

GNRG Evaluation Information

Xplore GNRG is a wonderful introduction to our award-winning STEAM programs. Xplore GNRG is designed around focused monthly workshops (Design bootcamp, Solar, Wind, Pedal) that introduce students to cutting edge green engineering and design. The workshops provide the balance between weekly, guided seminars on ‘green’ topics with hands-on design challenges utilizing the Engineering and Design Process (EDP). The semester split provides a proper introduction and exploration of GRNG topics and allows students to take both semesters without overlap.

The Greengineering version of the Engineering/Design Process

DISCOVERY	INTERPRETATION	IDEATION	EXPERIMENTATION	EVOLUTION
<p>We have a challenge.</p> <p>How do we approach it?</p>	<p>We learned some things.</p> <p>How do we interpret it all?</p>	<p>We see an opportunity .</p> <p>What do we create?</p>	<p>We have an idea.</p> <p>How do we build it?</p>	<p>We created something new.</p> <p>How do we evolve it?</p>
<p>Discovery builds a foundation for creating meaningful solutions.</p> <p>It begins with a deep understanding of needs.</p> <p>Discovery means getting inspired to create new ideas.</p>	<p>Interpretation transforms your stories into meaningful insights.</p> <p>Observations, field visits, or just a simple conversation can be great inspiration.</p> <p>It involves storytelling, as well as sorting and condensing thoughts until you've found a compelling point of view and clear direction for ideation.</p>	<p>Ideation means generating lots of ideas. Brainstorming encourages you to think expansively and without constraints.</p> <p>It's often the wildest ideas that spark visionary thoughts. With a clear set of rules, a brainstorm session can yield hundreds of fresh ideas.</p>	<p>Experimentation brings your ideas to life. Building prototypes means making ideas tangible, learning while building them, and sharing them with other people.</p> <p>Even with early and rough prototypes, you can receive a direct response and learn how to further improve and refine an idea.</p>	<p>Evolution is the development of your concept over time. It involves planning next steps, communicating the idea to people who can help you realize it, and documenting the process.</p> <p>Change often happens over time, and reminders of even subtle signs of progress are important.</p>

Each element in the rubric focuses on design thinking skills that students should exhibit. It is meant to evaluate output of each design phase as well as themes that exist throughout an entire challenge.

scoring: description

+	Exceeds Expectations	4/4 = A
✓	Meets Expectation	3/4 =B
△	Approaches Expectation	2/4 =C
∅	Missing	0/4 =D/F
		quantification

Discovery/Interpretation

+	In addition to ✓ re-framing is compelling and contains novel needs.	
✓	The original challenge is clearly re-framed around a user where needs are stated as verbs to describe an activity or desire for an area where that user needs help.	
△	The original challenge is not clearly re-framed. Needs are incorrectly stated as nouns.	
∅	The original challenge is not re-framed.	

Ideation

+	In addition to ✓ there is an overwhelming amount of ideas ranging from very practical to very difficult (if not impossible) to implement.	
✓	Divergent thinking results in a large, diverse range of ideas and concepts. Selecting a few ideas and concepts to move forward with that represent that diversity.	
△	Convergent thinking results in limited range of ideas and concepts.	
∅	Few ideas generated.	

Prototype

+	In addition to ✓ prototypes are tested in a thorough, engaging manner.	
✓	Prototyping provides a solution for user needs including a record of the iterations moving from low to high resolution of the prototype describing what was learned from each user test.	
△	Prototyping provides partial solution for needs. Little or no iteration.	
∅	Little or no prototyping accomplished.	

Team

+	In addition to ✓ members work to encourage and teach one another.	
✓	Team functions as a whole with all members contributing.	
△	Team functions as a whole most of the time. Some members are more engaged than others.	
∅	Teamwork non-existent.	

Presentation

+	Team tells a captivating/engaging story that ties together the prototyping, EDP, and discovery expressed for challenge.	
✓	Team can tell a detailed story that links prototyping and discovery expressed for challenge.	
△	Team can describe their solution with some connection to EDP and/or discovery.	
∅	Team is unable to tell a story about their solution.	