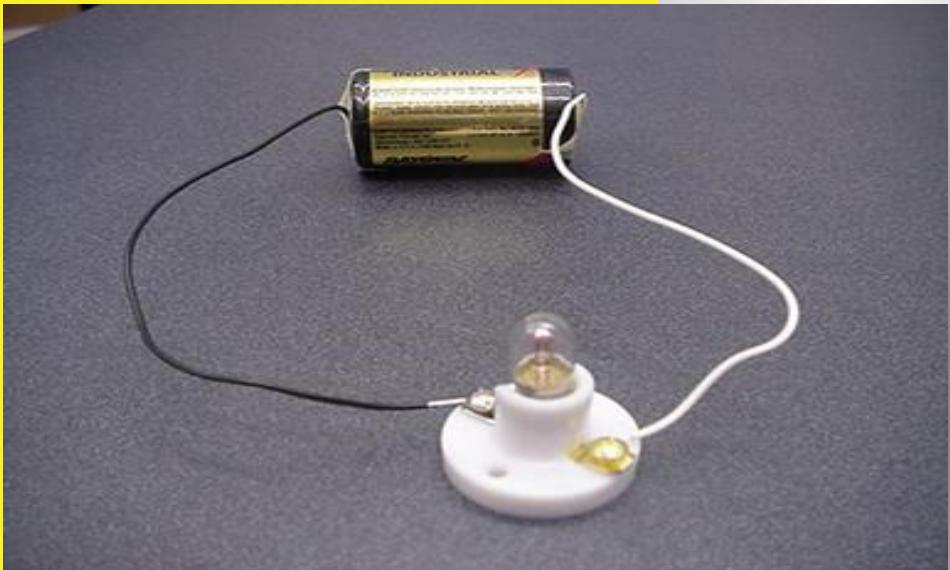
Many Badges are **already** in the teacher's lesson plan! We just need to record these activities in a standardized system.

Records feed upward to **administration**, and forward with **students**.

Block Craft	Printing
Lego, Kinet, or similar projects	Print photography, text, and computer art. Connect and maintain printer.
Papercraft	XY Plotter
Elephant in 3 forms: origami, scissor cut card stock, knife cut cardboard	Draw vector art, use XY Plotter or Vinyl Cutter to print
Craft Tools	Projector Art
Craft stick car with popsicle sticks and hot glue	Project images on the wall, trace, and fill in with fabric



LESSON PLAN



**How are the
badges...**

**Organized?
Researched?
Modified?
Downloaded?**

Lifelong evidence of learning



Mozilla Open Badges



Open Badges is the name of a group of specifications and open technical standards originally developed by the Mozilla Foundation with funding from the MacArthur Foundation. The Open Badges standard describes a method for packaging information about accomplishments, embedding it into portable image files as a digital badge, and establishing an infrastructure for badge validation. The standard was originally maintained by the Badge Alliance Standard Working Group, but transitioned officially to the IMS Global Learning Consortium as of January 1, 2017.

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Wikipedia



Official website

Launched: Sep 15, 2011

Standards researched and promoted by multinational interests

MacArthur Foundation

John D. and Catherine T. MacArthur Foundation

MacArthur Foundation

The John D. and Catherine T. MacArthur Foundation is the 12th-largest private foundation in the United States. Based in Chicago, the Foundation makes grants and impact investments to support non-profit organizations in Chicago, across the U.S., and i... +



Official website



Wikipedia



Twitter



Facebook



LinkedIn

Address: 140 S Dearborn St Ste 1200, Chicago, IL 60603

Founded: 1970 · United States

Tax ID: 23-7093598

Assets: \$5.70 billion USD

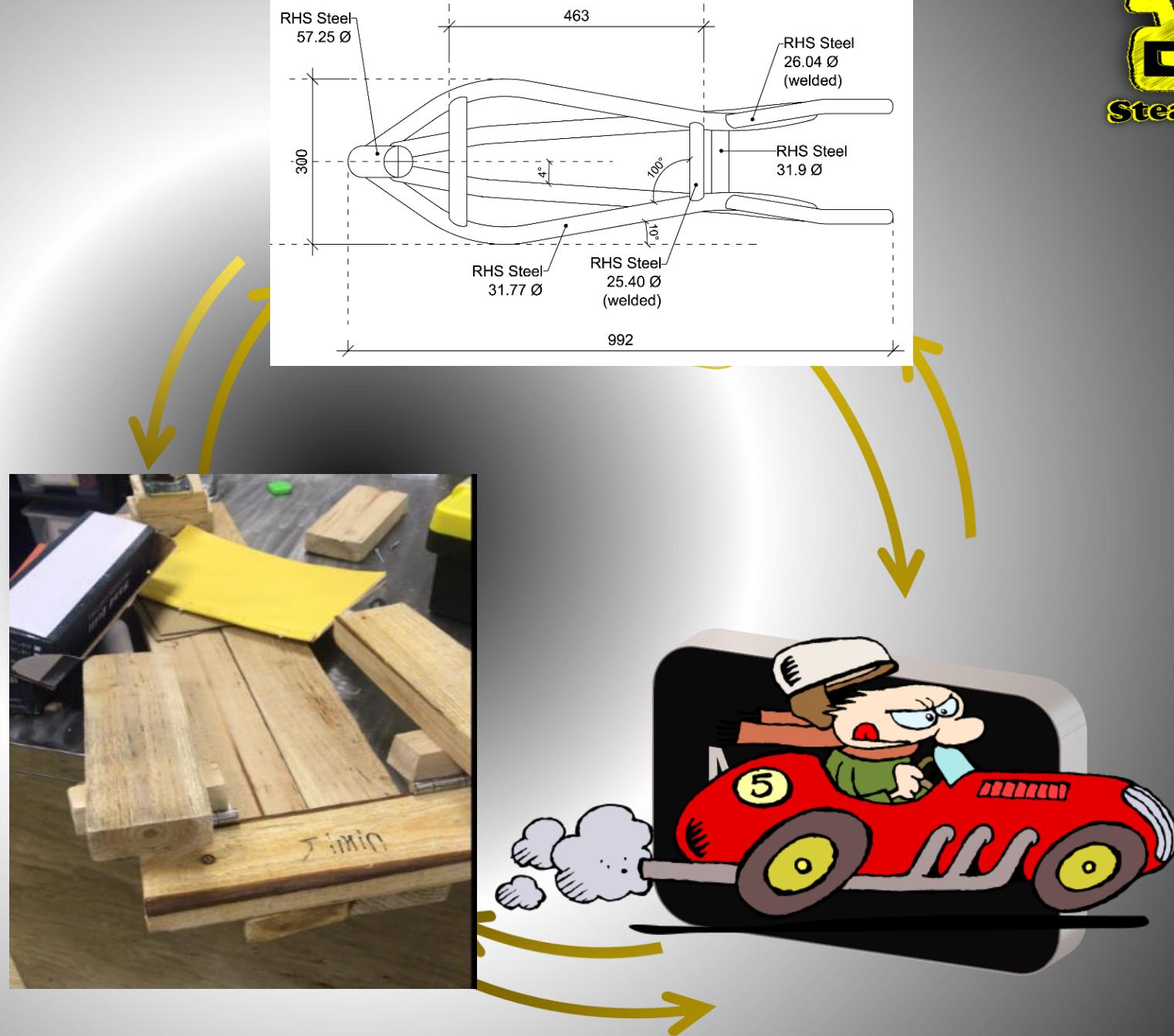
Headquarters: Chicago, IL

President: Robert Gallucci (Since 2009)

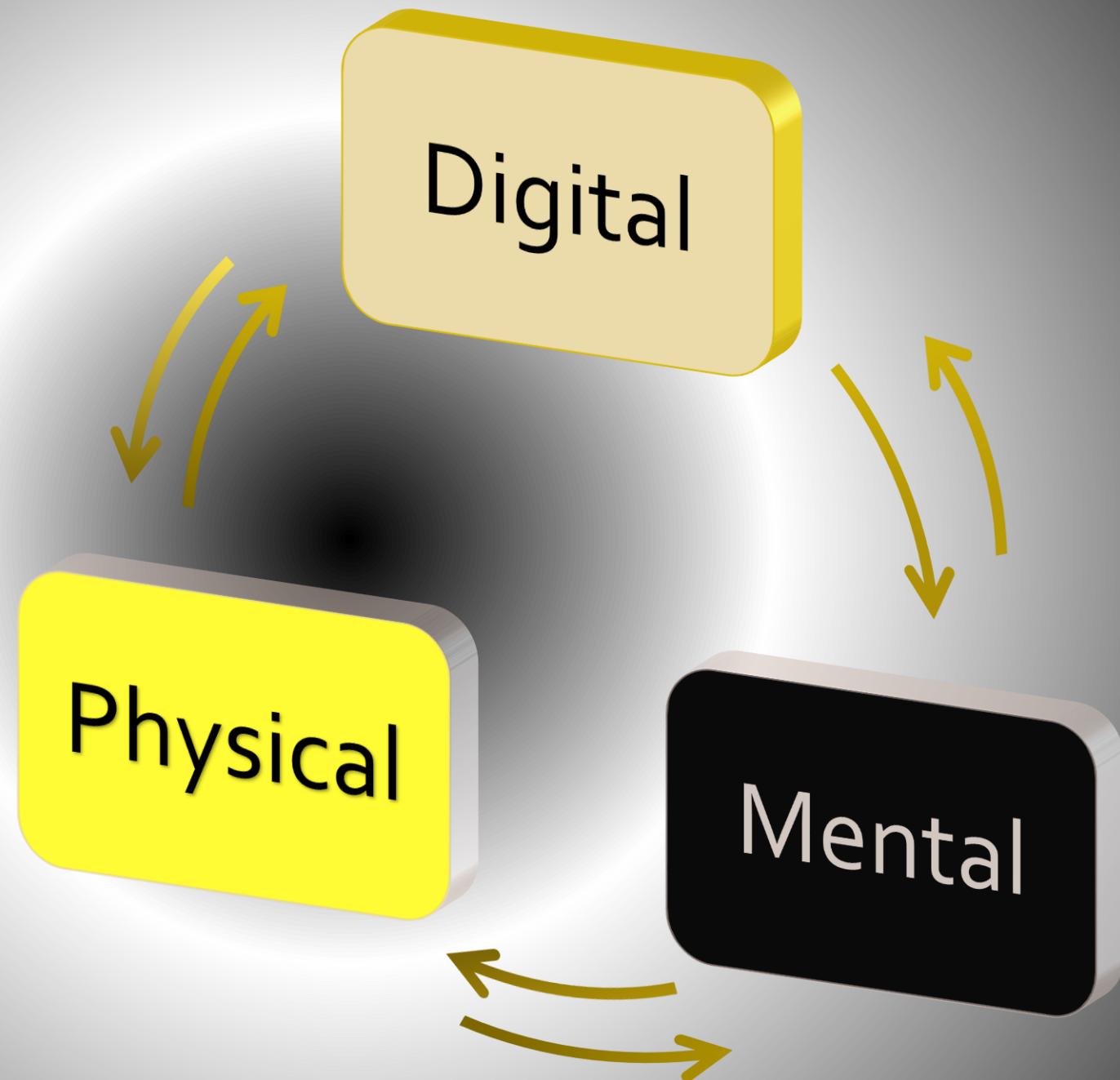


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STATES OF DESIGN

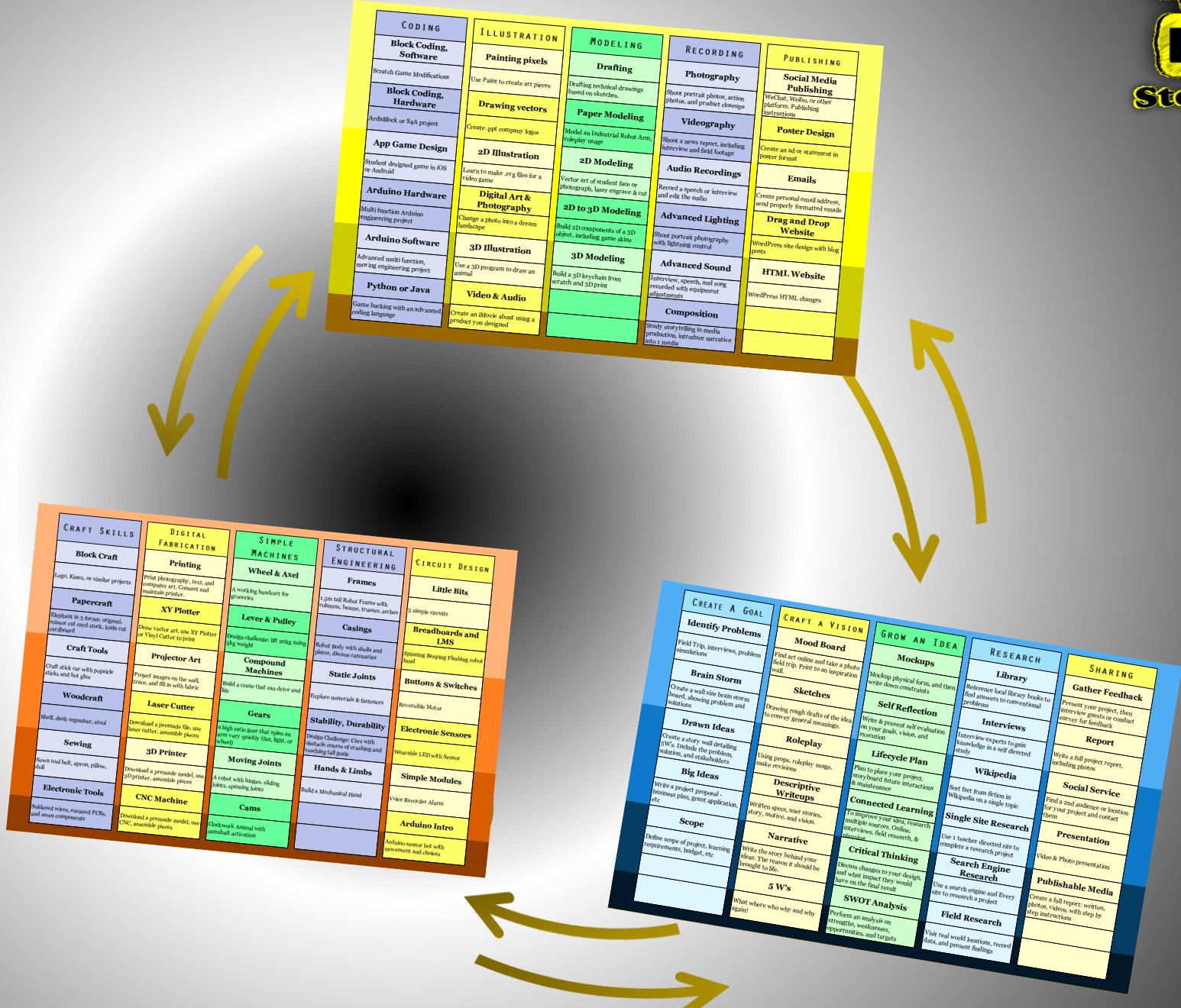


STATES OF DESIGN





STATES OF DESIGN



Is MakerEd a fad?

An evolving model is a good model. We should all seek to change the model and bring in new voices.



Resources are open source

Creative Commons Zero

On github and
SteamHeadSZ.com



**Cooperate
with
Standards**

**Learn
with
Creativity**