



## NATIONAL INVENTION CONVENTION RUBRIC

Category	Dimension	Points
Invention Process (45)	Identifying & Understanding	15
	Ideating	10
	Designing & Building	10
	Testing & Refining	10
Invention Impact (25)	Market Potential	5
	Value Proposition	5
	Social Value	5
	Originality	10
Inventor Communication (30)	Logbook	10
	Display Board	5
	Prototype or Model	5
	The Live Pitch and Q&A	10
<b>TOTAL</b>		<b>100</b>

Descriptions of judging criteria follow.

# Judging Criteria Descriptors

Category	Dimension	Goal	Exemplar Example
Invention Process (45)	<b>Identifying &amp; Understanding</b>	<p>The Identifying stage is where an inventor problem seeks or finds a problem that they want to solve. It is often important to ask an inventor “how” they uncovered this problem and who else might experience the same problem and to what end.</p>	<p>An example of a well-defined problem (17,000 kids ages 18 and under experience an infection from their IV when hospitalized; this costs insurance companies over \$X dollars and kids are hospitalized X days longer than anticipated).</p>
		<p>Understanding a problem refers to the research that an inventor has done to understand what else exists to solve said problem as well as the full impact their problem may have on others.</p>	<p>An inventor has researched multiple (4+) sources to understand the problem, including but not limited to:</p> <ul style="list-style-type: none"><li>• Google</li><li>• USPTO.com</li><li>• Subject matter experts (interviews)</li><li>• Visiting stores</li><li>• Looking at Industry news</li></ul>
	<b>Ideating</b>	<p>The step ideating refers to the brainstorming or imagination stage that a student goes through to generate original ideas and begin to develop their idea/s into specific requirements to determine the likelihood of success</p>	<p>Student explains that they identified 2+ ideas and explains the elimination process. Could include a personal story.</p>
	<b>Designing &amp; Building</b>	<p>Designing an invention or a prototype requires critical thinking skills; students should be able to articulate how they wanted the invention to work and why they chose the materials they did for executing their invention.</p>	<p>Includes a written diagram with labeled materials that takes the judge through the journey of their design process.</p>
	<b>Testing &amp; Refining</b>	<p>The key to this step is iterations, improvements &amp; perseverance. The best inventors know that the first build is often not the best and seek feedback through testing and refine their design accordingly.</p>	<p>The best inventors include a written diagram with labeled materials that takes the judge through the journey of their design process. Example: One young inventor, who was creating a battery from bananas discovered in her first batch of banana mush that she did not get much electrical output. She modified the design numerous times based on the detailed graphs and charts that she kept of her electrical output from various iterations. Eventually, her redesigned battery produced more electrical output.</p>

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Invention Impact (25)	<b>Value Proposition</b>	Does the inventor clearly summarize why a consumer or user should buy or use their invention? This statement convinces a potential (or future) consumer that one particular product or service will add more value or better solve a problem than other similar offerings	The best answers provide a clear age appropriate description and understanding of users and benefactors (Note that the inventor can describe these roles using different terms. They key is to assess their understanding of value creation.)
	<b>Market Potential</b>	Market potential assesses the scope and likelihood of an invention gaining users. <ol style="list-style-type: none"> <li>1. How large and/or viable is the potential market?</li> <li>2. To what extent was the market appropriately researched and scoped?</li> </ol>	The best answers address quantitative research and understanding of the size of the potential market. Example: an invention that removes CO2 from the environment included research of the number of organizations that already use similar technology to approximate the number of early adopters.
	<b>Social Value</b>	Some inventions may address pressing social issues. The 'social impacts' may not be easily quantifiable in a traditional economic sense but are nevertheless important to consider in the context of overall invention impact. <ol style="list-style-type: none"> <li>1. Does the inventor consider and address the potential environmental, societal, and other non-traditional impacts of their invention?</li> <li>2. To what extent does the invention improve environmental/social conditions or have a minimal adverse impact?</li> </ol>	The inventor considered a broad range of social impacts and clearly articulated their potential impact.
	<b>Originality</b>	Is the student's invention unique, novel, and creative? Is it distinguishable from prior inventions and those of his/her peers?	The invention is beyond incremental and is something the judge has not considered before or seen before.

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Inventor Communication (30)	<b>Logbook</b>	<ol style="list-style-type: none"> <li>1. Does the logbook document a journey, not just a report done after-the-fact?</li> <li>2. Does the logbook document all aspects of the Invention Process: Problem Identification, Brainstorming (Ideation), Research, Solution, Test and Redesign.</li> </ol>	Logbook contains topic research, indicating that the young inventor is exceptionally knowledgeable about their problem and understands the issue thoroughly, including statistics about the significance of the problem. Logbook contains research about the existence of similar inventions and how their invention is different or better. Logbook documents research from at least 4 sources, including interviews with experts in the field. Logbook contains documentation to show progression of prototype iterations and improvements. Was the journal organized, effective, and complete? If not, score cannot be greater than 2.
	<b>Display Board</b>	<ol style="list-style-type: none"> <li>1. Does the display have strong visual appeal?</li> <li>2. Is the display eye-catching with color, pictures, graphs, and variety?</li> <li>3. Is grammar, spelling, and punctuation correct and if hand-printed, neatly done?</li> <li>4. Does the display communicate significant aspects of the Invention Process: Problem, Research (why important/statistics of the problem), Solution, Impact?</li> <li>5. Are there unique aspects to the display, such as shape (display is not a basic cardboard Tri-fold)?</li> </ol>	A previous winner of “Best Display” went “outside of the box” when designing his outhouse-shaped display for his “Porta Potty Survival Kit” invention. In addition, he created a QR code for viewers to scan and listen to his own words, explaining his invention.
	<b>Prototype or Model</b>	<p>Does the prototype clearly communicate the key characteristics that make the invention valuable, usable, and unique?</p> <p>Note: Outside assistance and collaboration is acceptable as long as the student is driving the process and documents outside help. The student should only do what they can safely do. Credit should be given where help is given.</p>	Examples of strong prototypes include: 1) a working apparatus of real mashed bananas hooked to wires to generate electricity that had been tested and modified repeatedly to improve the electrical output and 2) a detailed environmental model to help endangered turtle hatchlings find their way back to the ocean composed of a metal tray with sand on half and simulated water with glossy blue paper on the other half that included small plastic turtles and UV lights around the perimeter to show how the lights would help the turtles.

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Inventor Communication (30)	<b>The Online Pitch</b>	<p>The online pitch is a single recording that clearly and succinctly communicates the invention process and impact. It will be recorded and uploaded well in advance of the NICEE event.</p> <p>The best pitches include the following:</p> <ul style="list-style-type: none"><li>○ Introduction – inventor’s name, state, grade etc.</li><li>○ An overview of all four invention process elements outlined in the invention scoring criteria (above)</li><li>○ Use and/or reference of all physical communication elements (including the logbook, display board, and prototype)</li><li>○ Explanation of origination of the idea (helping to assess the originality)</li><li>○ Other recommendations include:<ul style="list-style-type: none"><li>• Clear, concise, minimal stammering or superfluous words, correct grammar</li><li>• Enthusiasm, passion, inflection, appropriate body language</li><li>• No reading from cue cards – explanation in own words</li><li>• Not answering questions from someone off/on camera</li><li>• No longer than 3 minutes</li><li>• Equal participation of all team members</li></ul></li></ul>	Invention was clearly created by the student as evidenced by their ability to clearly and thoroughly explain the invention.

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Inventor Communication (30)	<b>The Live Pitch and Q&amp;A</b>	<p>The Live Pitch and Q&amp;A takes place during the NICEE event and is very similar to the online pitch but with the addition of a judge question and answer (Q&amp;A) portion.</p> <p>The best pitches include the following:</p> <ul style="list-style-type: none"> <li>•Introduction – inventor’s name, state, grade etc.</li> <li>•An overview of all four invention process elements outlined in the invention scoring criteria (above)</li> <li>•Use and/or reference of all physical communication elements (including the logbook, display board, and prototype)</li> <li>•Explanation of origination of the idea (helping to assess the originality)</li> <li>•Other recommendations include:               <ul style="list-style-type: none"> <li>• Courteous and professional to peers in judging circle</li> <li>• Concise, appropriate pace, clearly heard and understood</li> <li>• Professional eye contact and posture</li> <li>• Enthusiasm, passion, inflection, appropriate body language</li> <li>• No reading from cue cards – explanation in own words</li> <li>• No longer than 3 minutes</li> <li>• Equal participation of all team members</li> </ul> </li> </ul>	<p>Invention was clearly created by the student as evidenced by their ability to clearly and thoroughly explain the invention.</p> <p>How do they handle live questions? Composure? Do they use the question in their answer?</p>