MAKER'S AMAZING FACTORY

3RD -8TH

CMCFN
California Math Council to the Far North

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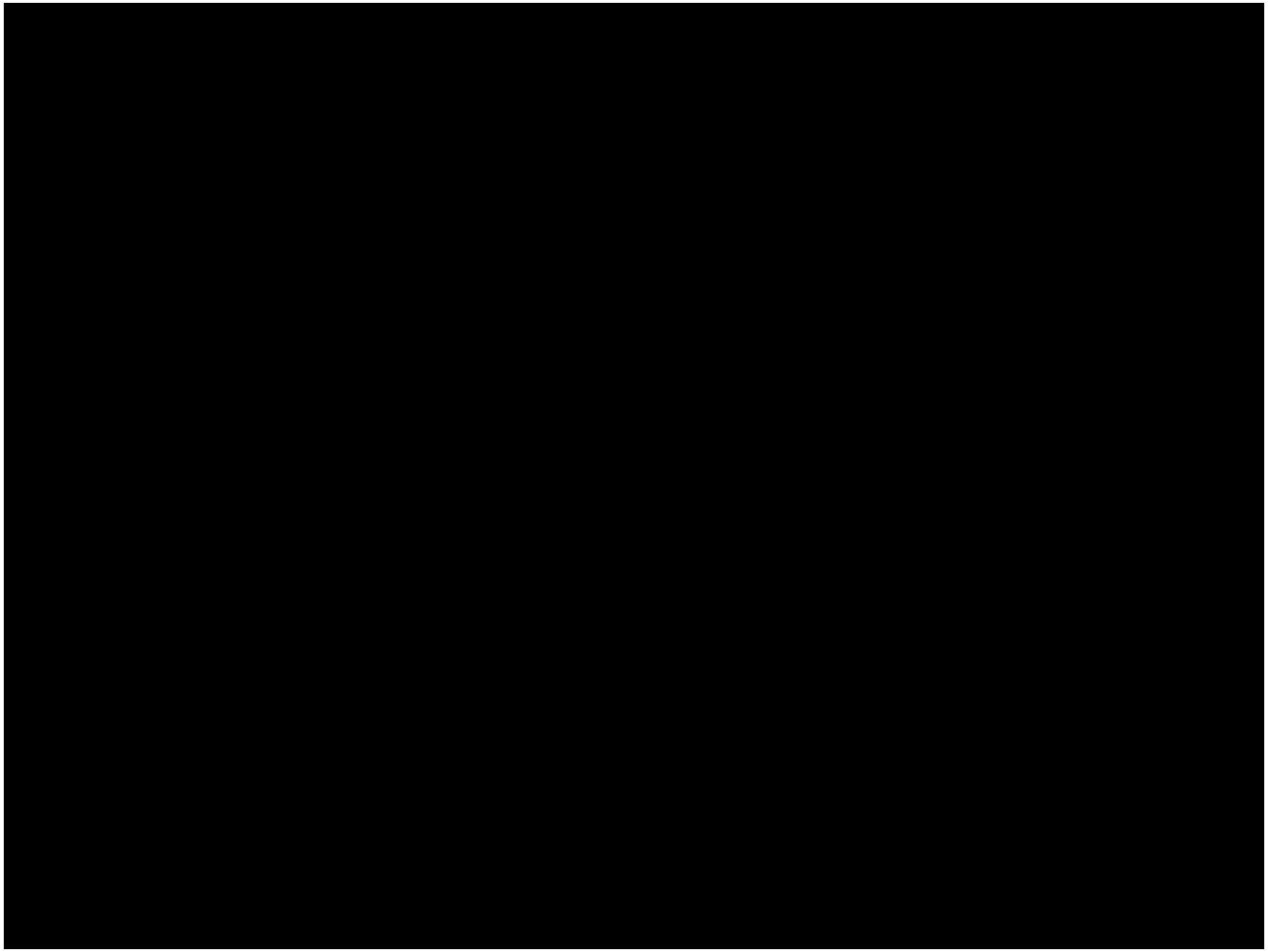
Who?

Climate for learning

- Take care of yourself…
- Go to the bathroom…
- Stand up if you need to…
- Write down question as we go ….
- Step up/step back…..

Warning!!!!!

This class may cause you to participate, think, and most of all have fun….



Epic Handshake

1) Pick a partner or two.
2) Introduce yourself
3) Create a Epic handshake.

Workshop Description

How do we prepare students to **be innovative thinkers**? In Makers Amazing Factory, we will explore ways young students can **solve real world problems** in a fun and mindful way. We will use Design Challenges, Project Based Learning, and Design Thinking activities to explore creative 21st century skills and create an environment to support maker learning.

Objectives

At the end of this session, the participant will be able to…

- provide students with the tools to **explore Math** well integrating science, technology, engineering, and Art using books, hands on activities, games and raw materials.
- review how to incorporate Math standards into an intentional lesson plan.
- enhance classroom learning using different strategies, such as the design challenge process, open ended exploration, and reflective practice.
- Learn how to provide a safe and social emotional environment to teach math concepts.

Thinking time ……

- **What are you doing with math now in your classroom?**
- **Where is your students in math?**
- **What do they need to learn?**
- **What are the interest of your students?**

How can we promote or use 21st century skills in our classroom?

Lets take a look????

What did you see?????

- In the video what did you see happen?

Design Challenges

Why?

- Puts students in different roles: problem-solver, decision-maker, investigator, etc.
- Innovative use of materials
- Teaches the engineering design process
- FUN!

Design Challenges

Elements of quality DC

- Background information
- Design scenario
- Criteria & Constraints
- Evaluate, refine, test
- Presentation of design solution

The simple Design Process

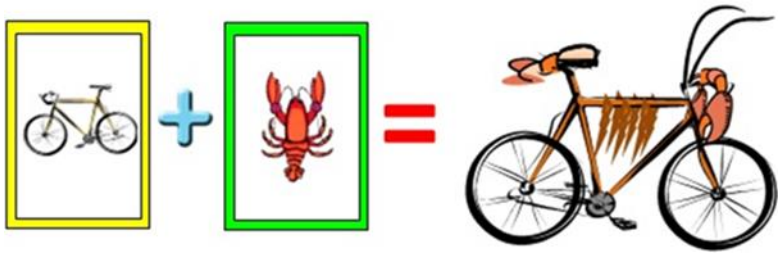
There are many models of the process. The difference is often the number of steps.

Our complex Design Process - Steps

- Identify the problem
- Identify criteria & constraints
- Brainstorm possible solutions
- Generate ideas
- Explore possibilities
- Select an approach
- Build model or prototype
- Refine the design

Quick Activity: Designer Inspiration

- Identifying the conceptual design:
- Draw 1 card……
- Find a friend that has a different color card and pair up with them…
- Discuss the card
- Create an idea, sketch out your idea…..
- Make sales pitch about your idea….



Great Minds thinking…

Scenario: Your team is contracted to build a new instrument by a local entertainment company that prides itself on creative music inventions. Most of their instruments are basic and out dated. The company is fresh out of unique instrument ideas, which is where you and your design team come in! The company is very interested in your team building an instrument that can be used in different settings and in different genre of music.

Using STEM/STEAM????

- **(S)Science**= The process and investigation of the intellectual and physical and natural world.
- **(T)Technology**= The products and systems that meet human needs.
- **(E) Engineering**= Creating design and using the material properties to its capacity.
- **(A) Art**= Using creativity to gain an clear understanding of product.
- **(M) Math**= Understanding and exploring different attributes which relates to quantities.
- Why is STEM/STEAM so important?
  - It provides the skills needed for future careers.
  - 21st century skills

Spaces

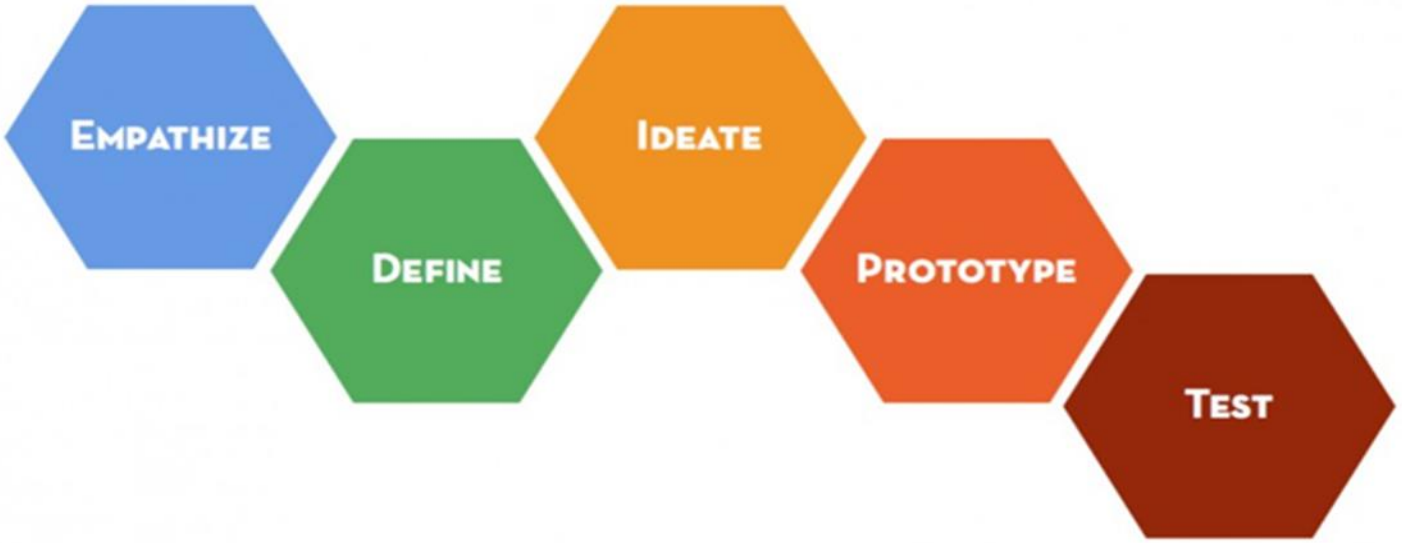
What is makerspaces or creative spaces?

Design thinking thing…..

Before we begin this journey we have put in our head…..

" To create meaningful innovations you need to know your users and care about their lives."

Design Thinking……



Lets put in into action…..

Story group party…..

- Pick a story….

  1) Read or listen to your story…..

  2) Come up with

  3) Find the problem.

  4) How can you help solve the problem….

  5) What tools would you use to solve the problem ……

  6) Give your solution it a try…..

Share out ……

Wrapping up

Reflection time…..

- Think about your students…
- Think about your standards/Practices…… Math…..
- Design a plan……..
- Design your lesson plans…

Questions…..

Please take a minute to complete the session evaluation. The link below is also on the CMCFN website.

https://sites.google.com/site/cmcfnconfeval/