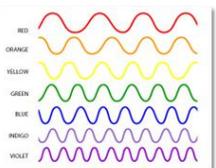
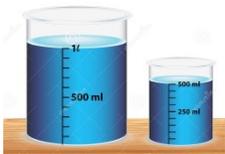
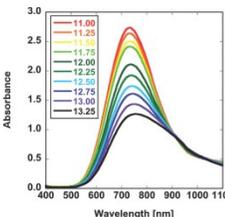
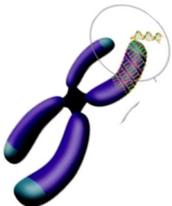


What is Innovation?		
	Participants participate in teams to complete given challenges. Challenges include building structures out of common goods. A model of the process of innovation presented and discussed using the challenges presented as examples. Other examples are also presented.	Objective: Learn a process for innovation and how to apply it. Duration: 60 min. Age: 15-18
Renewable Energy and Circuits		
	Participants engage in building electric circuits that can harvest energy from renewable sources like solar, wind and mechanical. Electric circuits and their elements are explained and demonstrations are provided for participants to learn key concepts of electricity.	Objective: Learn how renewable energy is collected and converted into useable electricity. Duration: 60-90 min. Age: 13-18
A Solar Refrigerator (under development)		
	This module is a challenge that follows the Renewable Energy and Circuits module. Participants are challenged to use their imagination to build what seems like a counterintuitive task: to build a solar powered refrigerator. Heat transfer concepts are introduced.	Objective: Learn basic concepts in heat transfer and electric circuits. Duration: 60-120 min. Age: 15-18
LASER Optics		
	Participants are presented with lenses and mirrors of different shapes. Using a LASER, participants test what happens to light when it encounters a different medium or object in its path. Participants are then asked to explain their observations and figure out certain laws of optics.	Objective: Learn basic concepts and laws of geometric optics. Duration: 60-120 min. Age: 13-18
Electromagnetic Waves Interaction with Matter		
	Participants are presented with demonstrations of how microwaves, light, infrared and ultraviolet waves interact with matter. Activities include: measuring UV index outdoors, using a night vision camera to see and exploring how a microwave oven works, among others.	Objective: Learn basic concepts of E&M waves & interactions with matter. Duration: 30 min. each Age: 15-18

<h2>Basic Lab Measurements</h2>		
	<p>Participants are exposed to basic measurement techniques like weighting mass, creating solutions with the required concentrations, use and conversion of units, how to make observations and take notes, how to use excel to plot and fit the data.</p>	<p>Objective: Learn basic concepts of lab measurements for research. Duration: 60-120 min. Age: 13-18</p>
<h2>UV Spectrophotometry</h2>		
	<p>Participants learn about the UV Spectrophotometry technique. UV Spectrophotometers are widely used instrument for research in medicine, biochemistry and biophysics. Participants prepare samples and scan them. The generated data is then discussed.</p>	<p>Objective: Learn basic concepts UV Spectrophotometry and what it is for. Duration: 60-120 min. Age: 16-18</p>
<h2>Genetics – DNA Experiments (under development)</h2>		
	<p>Participants learn about DNA, how to amplify it using Polymerase chain reactions (PCR) and how to measure its properties using gel electrophoresis. This module uses ready-made educational DNA kits for hand-on activities and there is a cost for disposable materials.</p>	<p>Objective: Learn basic concepts of DNA amplification, PCR and gel electrophoresis. Duration: 60-120 min. Age: 16-18</p>
<h2>Patent Search (requires specific software and access to the internet)</h2>		
	<p>Participants are challenged to identify a current problem or product that needs improvement, propose a solution or idea and search the Patent's office database for related ideas. Participants then select and summarize a patent related to their invention.</p>	<p>Objective: Learn about creativity, patents, patent search, claims and sketching an idea. Duration: 60-120 min. Age: 16-18</p>
<h2>Create a Website (requires computers with internet browsers installed)</h2>		
	<p>Participants are presented with several scripts with HTML commands that are commonly used to program a website. They are then asked to create a simple website of their own using what they have learned and provided resources.</p>	<p>Objective: Learn basic programming and website design concepts to create a website. Duration: 60-120 min. Age: 15-18</p>