



The Story of Your Invention

What is an Invention?

An invention is something new that enables us to solve a problem or do something better or easier.

The Purpose of This Invention Log

All stories have an ending, and in this case, the ending of what you are doing is your invention. But all stories also have a beginning and middle. The purpose of this Invention Log is to tell the entire story of your invention and in it, you will record what you did, why you did it and how you did it, during every step in making your invention. This Invention Log is an important part of the invention process and is a complete and accurate record of the ideas, plans, and processes by which the invention was created. Invention Logs are often used by students to prove they came up with the idea and invention – and often are used as part of the patenting process.

How to Use This Invention Log

The Invention Log is not a book report that is created after you are done, but rather a diary, that is continuously filled in as you work on your invention. Follow the steps in the Invention Process and fill out the various pages as you work on them. When you are done with any page, print your name and the date at the bottom. If you need extra space for any section, make copies of the Blank Page (Page 17) and use that for any purpose. Once you are done, put the pages in the order in which you did them and staple them to make a complete Invention Log. This log will also be used as part of the final presentation. Because of this, except for things like a list of materials, all sections should be filled in using complete sentences and not single words or short phrases. Teams share one Invention Log and should attach signature of all inventors.

The Name of This Invention: _____

The Problem That It Solves: _____

Statement of Originality

I promise that the ideas in this Invention Log are my own. (If a team, all should complete.)

Inventor's Name(s): _____

Signature(s): _____

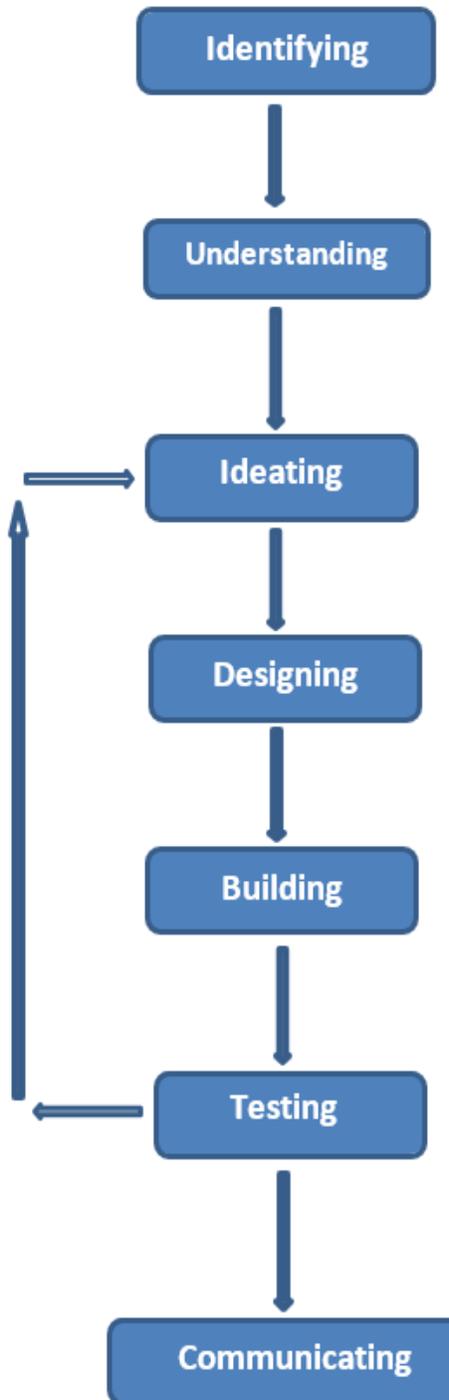
Date: _____

Grade: _____

School: _____

Town: _____

Invention Process Overview



Identifying a problem is when you brainstorm and use research to discover problems and who might have these problems. You might uncover these problems at home, at your school, with your sports or games, listening to the news or somewhere else entirely.

Understanding a problem is when you know what is causing the problem and exactly what you want to happen when the problem is solved. The better you understand the problem, the better your solution will be.

Ideating means thinking about the problem, brainstorming and researching different ideas and options to solve the problem.

Designing is when you decide what your invention solution will be made of, what it will look like and how it will work.

Building is when you assemble your invention together based on your solution design using the materials and the process you have decided to use.

When **Testing** your solution, you will find what works and what doesn't. You will modify or change your design, then build in those new changes, and test the changes. The testing also includes an analysis of the Pros and Cons of the invention, its impact on society and the environment, its marketability and social value. You keep repeating this process until your invention or prototype works and works well.

Communicating is when you explain the problem and your research, how your invention solution solves the problem, who might use your invention, your process in creating this invention, and how you might make it even better.



INVENTION LOGBOOK v7

Let's Explore Some Terms

These are terms that have to do with inventing. Some of these terms are used in this Invention Log, and some may be terms that you will want to use to describe your process. Please read over these terms before you get started.

advertise - the act or practice of calling public attention to one's product, service, need, etc., especially by paid announcements in newspapers and magazines, over radio or television, in social media, on billboards, etc.

brainstorm – to produce an idea or way of solving a problem by holding a spontaneous group discussion or individual thinking session.

data collection – the process of gathering and measuring information of different variables, in a systematic way that helps one to answer research questions, test hypotheses and evaluate outcomes.

design – to plan and make decisions about something that is being built or created. To create the plans, drawings, etc., that show how something will be made.

durable – able to withstand wear, pressure or damage.

engineer – people who invent, design, analyze, build and test machines, systems, structures and materials to fulfill objectives and requirements while considering the limitations imposed by practicality, regulation, safety and cost.

entrepreneur – a person who organizes and operates a business or businesses, taking on greater than normal financial risks in order to do so.

experiment – a scientific procedure undertaken to make a discovery, test a hypothesis, or demonstrate a fact.

hypothesis – a proposed explanation made on the basis of limited evidence; a starting point for further investigation.

improvements – the act or process of making something better; the quality of being better than before.

interview – a formal discussion to establish needs or requirements; a report or reproduction of information is obtained.

inventor - a person who invented a particular process or device or who invents things as an occupation.

invest – to put (money) to use, by purchase or expenditure, in something offering potential profitable returns.

market - to advertise and offer a product for sale; to present something in a particular way and make people want to buy the product.

marketable - able or fit to be sold or marketed; meets enough market needs to be able to be sold.

original – created directly and personally by a particular artist; not a copy or imitation.

operational - in or ready for use.



INVENTION LOGBOOK v7

patent - a government authority or license conferring a right or title for a set period, especially the sole right to exclude others from making, using, or selling an invention.

perseverance – continued effort to do or achieve something despite difficulties, failure or opposition.

pitch – promotion by means of an argument and demonstration; a short verbal dialogue that tells the story and benefits of a product.

problem – a matter regarded as unwelcome or harmful and needing to be dealt with and overcome.

product – something that is made or grown to be sold or used.

profit - money that is made in a business, through investing, etc., after all the costs and expenses are paid, a financial gain.

profitable – yielding advantageous returns or results; yielding a financial profit or gain.

prototype – an original or first model of something from which other forms are copied or developed; an early version of a product that helps the inventor consider different options for design before finalizing a go-to-market design.

publication – the act or process of producing or printing a book, magazine, newspaper, etc. and making it available to the public.

research – the study of materials and sources in order to establish facts and reach new conclusions.

seek – to search for something or someone; ask for help to achieve something.

solution – something that is done to deal with a problem; something that solves a problem.

source – the point or place which something starts from; a place, person, or thing from which something originates.

substantially - to a great or significant extent.

test – a procedure intended to establish the quality, performance, or reliability of something, especially before it is taken into widespread use.

testimonial – a written or spoken statement in which you say that you used a product or service and liked it.

Requirements and Restrictions

To participate in the STEMIE National Invention Convention and Entrepreneurship Expo (NICEE) in the Spring, there are certain restrictions and requirements.

- Your teacher must sign off on your solution / invention before you begin building your design.
- Remember that animals are not allowed at NICEE, so if your invention is for animals, you must demonstrate it in pictures or on a stuffed toy. Demonstrations/presentations may not include human beings or living creatures.
- Your display board must be no wider than 24" with the 12" wings folded in.
- You must have a COMPLETED, SIGNED Invention Log with each page signed by you.
- Your prototype / invention should be no more than 2 feet high and 2 feet wide and be able to set on a table top.
- Your invention does not have to be a working model, but you need to be able to explain how it would work. If it can be operational, it should be.
- Wall outlet electricity (120 VAC) may NOT be used at NICEE. Battery powered devices are fine.
- 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.
- If your invention cannot be actually demonstrated at NICEE due to issues with size, electricity or hazardous materials, a video of the device in action can be shown.

Originality:

It is very important that your solution is original and does not already exist or is substantially different from another invention. These are great places to research to find out if your idea already exists.

- Libraries (ask a librarian for advice on where to look!)
- The Internet (e.g., www.google.com, www.bing.com)
- Stores (e.g., www.amazon.com, www.bestbuy.com, www.walmart.com, www.target.com)
- Books about your topics (look up at www.bn.com or www.amazon.com)
- Professionals in the Industry (check out www.linkedin.com for possible people to interview)
- Trade/Industry-Specific Publications (each industry has topical magazines and websites about the industry)
- United States Patent and Trademark Office (Visit www.uspto.gov to search for patents and trademarks)
- Domain registrars (e.g., www.GoDaddy.com to see if your product name .com is taken)



INVENTION LOGBOOK v7

These are the Steps You Will Take

As you work on your invention, follow these steps and check them off as you complete them. Don't write your ideas here – use the appropriate space in the following pages to complete each of the sections.

1. What problem are you trying to solve?
2. What is the result you are trying to achieve?
3. What are some possible solutions and which one did you choose to do?
4. Has this solution been done before?
5. Make a drawing of the invention.
6. What problems might you encounter with this design?
7. How will you fix those problems?
8. Repeat steps 5 to 7 until you have a design that you think will work.
9. What parts and materials will you need to make the invention?
10. Where will you get those parts and materials?
11. What additional skills will you need to make the invention?
12. Who can help you do those activities?
13. Get the parts, materials and build the invention with help.
14. Test and evaluate the invention.
15. Identify any problems with the invention.
16. Repeat steps 5 to 15, until the invention works as planned.
17. Name the invention.
18. Plan and create the Invention Display Board.
19. Practice what you will say about your invention in the Judging Circle.
20. Be proud of what you have done!!!!



INVENTION LOGBOOK v7

4. Has this solution been done before? If it exists, how is your approach different and better? What research did you do to see if this invention had been done before? Who did you talk to? Where did you look? What Internet site did you search? You should also show 4 pieces of evidence of different types of research – talking with experts, looking things up on the Internet, interviewing friends and family as to how useful this would be, etc.

Where I looked to see if my idea is new:

- A.
- B.
- C.
- D.

Document any similar inventions you found, describing how yours will be different:

Teacher Signature - REQUIRED FOR ALL PARTICIPANTS

I approve of the solution /invention my student has chosen to pursue and agree that it not only meets the guidelines shown on the Restrictions and Requirements page, but that it is also safe.	
Teacher's Name (Printed)	
Teacher's Signature	Date
I approve of the solution/invention my student(s) has chosen to pursue and agree that it not only meets the guidelines shown on the Restrictions and Requirements page, but that it is also safe.	



INVENTION LOGBOOK v7

Building the Invention or Prototype (Designing, Building, Testing)

9. What parts, materials and tools will you need to make the invention and how much will they cost?

10. Where will you get those parts and materials?

11. What additional skills or abilities will you need to make the invention?

12. Who can help you build the invention?

13. Get the parts, materials and build the invention with help.

14. Test and evaluate the invention. What did you do to test the invention?

15. Identify any problems with the invention. What will you change to make it better?

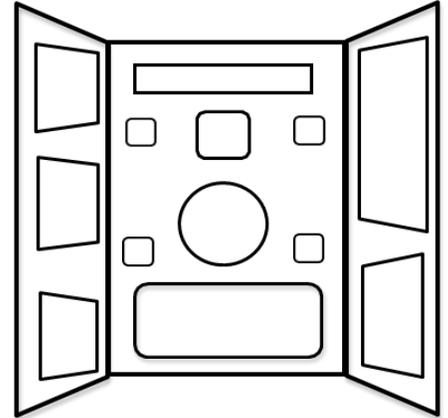
16. Repeat steps 5 to 15, until the invention works as planned. You may have to copy and make multiple copies of this blank page until you have an invention that works the way you want.

Plan and Create the Invention Display Board (Communicating)

18. Create your display board. This is an example of what a Display Board might look like, but you can make it look any way you want. This is YOUR invention and YOUR display so use your creativity to tell the story of your invention the way you want.

Be sure you use:

- Fonts that are readable (style, size, color)
- Colors that look good together
- Shapes that are the right size
- Correct grammar
- Proper punctuation
- Check the spelling of all words



Maximum Size: With the wings folded in, the Display Board can only take 24" of table space. However, you are allowed to open up the wings during your Judging Circle presentation.

26. Your Display Board **MUST** contain the following

All projects must have the following information in one consolidated place on the poster:

- Student(s) Name(s)
- Project Name
- Student(s) Grade(s)
- Student(s) School
- School City, State
- Preferred Industry Focused Award Category (e.g. Telecommunications)
- Patent Status (three options: None, Under Counsel or Patent Pending)

Student should note on their posters with "Patent Pending" for Patent Status **only** if a provisional or non-provisional patent application has been officially filed with the USPTO. If you are currently represented by an attorney or patent agent (pro bono or otherwise), then mark "Under Counsel." It is possible to be both "Under Counsel" and "Patent Pending", or just "Under Counsel", or just "Patent Pending" (if you did the filing yourself).

You might also want to add this information:

- Images showing you building or testing
- How the invention was made
- How the invention is used
- Biography of the inventor
- Supporting and explaining picture/photographs/drawings/charts
- What scientific principles were used in your invention? (Examples: buoyancy, heat transfer, etc.)
- What engineering disciplines were used in your invention? (Examples: Electronics, optics, etc.)
- Testimonials from users, research results
- Any other information about the invention that will help explain it, what it does or why it's good



INVENTION LOGBOOK v7

Blank Page for additional information about what you've done.

This blank page is available for you to add anything to your Invention Log that will help explain what you did, how you did it and what the results were. This could be drawings, calculations, descriptions, test results, etc. Multiple copies of this page can be inserted anywhere you want in the Invention Log.