

CAIC RUBRIC

Grade Award Rubric: Points

Category	Dimension	Points
Identifying and Understanding (30)	Problem Clearly Understood	10
	Solution to Problem.....	10
	Research	10
Engineering Cycle (20)	Design & Build	10
	Test & Refine	10
Invention Effectiveness (30)	Practicality.....	10
	Originality / Innovation	10
	Benefits	10
Communication (20)	The Live Pitch and Q&A	10
	Invention Log	10
TOTAL		100*

* This is the rubric for the California Invention Convention state finals. Note that while the online video is required to participate in the state finals, it is currently not part of the total score. For those students continuing onto the National Invention Convention, the online video is required and is part of the total scoring. For details on the rubric used by the National Invention Convention, go to our website - <https://cainventionconvention.org/educators/> The National Invention Convention rubric – along with some simpler rubrics used by local schools – are available there for downloading.

Identifying/Understanding (30)	Goal	Example
<p>Problem Clearly Understood (10)</p>	<p>Is the problem clearly understood and defined?</p> <p>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</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 for X days longer than anticipated.</p>
<p>Solution to Problem (10)</p>	<p>Does the solution answer the problem as the problem is defined?</p>	<p>Student can explain how this solution answers the defined problem Student may also describe other solutions tried that did not answer the problem.</p>
<p>Research (10)</p>	<p>Was the research underlying the invention complete and appropriate for this age group.</p> <p>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</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"> • Google • USPTO.com • Subject matter experts (interviews) • Visiting stores • Looking at industry news

Engineering Cycle (20)	Goal	Example
Design & Build (10)	<p>How did the student design the solution and why chose the materials used to build the design?</p> <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>Invention Log Includes a written diagram with labeled materials that takes the judge through the journey of the design process.</p>
Test & Refine (10)	<p>How did the student refine the design though testing? What did the student learn through testing?</p> <p>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.</p>	<p>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.</p>

Invention Effectiveness (30)	Goal	Example
Practicality (10)	<p>How practical is the invention?</p> <p>Students should be focused on solving the problem with practical, creativity.</p>	<p>The student can clearly show how the invention would be used.</p>
Originality (10)	<p>Is the invention original? Or if not original, did the inventor come up with creative ways to improve on the origiinal design?</p> <p>The innovations should help to create a new solution.</p>	<p>The invention is beyond incremental and is something the judge has not considered or seen before</p>
Solution Benefits (10)	<p>Does the student clearly understand the benefits of the solution and how others might use it?</p> <p>The student should be able to describe the benefits</p>	

Communication (20)	Goal	Example
Live Pitch and Q&A (10)	<p>How clearly did the student state the problem and solution – through presentation to the judges, display board and showing the prototype?</p> <ol style="list-style-type: none"> 1. Does the display have strong visual appeal? 2. Is the display eye-catching with color, pictures, graphs and variety? 3. Is grammar, spelling and punctuation correct and, if hand-printed, neatly done? 4. Does the display communicate significant aspects of the Invention Process? 5. Does the prototype clearly communicate the key characteristics that make the invention valuable, usable and unique? <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 he/she can safely do. Credit should be given where help is given</p>	<p>The best pitches include the following:</p> <ul style="list-style-type: none"> ▪ 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 Invention Log, display board and prototype). ▪ Explanation of origination of the idea (helping to assess the originality). ▪ Other recommendations include: <ul style="list-style-type: none"> ◆ 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.
Invention Log (10)	<p>How well does the Invention Log document a journey? It is not a report done after the act, but an ongoing journal. Does it look complete?</p> <p>If the Invention Log is not complete, the score cannot be higher than 4.</p>	<p>Invention Log 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. It also contains research about the existence of similar inventions and how their invention is different or better. Invention Log documents research from at least four sources, including interviews with experts in the field. Invention Log contains documentation to show progression of prototype iterations and improvements.</p>

The Online
Video

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 California 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 Invention Log, displayboard, 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 (Grade 4 and up. Younger inventors can be prompted with questions).
 - ◆ No longer than 4 minutes.
 - ◆ Equal participation of all team members.

JUDGING FORM

Team

Grade:

Judge:

Evaluation Criteria

Start at the average/middle score (5 out of 10), then add and deduct points.

30% - 01 – Identifying and understanding	01 Score:
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a. Is the problem clearly understood and defined? Scoring range 1-10 Notes & Comments:	
b. Does the solution answer the problem? Scoring range 1-10 Notes & Comments:	
c. Was the research underling the invention complete and appropriate for this age group? Scoring range 1-10 Notes & Comments:	

20% - 02 - Engineering Cycle	02 Score:
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a. Designing and Building: How did the student design the solution and why did the student choose the materials used to build the design? Scoring range 1-10 Notes & Comments:	
b. Testing & Refining: How did the student refine the design through testing? What did the student learn through testing? Scoring range 1-10 Notes & Comments:	

30% - 03 - Invention Effectiveness	03 Score:
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<p>a. How practical is the invention? Scoring range 1-10 Notes & Comments:</p>	
<p>b. Is the invention original? Or if not original, did the inventor come up with creative ways to improve / change it to make it unique – i.e.. How did the student innovate? Scoring range 1-10 Notes & Comments:</p>	
<p>c. Does the student clearly understand the benefits of the solution and how others might use it? Scoring range 1-10 Notes & Comments:</p>	

20% - 04 – Communication	04 Score:
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<p>a. How clearly did the student state the problem and solution – through presentation to the judges, Invention Log, display board and showing the invention? Scoring range 1-10 Notes & Comments:</p>	
<p>b. How well does the Invention Log document a journey? It is not a report done after the fact, but an ongoing journal. Does it look complete? Scoring range 1-10 Notes & Comments:</p>	

FINAL SCORE _____

Summary Comments:
