

# Project Busters

## Designing a project

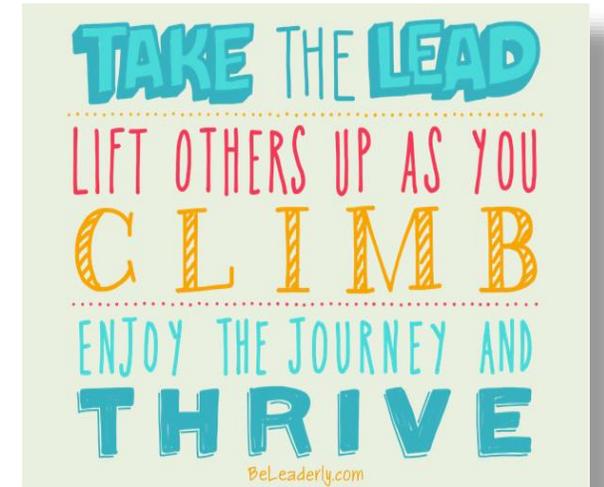


Class 6



# Lesson 6 ... Shaping

15 minutes	<b>Brain storming follow-up</b>
15 minutes	Sorting & Shaping
15 minutes	Shaping & picking a few
15 minutes	Skills



# Our Mission:

- Get students excited about learning (life-long learners).
- Have the reasoning skills to manage in today's society and begin to build a set of skills to use in multiple careers.
- Understand that problems are opportunities. The bigger the problem, the bigger the opportunity.
- Have students better prepared for college or a career.



# 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?

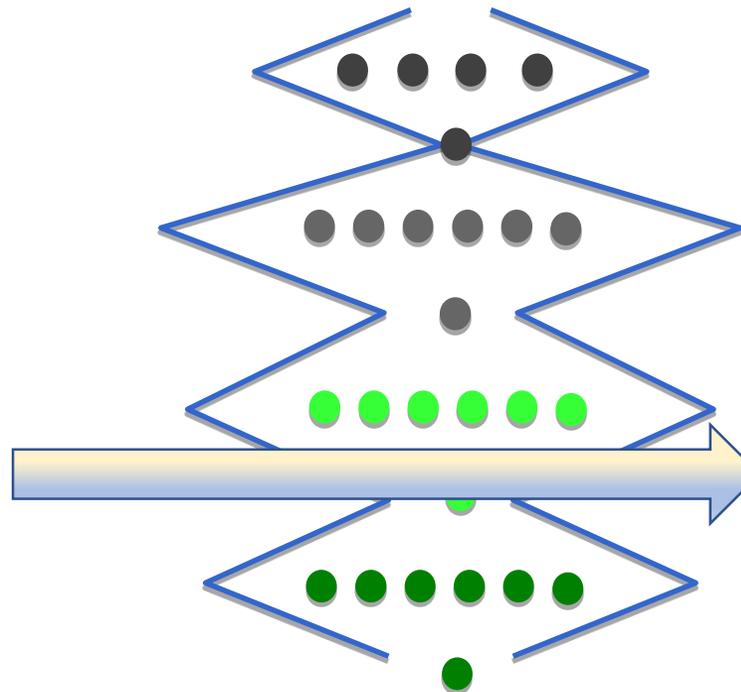
When we reach a road block, we will be able to decide an new path

# Requirements for our project design

How are we going to judge our design?

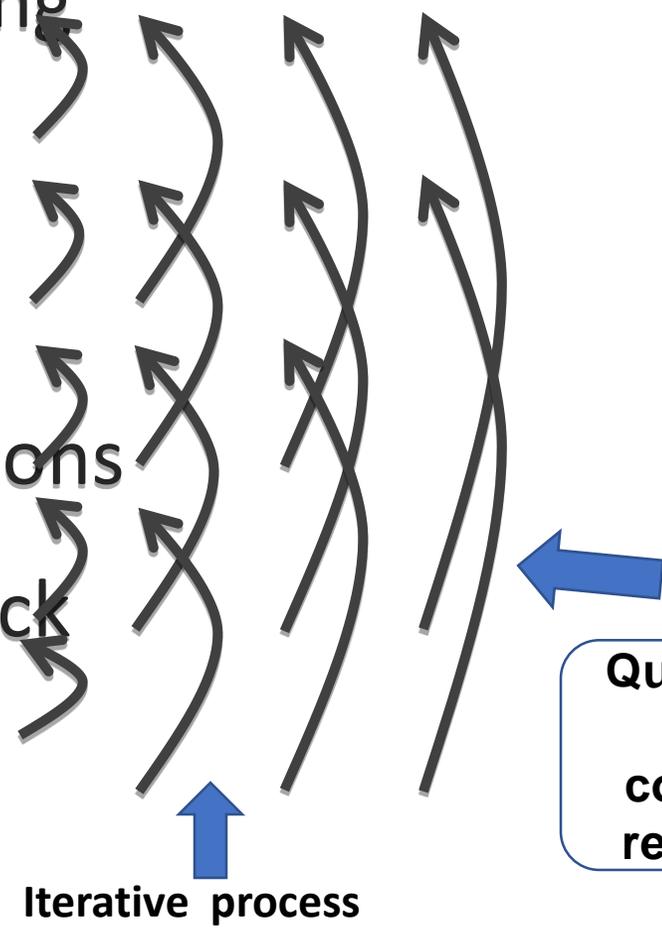
- Ability to implement within the community
- Complexity
- Innovative
- Ability to measure and manage
- Cost

# Problem Solving



Divergent/Convergent thinking

- Problem Framing
- Requirements
- Many Designs
- Pick a few Solutions
- Testing/ Feedback
- Reporting



Iterative process

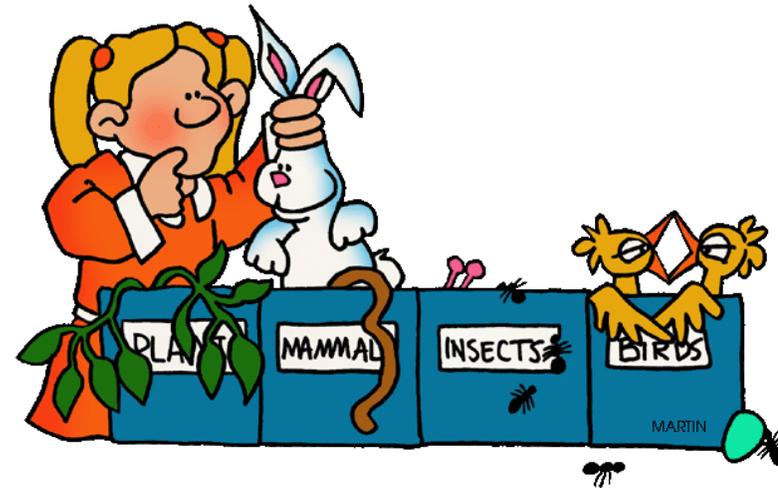
Questions,  
Meta-  
cognitive  
reflection

Community



# Shaping: Mundane, Innovative & Magical

- Sorting Ideas
- Looking at each to make it Innovative
- Team based



# Now Shape your ideas!

- Map (i.e. mundane, magical) and shape your ideas from brain-writing.
- Remember that you can shape ideas to meet constraints and values
- Choose 2-3 “favorites”, taking values and constraints into account. Create stretched ideas
- Be bold!

# Decision Process

Convergent thinking ... Narrowing the # of ideas and making a selection

Discussion: During the design process or problem solving we need to apply

convergent thinking to narrow our option to a selection. When we have many options

*For the items that we are going to judge one against another, we use a scale of 1-10 to rate them and then we multiple that number by the weight to get the total # for that cell.*

## Examples

Requirement

Weight

requirements  
↓

Requirement	Weight		
environment			
simple			
low cost			
<b>Total=</b>			

# Meta-Cognition / Reflection

- We must model the meta-cognition aspects on how we arrived at a learning point. By providing examples & engaging students in role playing, we can demonstrate how we arrived at a particular point.

# Questions

- We need to focus on modeling for the students the way to ask questions based on the desired outcomes to demonstrate that learning is achieved by getting the students to understand how they gathered the data & use skillful thinking to make a conclusion.

## How do we operate?

we will act as a facilitator using **questions** to get the students to design their process and operating ground rules.

- What is the definition of the process?
- How should it operate?
- How does it compare to a other processes?
- What are our roles?
- How am I successful?
- How do we communicate and collaborate together?

- The teacher can identify the expected outcome and question the students on how they achieved this outcome. In addition, the students will assess themselves on their compliance with the ground rules that were established in the beginning of the project.

# Results & Outcomes

- **Supporting the community ... involvement(Civics)**
- **Fun Activity**
- **Quality & Feedback in Learning**
- **Learning thru doing and mistakes**
- **Presenting your solutions**
- **Building social & thinking skills**

# Skills---

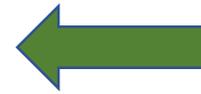
Students must be cognitively aware of skills they are using	
Dealing with conflict	
Listening	
Character traits	<ul style="list-style-type: none"><li>• Self-management</li><li>• Social awareness</li><li>• Relationship management</li></ul>
Planning	<ul style="list-style-type: none"><li>• Time management</li><li>• Planning</li></ul>

# Learning skills

<b>Questioning</b>	<b>Creative thinking</b>
<b>Critical thinking</b>	Reflection
<b>Decision making</b>	System thinking

# Additional Values

- **Perseverance**
- **Respect**
- **Integrity**
- **Discipline**
- **Excellence**



**Discussion**

# Thinking Skills Environment

Rev	Description	Approval	Date
3			052909

Creativity improves pupils' self-esteem, motivation and achievement

## Creative Thinking

- Brain storming
- Divergent thinking
- Exploring, generating ideas
- Stimulate curiosity
- Innovation & entrepreneurship

## Questions

- Logical Sequential
- Open ended
- Listening is the first step in good questioning
- Provocative
- Engage
- Encourage higher order thinking

## Critical Thinking

- Analyzing the past
- What evidence?
- What is the authors purpose?
- Convergent thinking
- Skepticism is a virtue



## Learning environment

- Set Values
- Focus on vocabulary
- Make thinking visible
- Don't look to blame
- Incremental learning
- Learning from mistakes
- Learning is collaborative
- Excitement/enthusiasm leads to fun & play
- Wait 30 sec before answering
- Let students know how to succeed (rubrics)

## 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

## Create your thinking strategies:

- Look to make your approach more efficient.
- Look at issues from a system view with inputs, outputs, processes and feedback.
- Think of strategies in "gathering, organizing, analyzing and making conclusions.
- Break problems into small chunks and study them well.
- Begin with the things that are simplest to understand and move to the more complex.
- Never to accept anything as true that you do not clearly know.
- Be complete in both your work and reviews that nothing is omitted.

Descartes, Discourse on Methods

Creating an environment that fosters and values thinking  
When we honor kids' thinking, they learn that their thinking matters. Students and teachers feel free to take risks as learners when they know their thoughts, ideas and opinions will be treated respectfully by others. The room arrangement mirrors the focus on learning and thinking with meeting spaces for small groups, a comfortable spot where the large group can gather, and desks or tables in clusters to promote conversation and collaborative work.

Title:	
Doc. #	Rev.
Author	Bill Wolfson

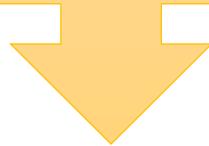
# End

## Next Class

- Doing the project



Feedback  
sheet



# Thank You

