## Grade Award Rubric: Points

Category Dimension Points

Invention Process (45) Identifying and Understanding 15

Ideating 10

Designing and Building 10

Testing and Refining 10

Invention Impact (25) Value Proposition 5

Market Potential 5

Social Value 5

Originality 10

Inventor Communication (30) Logbook 5

Display Board 5

Prototype or Model 5

The Online Pitch 5

The Live Pitch and Q&A 10

TOTAL 100\*

\* This is the rubric for the National Invention Convention and Entrepreneurship Expo (NICEE). The California Invention Convention state finals – although requiring an online pitch – will not be scoring it. Students continuing onto the NICEE level will have their pitch created and ready for submission to Nationals.

Invention Process (45) Goal Exemplar Example

Getting Started | Planning | Rules | Rubric | Resources

Identifying and Understanding (15)

Ideating (10)

Designing and Building (10)

Testing and Refining (10)

The identifying stage is where inventors seek or find 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.

Understanding a problem refers to the research that an inventor has done to understand what else exists to solve the problem as well as the full impact their problem may have on others.

Ideating refers to the brainstorming or imagination stage that a student goes through to generate original ideas and begin to develop idea/s into specific requirements to determine the likelihood of success.

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.

The key to this step is iterations, improvements and perseverance. The best inventors know that the first build is often not the best and seek feedback through testing and refine their design accordingly.

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 for X days longer than anticipated.

An inventor has researched multiple (4+) sources to understand the problem, including but not limited to:

* Google
* USPTO.com
* Subject matter experts (interviews)
* Visiting stores
* Looking at industry news

Student explains that they identified 2+ ideas and explains the elimination process. Could include a personal story.

Includes a written diagram with labeled materials that takes the judge through the journey of the design process.

The best inventors include a written diagram with labeled materials that takes the judge through the journey of the 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.

Value Proposition (5)

Market Potential (5)

Social Value (5)

Originality (10)

Does the inventor clearly summarize why a consumer or user should buy or use his/her invention? This statement convinces a potential consumer that one particular product or service will add more value or better solve a problem than other similar offerings

Market potential assesses the scope and likelihood of an invention gaining users.

1. How large and/or viable is the potential market for the invention?
2. To what extent was the market appropriately researched and scoped?

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.

1. Does the inventor consider and address the potential environmental, societal and other nontraditional impacts of their invention?
2. To what extent does the invention improve environmental/social conditions or have a minimal adverse impact?

Is the student’s invention unique, novel and creative? Is it distinguishable from prior inventions and those of his/her peers?

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. The key is to assess his/her understanding of value creation.)

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.

The inventor considered a broad range of social impacts and clearly articulated their potential impact.

The invention is beyond incremental and is something the judge has not considered or seen before.

Logbook (5)

Display Board (5)

Prototype or Model (5)

1. Does the logbook document a journey, not just a report done after the fact?
2. Does the logbook document all aspects of the Invention Process?
3. Does the display have strong visual appeal?
4. Is the display eye-catching with color, pictures, graphs and variety?
5. Is grammar, spelling and punctuation correct and, if hand-printed, neatly done?
6. Does the display communicate significant aspects of the Invention Process?
7. Are there unique aspects to display, such as shape (display is not a basic cardboard trifold)?
8. Does the prototype clearly communicate the key characteristics that make the invention valuable, usable and unique?

**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 he/she can safely do. Credit should be given where help is given.

Logbook contains topic research, indicating that the young inventor is exceptionally knowledgeable about his/her 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 four 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.

The 2016 National Invention Convention “Best Display” winner 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.

Examples of strong prototype include: 1) 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.

The Online Pitch (5)

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 National Invention Convention event.

The best pitches include the following:

* Introduction: inventor’s name, state, grade, etc.
* An overview of all invention process elements outlined in the invention scoring criteria (above).
* Use and/or reference of all physical communication elements (including the logbook, display board, and prototype).
* Explanation of origination of the idea (helping to assess the originality).
* Other recommendations include:
* Clear, concise, minimal stammering or superfluous words, correct grammar.
* Enthusiasm, passion, inflection, appropriate body language.
* No reading from cue cards; explanation in own words.
* Not answering questions from someone off/on camera.
* No longer than 5 minutes.
* Equal participation of all team members.

The Live Pitch and Q&A (10)The Live Pitch and Q&A takes place during the National Invention Convention event and is very similar to the online pitch but with the addition of a judge question and answer (Q&A) portion.

The best pitches include the following:

* Introduction: inventor’s name, state, grade, etc.
* An overview of all invention process elements outlined in the invention scoring criteria (above).
* Use and/or reference of all physical communication elements (including the logbook, display board and prototype).
* Explanation of origination of the idea (helping to assess the originality).
* Other recommendations include:
* Courteous and professional to peers in judging circle.
* Concise appropriate pace, clearly heard and understood.
* Professional eye contact and posture.
* Enthusiasm, passion, inflection, appropriate body language.
* No reading from cue cards; explanation in own words.
* No longer than 5 minutes

Judges are looking for the following:

* Invention was clearly created by the student as evidenced by their ability to clearly and thoroughly explain the invention
* .How do they handle live questions? Composure? Do they use the question in their answer?