

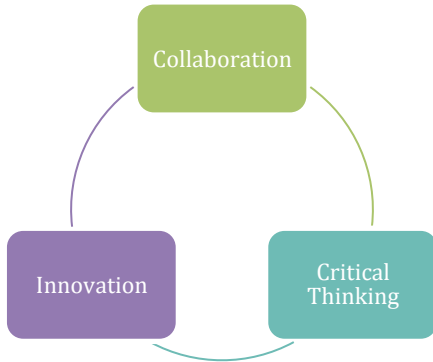
STEM School Chattanooga

11th Grade PBL

Unit Plan Template

Unit Quarter 2nd

Title: Lake Region Medical Catheter Production



Learning Target Topics

Collaboration: Working with other people on a project or problem to achieve a shared goal.

Critical Thinking: Accessing, using, and applying information and knowledge.

Innovation: Using creative thinking to construct something new and valuable.

Grade Level	11 th Grade	Unit Length	9 Weeks
Industry Partner	Lake Region Medical (formerly Accelent) <ul style="list-style-type: none"> Engineering Manager (Lead for this project) 		
Unit Overview	STEM student teams will present a prototype for a catheter specifically addressing design challenges (including material considerations and available manufacturing technologies), clinical applications, manufacturability, and a consideration of the history of catheter design and production. Student teams will work through the engineering design process to create their prototype. Student teams will be able to contact the industry lead if necessary. The product must be innovative and demonstrate a highly developed understanding of the four focuses listed previously. The student teams will present their product to the project lead at the STEM school. Lake Region Medical will judge the products based on the four categories listed above. The STEM school will focus on the creative thinking skills exhibited by the student teams.		
Unit Essential Issue	<ul style="list-style-type: none"> Project: Design, produce, and present a functional catheter prototype. 		
Kick Off Event	Kick Off: Friday, October 17th at 8:30 am The project lead will present an outline of the basics of the catheter engineering design process and will bring samples for demonstration. The presentation will take place at STEM School Chattanooga.		
Culminating Events	Student teams will their products to the industry lead (and possibly other stakeholders) in early January. Presentations will take place at the STEM school and each team will have 15 minutes to share their prototype. The presentations should clearly identify how the product addresses design challenges, clinical applications, manufacturability, and a consideration of the history of catheter design and production. Presentation Date: January 16th at TBA		
Common Assessment	Students will be scored using the Association of American Colleges and Universities rubric for Creative Thinking. All 4's will equate to Advanced, scores of 3 and 4 will equate to Proficient, and any scores below a 3 will equate to Below Basic. Items that will be used to score student work: <ul style="list-style-type: none"> Presentation to Lake Region Medical group – must address required categories. Product (catheter prototype) 		

Creative Thinking VALUE Rubric

For information, please contact value@aacu.org



Association
of American
Colleges &
Universities

Definition

Creative thinking is both the capacity to combine or synthesize existing ideas, images, or expertise in original ways and the experience of thinking, reacting, and working in an imaginative way characterized by a high degree of innovation, divergent thinking, and risk taking.

Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark level performance.

	Capstone	Milestones		Benchmark
	4	3	2	1
Acquiring Competencies	Reflect: Evaluates creative process and product using domain-appropriate criteria.	Create: Creates an entirely new object, solution or idea that is appropriate to the domain.	Adapt: Successfully adapts an appropriate exemplar to his/her own specifications.	Model: Successfully reproduces an appropriate exemplar.
Taking Risks <i>May include personal risks.</i>	Actively seeks out and follows through on untested and potentially risky directions or approaches to the assignment in the final product.	Incorporates new directions or approaches to the assignment in the final product.	Considers new directions or approaches without going beyond the guidelines of the assignments.	Stays strictly within the guidelines of the assignment.
Solving Problems	Not only develops a logical, consistent plan to solve problem, but recognizes consequences of solution and can articulate reason for choosing solution.	Having selected from among alternatives, develops a logical consistent plan to solve the problem.	Considers and rejects less acceptable approaches to solving problem.	Only a single approach is considered and is used to solve the problem.
Embracing Contradictions	Integrates alternate, divergent, or contradictory perspectives or ideas fully.	Incorporates alternate, divergent, or contradictory perspectives or ideas in an exploratory way.	Includes (recognizes the value of) alternate, divergent, or contradictory perspectives or ideas in a small way.	Acknowledges (mentions in passing) alternate, divergent, or contradictory perspectives or ideas.
Innovative Thinking <i>Novelty or Uniqueness</i>	Extends a novel or unique idea, question, format, or product to create new knowledge or knowledge that crosses boundaries.	Creates a novel or unique idea, question, format, or product.	Experiments with creating a novel or unique idea, question, format, or product.	Reformulates a collection of available ideas.
Connecting, Synthesizing, Transforming	Transforms ideas or solutions into entirely new forms.	Synthesizes ideas or solutions into a coherent whole.	Connects ideas or solutions in novel ways.	Recognizes existing connections among ideas or solutions.