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STEM EDUCATION

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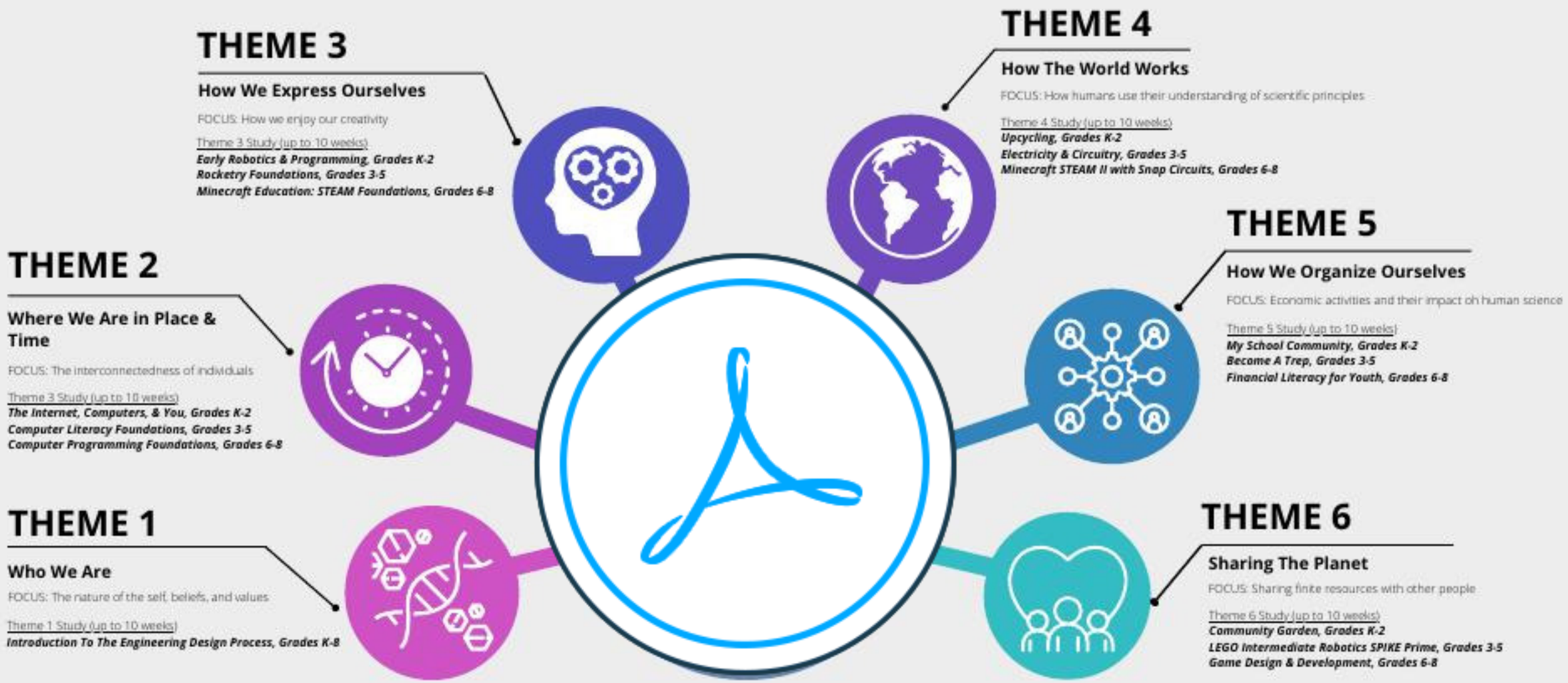


The STEM Education program at Hempstead Union Free School District will build proficiency in STEM literacy for all students in grades K-8. The program will align with the district's IB Themes to increase students proficiency in 21st

on an element within each IB theme that students will use to problem solve, develop a product or service, and grapple with real-world phenomena.

Lesson Information	
School	
Instructor	
Grade Level(s)	
Intent of the Lesson/Content	
Lesson Overview	
IB Connection	
Focus Standard(s)	
Objective(s)	
Driving Question(s)	
What should a stude know?	
What should a stude do?	
Resources	
Indicate which assessment t and/or link to the assessment.	Give a full description
Formative	
Summative	
Evidence of Learning	
Project/Portfolio	
Survey	

I AM Creative Project

Using the supplies you have at home, design and build some kind of 3D object that represents you/your personality. You really have the sky as your limit here in terms of what you could make, but here are some rules to guide you:

- You must use at least 3 different kinds of materials (paper, glue, and pencil is okay, but it is preferred if you stretched yourself and did 3 very different materials. This isn't art class, but you can use art if that is part of who you are).
- It shouldn't take very long to make.
- Should be no bigger than what you are able to carry comfortably in your arms. You don't need to design the Death Star or even a life-size model of anything. Keep it simple.
- It does not have to be artistic, just creative. It needs to represent you or your personality.
- It could be a statue of yourself that you make out of a toilet paper roll, pipe cleaners, and Play-doh! Or, you could make an origami flower and put it into a cardboard garden box you make to demonstrate your love for origami and plants. You could make a Q-tip dinosaur skeleton fighting a pipe cleaner superhero riding a paper rocket (to tell us of your love of dinosaurs, superheroes, and science). Whatever it is, this is supposed to be a symbol of you and your creativity. Have fun with this!

21CentEd.

What was your "engineered design"?

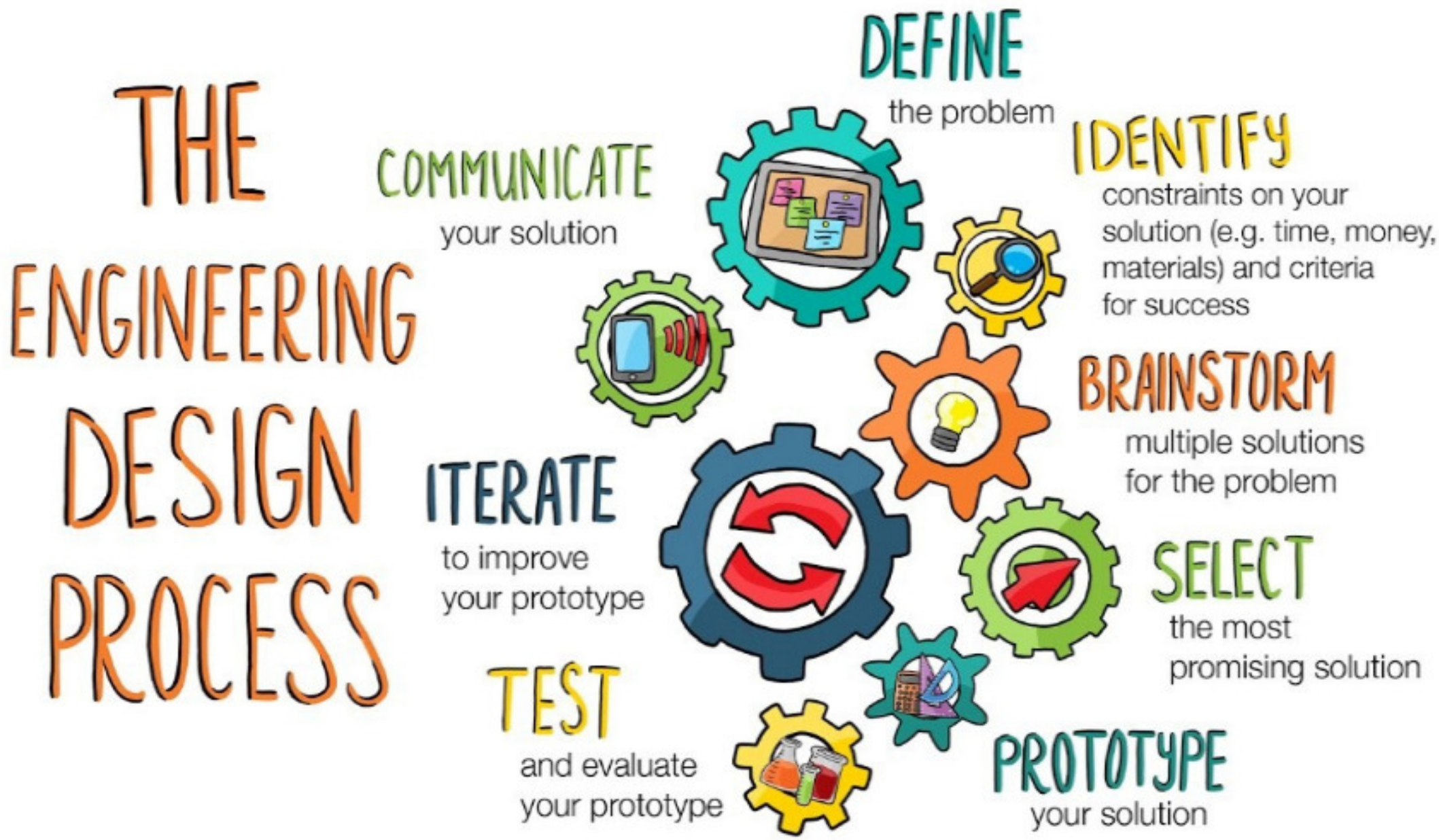
Take a picture of your design and upload it here.

Instructions

Collaborate Board

What was your "engineered design"?

Engineering Design



Design Thinking: A Problem Solving Framework

George Lucas Educational Foundation

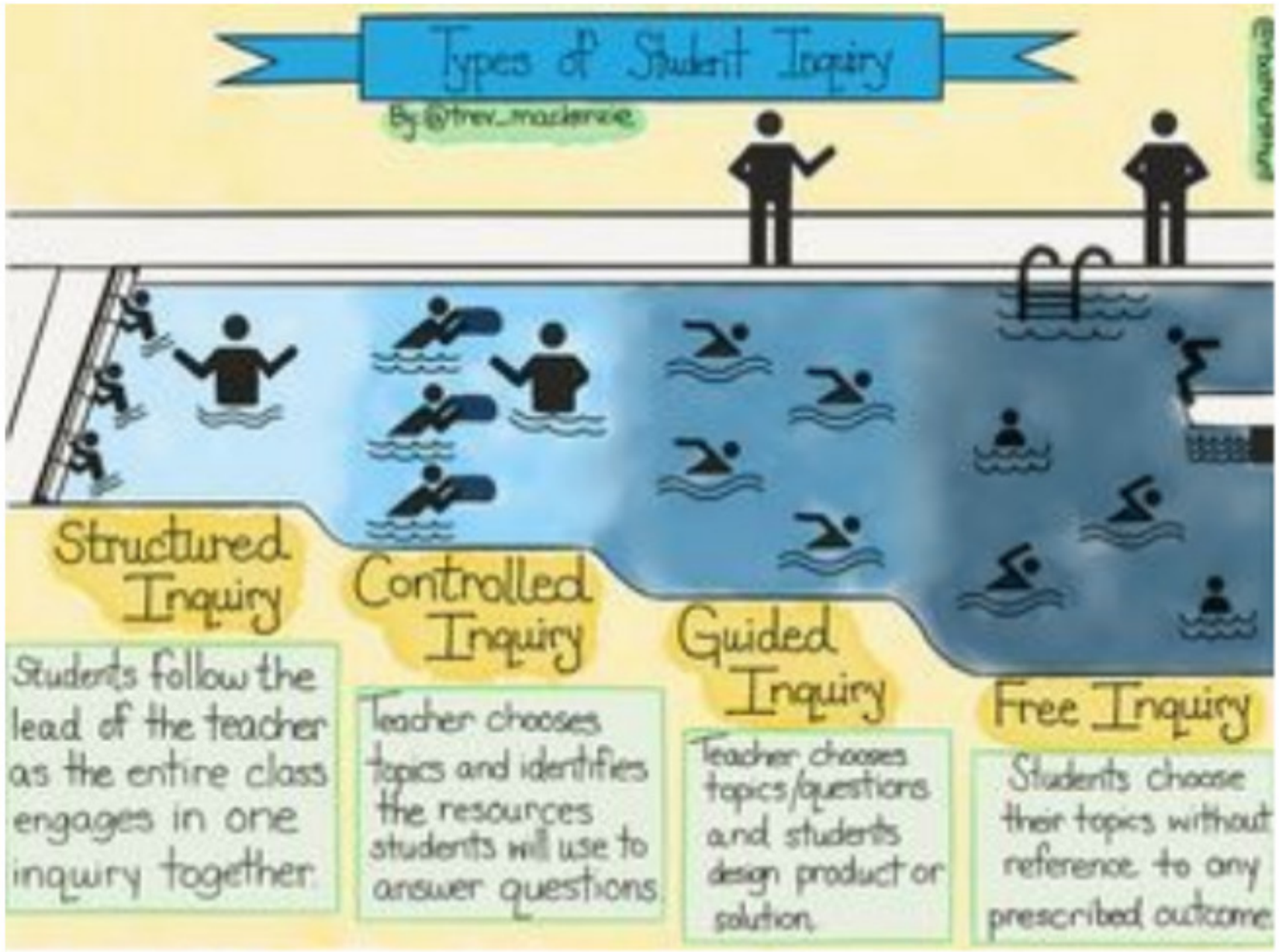
https://www.edutopia.org/video/design-thinking-problem-solving-framework

Framework

Students learn to empathize with others around the globe while solving real-world problems.

September 19, 2018

Types of Inquiry



INQUIRY-BASED LEARNING

Bringing Inquiry-Based Learning Into Your Class

A four-step approach to using a powerful model that increases student agency in learning.

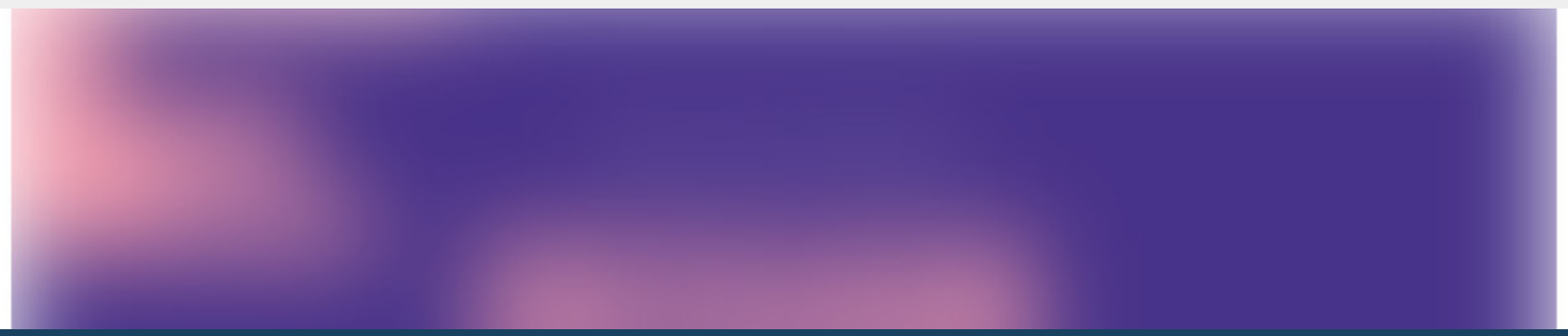
By Trevor MacKenzie

December 1, 2016

Why We Need Design Thinking in Our Schools

LEADERSHIP PROFESSIONAL LEARNING

https://www.ascd.org/blogs/why-we-need-design-thinking-in-our-schools



8-Year-Old CEO Is Already WILDLY Successful! 🤯 | T&N Bow Ties

Fall 2013

Co-Learning: M n Clinical Experiences

Hillary Merk
University of Portland, merk@up.edu

Jacqueline Waggoner
University of Portland, waggoner@up.edu

James Carroll

Collaborative Learning

Engaging Students

Collaborative learning can occur peer-to-peer or i
or peer instruction, is a type of collaborative learning
working in pairs or small groups to discuss concepts or fin
problems. Similar to the idea that two or three heads are better than one, educational researchers have found that through peer instruction, students teach each other by addressing misunderstandings and clarifying

Teaching Resources

Active & collaborative learning

- Active learning
- Collaborative learning
- How to create and manage groups
- How to evaluate group work
- Discussions

Engaging students >

Inclusion, accessibility, & accommodation >

TA resources >

https://teaching.cornell.edu/teaching-resources/active-collaborative-learning/collaborative-learning

Why use collaborative learning?

Research shows that educational experiences that are active, social, contextual, engaging, and student-owned lead to deeper learning. The benefits of collaborative learning include:

K-2.Engineering Design

K-2.Engineering Design

Students who demonstrate understanding can:

K-2-ETS1-1. **Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.**

K-2-ETS1-2. **Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.**

K-2-ETS1-3. **Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.**

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Asking Questions and Defining Problems

Asking questions and defining problems in K–2 builds on prior experiences and progresses to simple descriptive questions.

- Ask questions based on observations to find more information about the natural and/or designed world. (K-2-ETS1-1)
- Define a simple problem that can be solved through the development of a new or improved object or tool. (K-2-ETS1-1)

Developing and Using Models

Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.

- Develop a simple model based on evidence to represent a proposed object or tool. (K-2-ETS1-2)

Analyzing and Interpreting Data

Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing obse

- Analyze data from tests of an object or tool to d it works as intended. (K-2-ETS1-3)

Disciplinary Core Ideas

ETS1.A: Defining and Delimiting Engineering Problems

- A situation that people want to change or create can be approached as a problem to be solved through engineering. (K-2-ETS1-1)
- Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1)
- Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1)

ETS1.B: Developing Possible Solutions

- Designs can be represented through sketches, drawings, or physical models useful in communicating ideas (K-2-ETS1-2)

olution to a -2-ETS1-3)

Crosscutting Concepts

Structure and Function

- The shape and stability of structures of natural and designed objects are related to their function(s). (K-2-ETS1-2)

Connections to K-2-ETS1.A: Defining and Delimit

Kindergarten: K-PS2-2, K-ESS3-2

Connections to K-2-ETS1.B: Developing Possible

Kindergarten: K-ESS3-3, **First Grade:** 1-

Connections to K-2-ETS1.C: Optimizing the Desig

Second Grade: 2-ESS2-1

Articulation of DCIs across grade-bands: **3-5.ETS** S1-3); **3-5.ETS1.C** (K-2-ETS1-1),(K-2-ETS1-2),(K-2-ETS1-3)

Common Core State Standards Connections:

ELA/Literacy –

RI.2.1 Ask and answer such questions as *who,* etails in a text. (K-2-ETS1-1)

W.2.6 With guidance and support from adults, u collaboration with peers. *(K-2-ETS1-1),(K-2-ETS1-3)*

W.2.8 Recall information from experiences or gath S1-1),*(K-2-ETS1-3)*

SL.2.5 Create audio recordings of stories or poems; a xperiences when appropriate to clarify ideas, thoughts, and feelings. *(K-2-ETS1-2)*

Mathematics –

MP.2 Reason abstractly and quantitatively. *(K-2-ETS1-1),(K-2*

MP.4 Model with mathematics. *(K-2-ETS1-1),(K-2-ETS1-3)*

MP.5 Use appropriate tools strategically. *(K-2-ETS1-1),(K-2-ETS1-3)*

2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. *(K-2-ETS1-1),(K-2-ETS1-3)*

3-5.Engineering Design

3-5.Engineering Design

Students who demonstrate understanding can:

3-5-ETS1-1. **Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.**

3-5-ETS1-2. **Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.**

3-5-ETS1-3. **Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.**

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Asking Questions and Defining Problems
Asking questions and defining problems in 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships.

- Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1)

Planning and Carrying Out Investigations
Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.

- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using
tests in which variables are controlled and the numb
trials considered. (3-5-ETS1-3)

Constructing Explanations and Designing Soluti
Constructing explanations and designing solutions in
on K–2 experiences and progresses to the use of ev
constructing explanations that specify variables tha
and predict phenomena and in designing multiple
design problems.

- Generate and compare multiple solutions to a
based on how well they meet the criteria and
of the design problem. (3-5-ETS1-2)

Disciplinary Core Ideas

ETS1.A: Defining and Delimiting Engineering Problems

- Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (3-5-ETS1-1)

ETS1.B: Developing Possible Solutions

- Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how
ly conditions. (3-5-ETS1-2)
- eers about proposed
ocess, and shared
difficulties,
be
which of

Crosscutting Concepts

Influence of Science, Engineering, and Technology on Society and the Natural World

- People's needs and wants change over time, as do their demands for new and improved technologies. (3-5-ETS1-1)
- Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. (3-5-ETS1-2)

Connections to 3-5-ETS1.A: Defining and Delimit
Fourth Grade: 4-PS3-4
Connections to 3-5-ETS1.B: Designing Solutions to
Fourth Grade: 4-ESS3-2
Connections to 3-5-ETS1.C: Optimizing the Design S
Fourth Grade: 4-PS4-3

Articulation of DCIs across grade-bands: **K-2.ETS1.A** (3
2.ETS1.C (3-5-ETS1-2),(3-5-ETS1-3); **MS.ETS1.A** (3-5-ETS1-1); **MS.ETS1.B** (3-5-ETS1-1),(3-5-ETS1-2),(3-5-ETS

Common Core State Standards Connections:

ELA/Literacy –

RI.5.1	Quote accurately from a text when explaining what th
ces from the text. *(3-5-ETS1-2)*
RI.5.7	Draw on information from multiple print or digital sources, d
n answer to a question quickly or to solve a problem efficiently. *(3-5-ETS1-2)*
RI.5.9	Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (3-5-ETS1-2)
W.5.7	Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic. (3-5-ETS1-1),(3-5-ETS1-3)
W.5.8	Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. *(3-5-ETS1-1),(3-5-ETS1-3)*
W.5.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. *(3-5-ETS1-1),(3-5-ETS1-3)*

Mathematics –

MP.2	Reason abstractly and quantitatively. *(3-5-ETS1-1),(3-5-ETS1-2),(3-5-ETS1-3)*
MP.4	Model with mathematics. *(3-5-ETS1-1),(3-5-ETS1-2),(3-5-ETS1-3)*

MS.Engineering Design

MS.Engineering Design

Students who demonstrate understanding can:

MS-ETS1-1. **Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.**

MS-ETS1-2. **Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.**

MS-ETS1-3. **Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.**

MS-ETS1-4. **Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.**

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Asking Questions and Defining Problems
Asking questions and defining problems in grades 6–8 builds on grades K–5 experiences and progresses to specifying relationships between variables, and clarifying arguments and models.
- Define a design problem that can be solved through the development of an object, tool, process or system and includes multiple criteria and constraints, including scientific knowledge that may limit possible solutions. (MS-ETS1-1)

Developing and Using Models
Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test more abstract phenomena and design systems.
- Develop a model to generate data to test ideas a systems, including those representing inputs an ETS1-4)

Analyzing and Interpreting Data
Analyzing data in 6–8 builds on K–5 experiences a extending quantitative analysis to investigations, d between correlation and causation, and basic stat data and error analysis.
- Analyze and interpret data to determine simila differences in findings. (MS-ETS1-3)

Engaging in Argument from Evidence
Engaging in argument from evidence in 6–8 builds o and progresses to constructing a convincing argumen or refutes claims for either explanations or solutions ab and designed world.
- Evaluate competing design solutions based on jointly and agreed-upon design criteria. (MS-ETS1-2)

Disciplinary Core Ideas

ETS1.A: Defining and Delimiting Engineering Problems
- The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will of constraints includes les and other relevant ible solutions. (MS-ETS1-

ed on the basis TS1-4)
tions with traints of a
nd to ssors.
MS-
ll tests, ned the
s may be
olutions
test results
optimal

Crosscutting Concepts

Influence of Science, Engineering, and Technology on Society and the Natural World
- All human activity draws on natural resources and has both short and long-term consequences, positive as well as negative, for the health of people and the natural environment. (MS-ETS1-1)
- The uses of technologies and limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. (MS-ETS1-1)

Connections to MS-ETS1.A: Defining and Delimiting Engineering
Physical Science: MS-PS3-3
Connections to MS-ETS1.B: Developing Possible Solutions Problems includ
Physical Science: MS-PS1-6, MS-PS3-3, **Life Science:** MS-LS2-5
Connections to MS-ETS1.C: Optimizing the Design Solution include:
Physical Science: MS-PS1-6

Articulation of DCIs across grade-bands: **3-5.ETS1.A** (MS-ETS1-1),(MS-ETS1-2),(MS-ETS1-3); **3-5.ETS1.B** (MS-ETS1-2),(MS-ETS1-3),(MS-ETS1-4); **3-5.ETS1.C** (MS-ETS1-1),(MS-ETS1-2),(MS-ETS1-3),(MS-ETS1-4); **HS.ETS1.A** (MS-ETS1-1),(MS-ETS1-2); **HS.ETS1.B** (MS-ETS1-1),(MS-ETS1-2),(MS-ETS1-3),(MS-ETS1-4); **HS.ETS1.C** (MS-ETS1-3),(MS-ETS1-4)

Common Core State Standards Connections:

ELA/Literacy –

RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts. (MS-ETS1-1),*(MS-ETS1-2),(MS-ETS1-3)*

WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research. *(MS-ETS1-2)*

SL.8.5 Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest. *(MS-ETS1-4)*

Mathematics –

MP.2 Reason abstractly and quantitatively. *(MS-ETS1-1),(MS-ETS1-2),(MS-ETS1-3),(MS-ETS1-4)*

7.EE.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *(MS-ETS1-1),(MS-ETS1-2),(MS-ETS1-3)*

Get Curious

Are you curious? What kind of assignment would we have you do to be curious? Will it be hard? Will it be easy? How long will it take? Why do I need a rubber band? Get the idea? :) The purpose of this activity is to get you feeling more curious and to start asking lots of questions. Creativity comes from curiosity.

You will need:

a rubber band

pencil/pen,

your notebook.

Sit at a table and place the rubber band on top of the table. Write, at the top of your piece of paper: "What are all the ways I can use a rubber band?"

Then, below that, list as many ideas as you can in the form of "what if" questions. For example: What if I used it as a slingshot?

What if I used it to transport objects? (Then you could follow up with: What objects could I use?)

...and so on.

When you have at least 25 questions, go and experiment with 2 or 3 of them.

Problem Spotting

This is going to be an assignment that requires you to really observe the world around you. You will need to be as mobile as you can around your home or classroom and you may even need to go around the school or your neighborhood (with your parents' permission and/or help) to find some opportunities for innovation. What you observe for this activity will be the foundation for your innovative product, system, or service that you work on for the rest of the class and use in your capstone project. So, you'll want to really do well in this activity.

You need to make a list of pain points (another name for this is "bug listing") and/or a list of compensatory behaviors that you observe. You should try to list as many as you can (go for quantity!). You should get at least 20 observations with 2 or 3 you are interested in creating an innovative solution for. Feel free to ask your friends, teachers, or family members for help in identifying things that "bug" them or ways in which they compensate for failures in technology or products. Put all your observations in your notebook. You will need this as part of your Capstone project.

What "bugs" you?

List your ideas here.

Instructions

Collaborate Board

What "bugs" you?

Question Storming

You've heard of brainstorming. It's when a group of people spend all their time thinking of ideas or solutions.
This is Question Storming. You're not looking for answers (not yet). Just questions.
The assignment? Take the 2 or 3 top observations you made in your Bug List, then take your notebook and write down as many questions as you can for each one.
Try and get at least 40 questions per observation. Remember the rules of creativity and have fun with this!

Instructions

Collaborate Board

Generate your questions here:

My Network

You have become an expert, in many ways, in studying these 2 or 3 observations. You have had experiences with them to help you learn more about the problems at hand. You then spent some time thinking up as many questions as you could to help you see what you know and what you don't. Now, it's time to put those questions to work.

In your last activity, "Question Storming," you may have found that you like one more than the other. You should feel pretty good about 1 or 2 of these opportunities for innovation. Pick the one you are most likely to work on for the rest of the class.

Problem Statement

This is an activity that may take you a while or even a few minutes. Just because it is simple, does not mean that it is easy. Do not take this lightly, as it may send you down a less innovative path. So, feel free to bounce ideas off of other people and get their help and feedback.

What you need to do is take your #1 problem and find its essence (What is this problem really all about?). Then, create a problem statement that highlights the essence. Problem statements are only one sentence. If you ramble, you will realize that you have not found the essence. This will be a creative exercise, for sure! Have fun!

Instructions

Collaborate Board

Write your "problem statement" here:

Turn It Into A Question

This assignment is pretty simple and may be even too easy, but it may take a few minutes to get it just right.

This may seem like a trite writing assignment, but innovation research shows that this is a dramatic difference between success and failure. So do a good job and it will serve you well in the end. :)

Here's what you do:

Take your Problem Statement and write out "What are all the ways we can..." or "How might we..." to start it off.

Change all of the negative statements about the problem and reframe them into positive statements. You may need some help and feedback on this from people around you and that is totally acceptable.

And end it with a question mark!

Turn It In A Question

Write your final inquiry question here:

Instructions

Collaborate Board

Turn It In A Question

Storyboarding

it's time to make your innovation a reality! Using your #1 problem come up with three solutions to solve this problem. Brainstorm with your friends and family. Then take those three ideas and create a storyboard for the best solution to your problem. It may take you 10 story boxes or it may take you 25--it doesn't matter. Just as long as you are able to show step-by-step through the following main story points:

- How the user comes in contact with your innovation
- How the user actually uses the innovation
- What happens immediately after the user experiences the innovation

Somehow, through all of that, you need to highlight the original problem. This is a very comic-book style approach to helping you understand how your idea will be implemented in society. Be sure to ask others for feedback.

Draw It

Make your storyboard here:

Rapid Prototypes

It's time to start your own maker space and get creating some rapid prototypes. This will be the most fun you've had the whole class for sure. :)
You need to build a rapid prototype for each of your top solution idea. Then get some feedback from family and freinds on your prototype. Based on the suggestions you get, make some adjustments to your prototype. If that solution no longer seems to solve your problem, then go back and choose one of the other two solutions you came up with. Create a storyboard for that solution and make a prototype.

Repeat this process above as many times as you need to get a really good solution with a really good prototype.

Once you have a prototype that is going in the right direction, get even more feedback to make adjustments to your final prototype as needed.

Final Prototype

Take a picture of your final prototype and upload it here.

Instructions

Collaborate Board

Final Prototype

Demonstrate

This assignment is pretty easy. It may not take any adjustment on your part, but take some time to consider it nonetheless.

You need to look at your final prototype and make sure that it is in a condition so that someone can use it--like a stage prop--and understand how it works. This doesn't mean that your prototype has to work perfectly or that it has to actually function as the real thing. It just needs to be able to communicate to someone how it works and its overall use.

Get feedback from your volunteer(s). If the prototype is a success. Then you are ready to pitch this idea as a viable solution to your problem!

The Pitch

Create a pitch that has all the components of SUCCESS (Simple, Unexpected, Concrete, Credible, Emotional, Stories, and more Stories). This can be easy if you use the Storyboard (where you told the story of your process) to help you with your story of how you went through the process for your pitch. Add in a demonstration where you show off your final prototype.

When you deliver your pitch, it should be no longer than 5 minutes. That's a good, long pitch for you to tell a good story of how you went through the process and allow some good time for people to handle and use your prototype.

After you have created your pitch, you need to deliver your pitch to 5 different people. These can be family and/or friends or people in your neighborhood.

Instructions

Collaborate Board

As a group, develop a "pitch."

Capstone STEM Project

The capstone project is a 100-point project that will demonstrate your work throughout this STEM module of this class and give you an opportunity to practice your presentational skills. If you have kept great notes of your process and have done your work, this should be a relatively easy capstone project.

This final project is broken into two parts, each worth 50 points: a portfolio and a presentation.

We will discuss each of these here. You will need to create a portfolio that showcases all your work throughout the class.

This includes all your assignments and lesson activities. If you have been diligent about using a notebook in this course, this should be relatively easy for you to complete. Simply take your notebook and either take photos of each page or, we highly recommend, that you scan each page of your notebook.

What do you do with the pictures? Place them in chronological order into a Word Document or Google Docs.

What does the portfolio include? (Cover Page, Table of Contents, Introduction, Page for Assignment, Final One-Page Summary describing what you learned). Use the Portfolio Rubric to guide you!

Capstone Project Portfolio Rubric*

Section	10 Points	7 Points	5 Points	3 Points	Total
Cover Page and Table of Contents	Cover Page is creative (originality, thought, and time) and has a title and student's full name. Table of Contents is complete, well-organized and without typos or errors. Well-designed with color.	Cover Page is creative (originality, thought, and time) and has a title and student's full name. Table of Contents is mostly complete, organized, but with some typos or errors. Some color.	Cover Page is lacking creativity (originality, thought, and time) and incomplete. Table of Contents is mostly complete, but not very well organized. There are typos and errors. Little color.	Cover Page shows no creativity and is incomplete. Table of Contents is incomplete and poorly organized. Design is lacking color and there are errors and/or typos throughout.	
Half Page Introduction	Times New Roman, 12 pt. font, double spaced, with 1" margins. Includes why they participated in the class and the knowledge or skills they hoped to gain. No typos or grammatical errors.	Times New Roman, 12 pt. font, double spaced, with 1" margins. Includes most of the infor… requested. Some erro…	Incorrect typeface and font size and/or spacing and margins. …les some of the …requested. Some	Incorrect typeface, font size, spacing, and/or margins. Includes little or none of the information requested. Many errors and typos, making it confusing to read.	
Assignments	All assignments listed in the Sample Table of Contents are present. Title is at the top of each page. Page numbers. Well-designed and documented. Images are clear and writing is readable.	Most assign… Sample(s) a… the top of a… numbers. W… documente… clear and wr… readable.	…sted in the …t. Title is …ges. Page …Design is …tion is …are fuzzy …to read.	Most assignments are missing. Title is missing from pages. No page numbers. Design is poor and documentation is haphazard. Images are poor and writing is unreadable.	
One Page Summary	Times New Roman, 12 pt. font, double spaced, with 1" margins. Includes each part from the instructions sheet in careful detail. No typos or grammatical errors.	Times New Ro… double spaced, with… Includes most of the in… requested. Some errors or typos.	…ce and font size …g and margins. …some of the information requested. Some errors or typos.	Incorrect typeface, font size, spacing, and/or margins. Includes little or none of the information requested. Many errors and typos, making it confusing to read.	
Format and	Standard format—everything looks like it	Good design in the beginning, but attention to detail fades towards	Design is good, but consistency is lacking. Readability and	Design is poor or lacking. Inconsistent colors/look/feel.	

Final Total: _____/50

*It should be noted that if nothing is submitted and nothing is complete that you will receive zero points, even though the criteria for 0 points is not listed.

The Presentation

You have spent a considerable amount of time working on innovating a solution to a problem that you have observed “out in the wild.” You have gone through the process and developed rapid prototypes and a solid pitch to help people learn about your final prototype and solution to your #1 problem.

We want to see your pitch.

You will do that by video recording yourself delivering your pitch.

Here are the rules:

1. Pitch/video must be no more than 5 minutes long.
2. You should look professional in dress and appearance.
3. Then share and show.

Be sure to emonstrate, and describe:

a. Your problem

b. Your process

c. And your final prototype

Hint: Use the Presentation Rubric to guide you!

Capstone Project Presentation Rubric*

Section	10 Points	7 Points	5 Points	3 Points	Total
Professionalism	Student looks professional in dress and appearance. They look into the camera when speaking. Background is free of distractions. Video is 5 minutes or less.	Student looks professional in dress and appearance. They look mostly into the camera when speaking. Background is mostly free of distractions--there are some. Video is good on time or even a bit over.	Student looks somewhat professional in dress and appearance. They do not look much into the camera when speaking. Background may have some distractions and does not highlight the speaker. Video is good on time or is several seconds over.	Student does not look professional in dress and appearance. They do not look into the camera when speaking and do not speak clearly. Background has distractions. Video is either too short and incomplete or well over the time limit.	
Your Problem	Student clearly addresses the problem they observed, experienced and networked. They clearly state their problem statement.	Student states, but it i… confusing as to w… observed, ex… networked… statemen…	It is unclear as to how the …nt observed, experienced, …tworked their …heir problem …hidden or unsaid.	The student glosses over and does not describe their observations, experiences, and/or networking. They do not state their problem statement.	
Your Process	Student clearly states their problem question. They speak clearly about their process of exploring ideas and solutions.	Problem… speak … ideas a… haphaz…	…uestion may or …ed—if so, it is …peak of their … a way that …nderstanding of …ually did.	Problem question is not stated. They speak of their process, but it is entirely unclear of what they did to explore.	
Your Prototypes	Student clearly demonstrates their 3 different, but comparable prototypes. The solutions are understandable.	Student d… prototypes, … somewhat con… each solve the prob…	…onstrates 2 or 3 …s, but the viewer is …nfused as to how they …ch solve the problem stated.	Student poorly demonstrates available prototypes and viewer does not know how they solve the problem stated.	
SUCCESS	The presentation is conveyed entirely in the form of a story with a beginning, middle, and end that is emotionally	The presentation is mostly conveyed in the form of a story that is mostly emotionally engaging. It is simple, but rambles on a bit.	The presentation is somewhat conveyed in the form of a story, but pieces are missing. Emotional engagement is	The presentation is not really conveyed in a story at all. There is no emotional engagement.	

Final Total: _____/50

*It should be noted that if nothing is submitted and nothing is complete that you will receive zero points, even though the criteria for 0 points is not listed.

Instructions

Collaborate Board

What are our next steps?