Veteran curriculum overview:

Faber Est Suae Quisque Fortunae

Everyone is the maker of their destiny

Basic overview framework:

• Ice Breaker
• Getting started with Skills
• Creating teams- Like a Sports/Music team
• Picking a problem to work on
• Solving the problem
• Picking a solution & testing/re-design
• Public reporting

Class Structure & Methods

One-hour Class Period Structure	**Class Activities ... Tied to the curriculum**
• 15 min. of class learning/discussion • 30 min. of Exercise / Activities by the teams • Break	• Improv. Drawing exercise • Problem solving • Team building games • Socratic Questioning
Student ownership	**Facilitation**

Uniqueness of the learning method:

- Ownership mindset … ***think like an owner***
- Cultural engineering mindset … ***manage tasks around a project***
- Growth mindset … ***The brain is like a muscle use it or lose it***

Overview of Skills

- **Attitude** (positive attitude, focus, emotions, flexible, moral leadership)
- **Social & emotional learning** (character development, empathy, responsibility, self-esteem)
- **Team-work** (charter, respect, values, listening, trust, diversity, culture,) ,,, ***working like a sports team***
- **Problem solving** (creative & critical thinking, decisions, planning, curiosity, reflection)
- **Personal skills** (financial literacy, time management, communication, branding)
- **Business literacy** (quality, processes, matrices, reporting, leadership, judgement)

Getting Started with skills: June2018; getting started(pdf)

- Students will identify the specific skills they will learn and practice through this module.
- Students will recognize how they will apply these skills to their everyday lives.

Invite students to make a list of activities they enjoy doing that require practice to do well (e.g., playing a sport or musical instrument, ballet, tap dancing). Read the following scenario out loud:

> At band practice, your teacher only talks about the song you're learning, but does so without explaining what he is doing. You're expected to learn by listening and watching. You never play an instrument until the day of the first concert.

Ask students to comment on the effectiveness of this method of learning. Ask students how well they think they'd do when asked to perform without practicing first. (*Students might respond: although you might learn some fundamentals, you can't learn just by watching; you need to practice to improve your technique; you need to know where your skills are weak so you know what to work on.*)

Point out that for many of the most important skills we need in life, we don't always get sufficient practice before we're expected to demonstrate them. Often, they are skills we

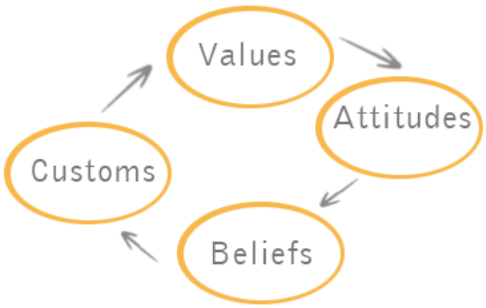
learn by watching others, which students have determined is not the best way to learn. Invite the class to suggest what some of these life skills might be. If students are unsure, explain that this lesson will help them identify these skills and how they apply to students' lives now and in the future.

Explain to students that this course will give them an opportunity to learn and to practice skills they need to succeed in school, at home, in their communities, and on the job.

Creating teams- Like a Sports/Music team: How about a military team?

… Listen to each other; become a learning team… What is our culture?

- Overview of the project
- Measurable team goals, roles, deliverables

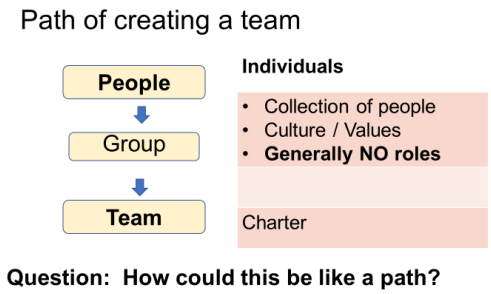


Create a team charter, The Charter Covers:

- Goals (Fun, ….),
- How will we be measured at the end,
- Roles that the team will do, (Scribe, Captain, Planner, Advisor, Tester, Public reporter,)
- Our values, … Curiosity, Trust, Flexibility ,,,
- Deliverables?
- How will we handle conflicts?
-

teaching students to work in teams is one of the most important goals of a twenty-first-century teacher

- How should it operate?
- How does it compare to a sports team?
- What are our roles?
- How am I successful?
- How do we communicate and collaborate together?



Instruction/Classroom activity

Conversation between us:	Thoughts%20on%20working%20with%20at%20risk%20young%20adults.pdf
• Team building: • Creating a team charter	teaching students to work in teams is one of the most important goals of a twenty-first-century teacher. team-building-03102017
Important life-skills	List of Attributes:
How can we articulate our team/learning culture to others?	
Build collective knowledge through collaboration	1. Prepare the teams 2. Insist on norms 3. Empower students to coach one another 4. Challenge the team to work with high quality (Value Beautiful Work)
How is this like a sports team, music group, dance?	
Essential Questions 1. What do I bring to the team? 2. What are our commitments to one another? 3. What differences exist between us? 4. How will we operate? 5. How will we know we are succeeding?	Handout

Picking a problem to work on: *working as a team and research a problem the team wants to solve*

Community Titles (Issues)		Social Titles
Drugs availability for youth		Bullying within an organization
Availability of public transportation		Dealing with difficult teachers / bosses
Recycling program with community		Racism in schools … Make diversity work.
Homeless programs		Being a community in the classroom
Halfway houses		How would we create a better school / community?
Building our community to work together How to improve the recreation facilities in our community		How do we develop a better measurement system for students?
Create social media for the community		How do get along with the teachers?
How would we create a better down town?		How to develop friendships?
How can we design a food growing place for the community?		
Use of tap water instead of bottle water		

World-Global Drivers:

- For Sustainable Development
- The Brookings Institution
- MIT Solve

Instruction/Classroom activity

Discussion: what's important to me	How does the team feel? How do we make a decision?

About the Problem solving-Process:

Instruction/Classroom activity

Framing the problem	**Are we solving the right problem?**
What are our requirements for solving this problem successfully?	

Overview

After we decide on a problem we want to solve, we use the engineering design process to help us find possible solutions. We are using a design process that is a combination from Engineeringlens.org and Olin college of engineering.

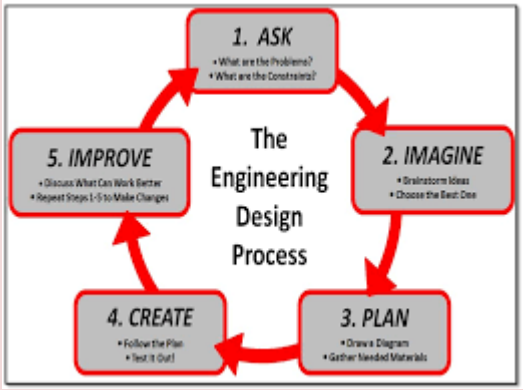
Essential Questions

What are we looking to do?
How would we judge success?
What do we have to design to solve this issue?
What is the purpose of this design?
What would the goals and objectives be?
Can we break the problem/design into parts?
When we reach a road block, we will be able to decide an new path

Basic definition:
Engineering designs creates useful products and process for society based on all disciplines but mainly math and science.

Tasks

- Understand what the problem is? Need to solve the root issues versus just a band-aid
- What are the requirements for this problem that society needs
- How are we going to measure success of this project
- Research the problem
- Find many possible designs
- Sort/ Shape a few best
- Test and check ideas with other
- Decide the best
- Report finding



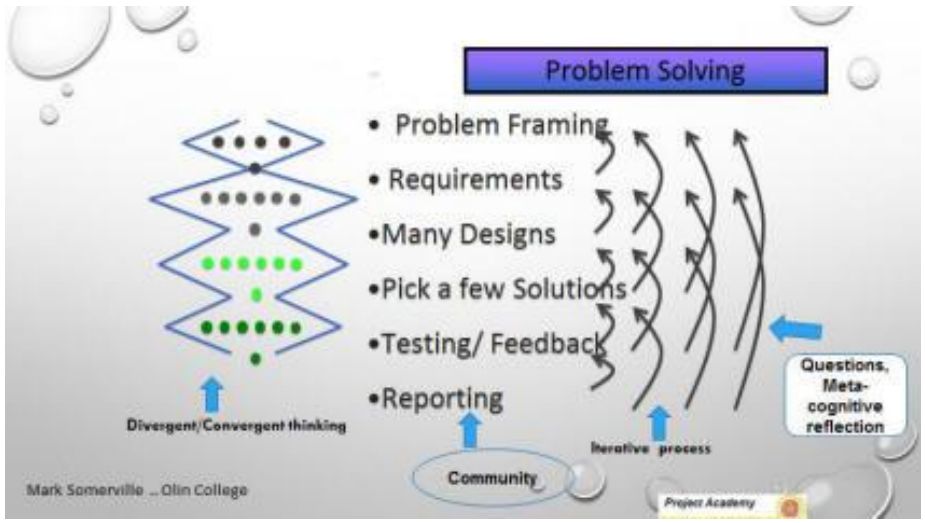
Learning Skills

Questioning	Creative thinking
Critical thinking	Reflection
Decision making	System thinking

Note: the Iterate nature and the divergent / convergent nature of the process

Problem Solving:

Title



Solving the Problem:

- Brain-storming
- Shaping
- Decision … Reqr.

Using thinking skills to work on the problem

Critical Thinking * **Analyzing the past** * **What evidence?** * **What is the author's purpose?** * **Convergent thinking** * **Skepticism is a virtue**	**Creative Thinking: Creativity improves pupils' self-esteem, motivation and achievement** * **Brain storming** * **Divergent thinking** * **Exploring your environment & testing many options** * **Stimulate curiosity** * **Innovation & entrepreneurship**
Meta-cognitive reflection * What do I want to understand? * What have I learned? * What do I still need to learn? * Provide feedback for reflection * Regulate ones behavior	**Questions … Engaging the student** * Logical Sequential * Open ended * Listening is the first step in good questioning * Provocative * Engage * Encourage higher order thinking

Questions to encourage students to thinks more deeply

Thought provoking questions	
Questions that ask for reasons Why did you say that?	**Questions that probe assumptions** How do you know that?
Questions that ask for evaluation of reasons What reasons support that idea?	**Questions that ask for consequences and implications** What would the consequences be?
Questions that ask for clarification Is that what you meant?	**Questions that ask for connections** Do those two ideas agree?
Questions that ask for explanations What are some possible causes?	**Questions that ask for distinctions** How is that different from what was said?
Questions that ask for evidence	**Questions that ask for questions**

How could we prove this?	What questions would be useful to ask?
Questions that ask for definitions What does that mean?	**Questions that ask for summary of the content** What have you found out?
Questions that ask for counter examples When would that not happen?	**Questions that ask for a summary of the process** What did we do well? What could we improve?
Questions that ask for alternatives What would be a different view?	

Source: unknown

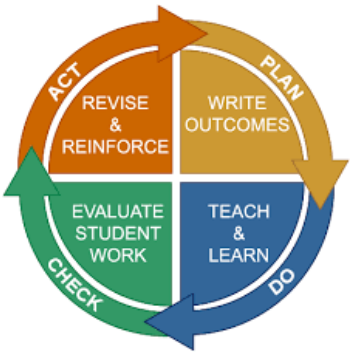
Picking a solution & testing/re-design:

Using Kepner-Tregoe process against the reqr established for the problem
Using questions to evaluate the solution if it works
What changes will improve the solution?

Public Reporting:

Students will Work cooperatively to develop a verbal and visual presentation … the format of the elevator pitch

Having a public product ups the stakes for students, leading them to do higher quality work. No one wants to look bad in public.



Assessment: … *before & after*

Performance Indicator … Performance

indicators are a means to focus on specific expectations of a program. They facilitate the curriculum delivery strategies, and assessment procedures. There is an important first step that must come before the development of **performance indicators**, and that is deciding on **student outcomes**.

Badges	Like the scouts, …Teamwork, Problem solving, SEL, Financial, Time management Ownership, Cultural engineering
Rubrics	Knowledge, Skills, Attributes
Team assessment	