

FAQs for Teachers

Q. What kind of online resource is available for me?

A. Our website is the primary source of information and materials.

- California Invention Convention (CaIC) website at www.cainventionconvention.org. Under the **Educators** tab, you will see on the right hand side a section labeled **Teacher Resource Material**. Everything is linked through there. If we say get it from our web and it's not there, or it's wrong or somehow unusable, let us know immediately (bpayne@cainventionconvention.org)
- All the lesson plans and supporting documentation are maintained on our website – www.cainventionconvention.org. Under the **Educators** tab, scroll down to **Curriculum and Activities**. Curriculum is arranged by the following Grade bands.
 - K-2
 - 3-5
 - 6-8
 - 9-12

And if you need help, either use the **CONTACT US** tab on the Web site, or contact Brenda (bpayne@cainventionconvention.org)

Q. How do I get started?

A. We don't prescribe a particular set of lessons. However, if this is the first time that your students are going through the curriculum, the following sequence of lessons found in the has been found to be useful as it allows students to become comfortable with some of the skills that it takes to invent. These lessons structure these skills and develop them, before integrating them back into their intended task of invention design and construction.

- What is an Invention?
- The Engineering Cycle
- What's the Problem?
- Brainstorming 101
- #Accessibility Problems
- Scientific Induction
- Studious Solutions
- Improving Access
- Invention Improvement

We also available on our Web a sequence of suggested lesson plans for grades K-5 (**Lesson Sequence K-5**).

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The “**What is an Invention?**” lesson is a good refresher even if the students have been through the program before.

Besides the lessons, we recommend that you review the Invention Terms on Pages 3 and 4 of the Invention Log with your students prior to them entering anything into their Invention Log.

Q. What’s the Next Step?

A. You want to communicate with the parents. The student is going to be asking them for problems, getting feedback on design, maybe asking for help in the building of the invention.

There is a sample letter on our website you can download and modify for your needs. (*First Letter to Parent.doc*)

During the program, remember to continue communicating with the parents regarding any program requirements, getting any required permission, and timelines

Q. Speaking of timelines, how soon do we need to get started in order to be ready to participate in the next California Invention Convention?

A. The California Invention Convention is usually held early to mid-April. Assuming that you will be running a 10 week program and that you will have your own local Invention Convention, then you probably want to start by mid-to-late October. The general dates below can help your planning. Specific dates are posted on our website. Note that we send out instructions on how teachers and students can register.

- **December** – School notifies CaIC if classes/school will be participating.
- **Early - Mid Februaryst** -- Student Registration is open.
- **Mid - March** – Students must be Registered
- **Two weeks before Event** – Invention Videos Deadline. Guidelines for creating Invention Videos are on our Website under the link for the Convention Finals.
- **Mid April** – California Invention Convention
- **Late May – Early June** – National Invention Convention– The Henry Ford Museum, Dearborn, Michigan. Finalists from CaIC attend the National Invention Convention. Details for National Invention Convention can be found at <https://inventionconvention.org/home-page/>

Q. What materials will I need to deliver the program?

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A. If you are planning on doing the Take Apart activity and/or the Engineering (Nuclear Disaster) activity, we have materials lists for both activities, including costs and where to buy.

Every August, the Synopsys Outreach Foundation accepts applications to pay for “Science Project Package”. Teachers have used this in the past to defray the cost of the display boards. The link is https://outreach-foundation.org/other_cc_grants/ . We try to put out an email to teachers in August once we find that the application site is open. We urge you to apply as soon as you can as they have a finite amount of resources to grant.

Q. Do you have any hints and tips for me?

A. Sure. Here is a random list (in no particular order)

- The “Intent to Invent” Lesson introduces the idea of time management when working on long term projects.
- Have your students bring in their Invention Logs for review on a regular basis. They should be keeping it up and not waiting until the last minute to fill it in. At the National event, the clarity and completeness of an Invention Log can make a real difference. We require them at the State event as well.
- To help you with ensuring the students are keeping their Logs up-to-date, you need to sign off on their designs.
- Send out regular notices to parents letting them know what is happening in class and reminding them of deadlines – and that the students should be keeping their Invention Logs up to date on a regular and consistent basis.

Q. Are there any restrictions or requirements in order for a student to participate in the California Invention Convention in the spring or at the National Invention Convention?

A. Yes. Unless noted otherwise, all requirements and restrictions apply to both the California State Invention Convention and the National Invention Convention.

- You, as teacher, must sign off on the solution/invention before the student begins building their design. (Design page in Invention Log)
- Remember that animals are not allowed at the California Invention Convention, so if the invention is for animals, it must be demonstrated in pictures – or on a stuffed toy. Demonstrations/presentations may not include human beings or living creatures.
- The display board must be no larger than 24” with the wings folded in.

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- Each inventor **MUST** have a **COMPLETE, SIGNED** (by student and teacher) **Invention Log**. (document on website). This log must be kept on an ongoing-basis from the beginning of the project and should reflect the student’s invention process. Inventors will be judged on the completeness of the Invention Log
- Size of invention: If the inventor is to go on to the Nationals, the size of the invention is limited to 2ft x 2ft and has to sit on a table top. For larger inventions, the student can either build a smaller model, and have a video that shows it as operational, or can just have a video. The State convention does not limit size.
- The invention does not have to be a working model, but the student needs to be able to explain how it would work, but if it can be **operational**, it should be.
- Electricity: Inventions using “plug-in” electricity are not allowed at the National Convention. Students can, however, bring battery packs or power packs.
- Inventors may not use lighters, matches, candles or any other open flame or heat **source** or anything material or liquid considered combustible.
- Inventions may not contain biohazards or utilize any materials that are, or could become, dangerous.
- Other restrictions include: electric stun guns, martial arts weapons, guns, replica guns, ammunitions, fireworks, knives of any size, mace, pepper spray, razors, box cutters or balloons.
- In order for the student to compete, he/she **MUST** submit an **unedited video** no later than 2 weeks before the competition. The video is not to exceed four minutes. During this video, the inventor will discuss the problem, the solution and how he/she achieved the solution – as well as any issues that had to be overcome. The invention/prototype and display board can be used as visual aids – along with anything else that helps the student present the invention.

Q. Can a student use CAD/CAM design software and 3D Printers?

A. Yes indeed.

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Q. Can a student use an electronic display device to provide information about the invention at the convention?

A. Yes, the use of an electronic display device (computer, mobile phone, tablet etc.) is allowed during judging. However, the student must still create the invention, the Display Board and the Invention Log – in addition to presenting their invention verbally at that time. The device can only be used to supplement, not in place of other requirements

Also, electrical outlets may not be available, so make sure the device is fully charged and that the student has a backup charger.

Finally, the inventor and his/her family agree that they are fully responsible for the safety of that device at all times and the CalC is NOT responsible in any way or under any circumstances for any damage or theft of that device.

Q. Some of the students who participated in the Invention Convention last year, would like to modify their inventions as entries for this year’s Invention Convention. Is that allowed?

A. A qualified “Yes”. A student should not submit their invention from last year if it is the same thing. However, they can submit it if their invention has been improved based on feedback and further research, testing, engineering etc. Any improvements and the supporting research for those improvements would be reflected in the Invention Log. If the “improvement” is just a better display board or a more complete Invention Log -- then “NO”. We want the student to focus on the processes of the engineering cycle.

Q. Speaking of Judging, just how are the inventions judged at the State event?

A. CalC uses the concept of Judging Circles where a group of 6-10 inventors are judged by a group of 3 judges. Each inventor has time during the judging circle to explain his/her invention and answer questions from both judges and fellow students in the circle. The judges interact with each inventor and are trained to consider the invention, the display, the invention log and the inventor’s presentation on the following qualities:

- Originality
- Inventing Process
- Invention Effectiveness
- Practicality of the Invention
- Need for the Invention

If you’d like to use a rubric for your local convention that focuses on these qualities, we have one on the Web that you can use and modify as you see fit.