



Inventor's Journal

for grades 9-12



PRESENTED BY



ACADEMY OF
APPLIED SCIENCE

2 ½ Beacon Street, Suite 280
Concord, NH 03301
603-228-4530
www.aas-world.org

Hello Inventor!

Welcome to the Young Inventors' Program and the world of invention. As you begin your journey, we encourage you to take positive risks. Ask questions. Be creative. Most important, do not be afraid to fail. Innovation is all about testing and re-testing and pushing boundaries to make the world a better place. No matter where your journey takes you, you will learn new things, challenge yourself, and ultimately be successful.

Tell the Story of Your Invention

This Inventor's Journal is a place for you to record your ideas, activities, research, and discoveries as you create your own invention. The journal is not a book report that is created after you are done. It is a diary that is continuously filled in as you work. The purpose of the journal is to tell the story of your invention. For every step, you will record what you did, why you did it, and how you did it. Invention journals are important because they provide a complete and accurate record of your ideas, plans and processes by which your invention was created. It is proof that you came up with the ideas and the invention on your own.

About the Inventor's Journal

Your YIP Inventor's Journal is divided into three sections to help organize your logbook. The "My Workbook" section includes worksheets that you may use as you go through the YIP program and complete YIP invention activities. The "My Notebook" section of the journal is an open space for you to take notes as you learn the invention process. And finally, in the "My Invention Journal" section, you will record your invention story- identify your problem, complete your research, develop a design, draw sketches, and document your activities as you complete them. You may also insert any photographs of yourself working on different parts of the invention. Each time you begin an activity or record an entry, at the end, be sure to sign and date the page at the bottom. If you are working with a team, each team member will keep their own journal, but all team members should sign each other's journals each time you work together. You may insert any additional pages as needed.

When your YIP Inventor's Journal is complete, it will become part of your final project presentation. Your teacher may give you more guidelines and requirements for your Young Inventor's Journal, so be sure to follow them.

Have fun and good luck!

The YIP Team



a program of The Academy of Applied Science

Inventor's Journal

This Journal tracks the innovations by

Inventor Name:

Grade: _____

School/Organization Name:

Teacher/Leader Name:

INVENTOR'S CHECKLIST

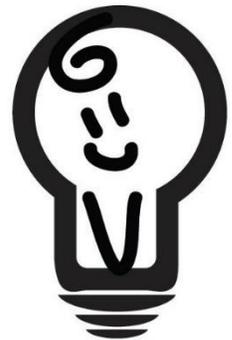
Checklist of the Process of Invention

Inventor's Name

- Identify the problem to be solved
- List ways to solve the problem
- Choose the solution
- Sketch ideas
- Make a model (prototype) of your invention
- Decide if your invention solves the problem
- Improve your invention and prototype as needed
- Make your display board
- Present your ideas

 Have fun!

This journal is a guideline for your creative process. Do not feel limited by this format. Please complete required sections needed for your assignments and Invention Fair.



SECTION 1: MY WORKBOOK



Patent & Trademark Worksheet

Directions:

Answer the following questions and complete your patent search. This is an important activity. Even you are not planning to pursue a patent, you must be able to show people (and judges if you present your project in competition) that you have done your research about similar inventions and explain how your invention is unique and/or original.

Get Thinking!

What is your problem description?

What are some possible terms to best describe your invention?

USPTO Patent Search:

Go to the US Patent and Trademark Office website at <https://www.uspto.gov/>

Note: Since inventions can be publicly disclosed in a variety of non-patent print and electronic publications, you can choose to search books, journals, websites, technical catalogs, and conference proceedings as well. Another site you can use to search for patents is Google Patent Search at <http://www.google.com/patents>.

Select a practice invention: the hairbrush. Try to find relevant patents. Follow the directions below to narrow down types of patents about the hairbrush, such as handle designs or other characteristics of the hairbrush.

Here are the general steps to follow to do a search:

1. List out the key terms that would best describe your invention (practice: hairbrush).

2. Try searching some of your terms in the uspto.gov search box. In this step, you need to search specifically for your classification of invention; otherwise too many search results come up. Simply type *CPC scheme* in front of your search term.
3. Start clicking and reading search results.
4. When you find a classification that matches your invention description, you can click on *quicklinks* and then *PatFT* to see all the patents in that classification.
5. You must sort the patents based on their titles. The most closely related ones will need to be opened and reviewed to see if your design solution or something similar to it already exists. You can also search the most recently published patents by searching AppTF.

What patents were you able to find for the hairbrush?

Now, do a patent search for your own invention with the USPTO:

1. List out key terms that would best describe your invention:

2. Next, you should try searching some of your terms in the uspto.gov search box. In this step, you need to search specifically for your classification of invention; otherwise, too many search results come up. Simply type *CPC scheme* in front of your search term.

Search Term 1 *CPC scheme*:_____

Search Term 2 *CPC scheme*:_____

Search Term 3 *CPC scheme*:_____

3. Start clicking and reading the definitions of the search results.

Search Term 1 Related Definitions:_____

Search Term 2 Related Definitions:_____

Search Term 3 Related Definitions:_____

4. When you find a classification that matches your invention description, you can click on *quicklinks* and then *PatFT* to see all the patents in that classification.

List patents that might be close to your invention:

Patent Number	Title/Definition	Why do you feel it is like your invention or design solution?	Do you think you need to open this patent number and learn more about it?

5. You must sort the patents based on their titles. The closely related ones will need to be opened and reviewed to see if your design solution already exists or if something like it already exists.

Note: you can also search the most recent patents by searching AppFT.

Patent Number	Detailed description of the patent	How is your design solution different or an improvement?	What adjustments are you going to make based on this research?

You should keep these results and add them to your **YIP Inventor Journal**. It is important for you to be able to explain to someone (and any judges) what other similar inventions exist and how your idea is different. If you are planning on pursuing a patent, bring your notes to your legal advice or patent attorney meeting.

Record any extra notes in your **YIP Inventor's Journal**.



Peer Review Worksheet

Direction

You have had a chance to review your own **YIP Inventor Journal**. Now, you will peer review your partner's **YIP Inventor Journal**. Use the following-check list to check off all required elements of the journal. Then, provide feedback and notes when appropriate. Add comments in the area below each section title as needed.

Comments should be positive and constructive. Be sure to provide specific examples and detail so that your partner can make real improvements.

Example:

Unhelpful comment: "Your sketches are good",

More helpful comment: "Your sketches are neat and easy to read. I recommend labeling the parts of your invention."

YIP Inventor Journal Checklist

- Overall neatness- remember that invention journals may be a bit messy as inventors need to record all changes and edits and also document as they are designing, but overall the journal should be easy to read and follow.

Comments:

- Brainstorming Process- all aspects of coming up with the idea for the invention are recorded
 - Problem is identified and explained
 - Initial long list of ideas
 - How Might We statements are provided
 - Short list of ideas
 - Final idea highlighted and presented

Comments:

- Initial Invention Proposal included

- Research and Development Documented
 - List of interview questions for target audience
 - Interview responses collected and recorded
 - Patent & Trademark Worksheet included
 - Research of relevant invention patents
 - Research resources cited
 - Research evidence provided

Comments:

- Final research and invention proposal included

- Creating and Improving the Design
 - Notes to document the design process are included- shows that iterations were made along the way.

Comments:

- Building the Model
 - Notes to document all phases of model building are included
 - Testing notes included
 - Re-design ideas presented
 - Re-build notes included

Comments:

- Materials
 - List of materials used
 - List of prices of materials
 - List of where materials were purchased

Comments:

- Sketches
 - There are several sketches in the journal to document the process.
 - Well-labeled
 - Easy to understand
 - Matches description of invention and/or design

Comments:

- Any additional feedback



SECTION 2: MY NOTEBOOK

Place to brainstorm ideas / collect sketches / catalogue ideas as you start your invention journey.

Sketch Your Ideas

More Ideas / Notes / Sketches

More Ideas / Notes / Sketches

Are you ready to invent? Start Your Journal Next

SECTION 3: MY INVENTION JOURNAL



STATEMENT OF ORIGINALITY

I promise that the ideas in this Inventor's Journal are my own. (If a team project, all members of the team should have their own logbook, but complete this statement together and all members should sign.)

Inventor Name(s): _____

Signature(s): _____

Date: _____

Grade: _____

School/Program: _____

Town: _____



a program of The Academy of Applied Science

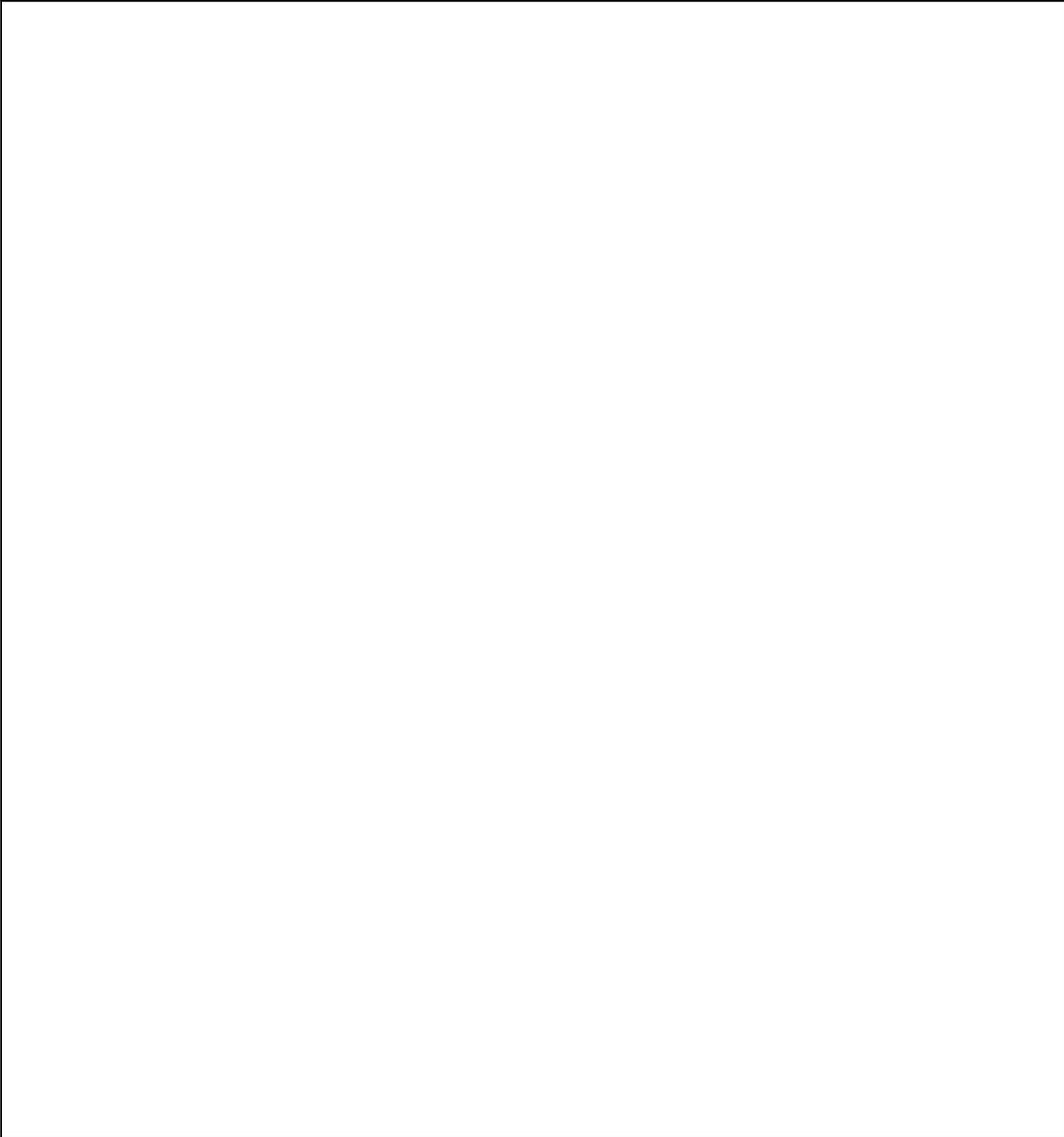
INTENT TO INVENT

File this form with your teacher/leader to share that you have identified a problem and a solution to that problem.

Student Inventor:	Grade:
Teacher:	Date:
I intend to invent:	
The problem it will solve is:	
I have determined to the best of my ability that my invention will be original by taking these steps:	
I will use the following materials in my invention:	

Invention Diagram

Draw a diagram of your proposed invention. Explain how it will work. All inventors make drawings of their inventions to show how they will work. Draw some quick sketches of your idea in your YIP Inventor Journal and pick what you think will look and work the best. All diagrams should be labeled, dated, and briefly explained.



Inventor's signature: _____

Date: _____

Invention Journal Page

Record steps to develop ideas, research and notes as you build your invention.

Inventor's signature: _____

Date: _____

Invention Journal Page

Record steps to develop ideas, research and notes as you build your invention.

Inventor's signature: _____

Date: _____

Invention Journal Page

Record steps to develop ideas, research and notes as you build your invention.

Inventor's signature: _____

Date: _____

Invention Journal Page

Record steps to develop ideas, research and notes as you build your invention.

Inventor's signature: _____

Date: _____

Invention Journal Page

Record steps to develop ideas, research and notes as you build your invention.

Inventor's signature: _____

Date: _____

Invention Journal Page

Record steps to develop ideas, research and notes as you build your invention.

Inventor's signature: _____

Date: _____

Invention Journal Page

Record steps to develop ideas, research and notes as you build your invention.

Inventor's signature: _____

Date: _____

Preparing Your Presentation

Inventors need good ideas and good communications skills. Part of YIP is to present your invention to your peers at your school or program and present to judges at your Invention Fair and other competitions. When doing these presentations, be sure to:

1. Be prepared and practice.
2. Ensure your presentation is within time limits set by your teacher.
3. If you are part of team, make sure each team member has a part of the presentation.
4. Speak clearly and loud enough for judges to hear you.

We have a few tips to prepare for your invention presentation:*

- **Practice Out Loud:** Practice your presentation in front of a friend or family member at least 5 times so you are more familiar with your speech and are comfortable speaking in front of someone.
- **Take a Deep Breath:** If you lose your place or get nervous, take a deep breath, pause and restart. There is no rush when speaking and the audience appreciates time to think about what you are saying as well.
- **Practice in Front of a Mirror:** Stand in front of a mirror and give your presentation. Be careful not to wiggle, twitch, or shift. Practice how you will stand, sit, move or point as you present.
- **Time Yourself:** Time yourself as you give your entire speech from start to finish. Speak at a normal pace, which will probably seem slower than you think it should.
- **Make Eye Contact:** Look up at your audience at least 3 times when you present.
- **Expect the Unexpected:** It is okay if things do not go as planned. Stay positive and follow through.
- **Summarize & Restate:** At the end of your presentation, repeat your most important points to summarize your project.
- **SMILE!** When you smile, your whole body relaxes. And smiling is contagious- if you smile, your audience will too.

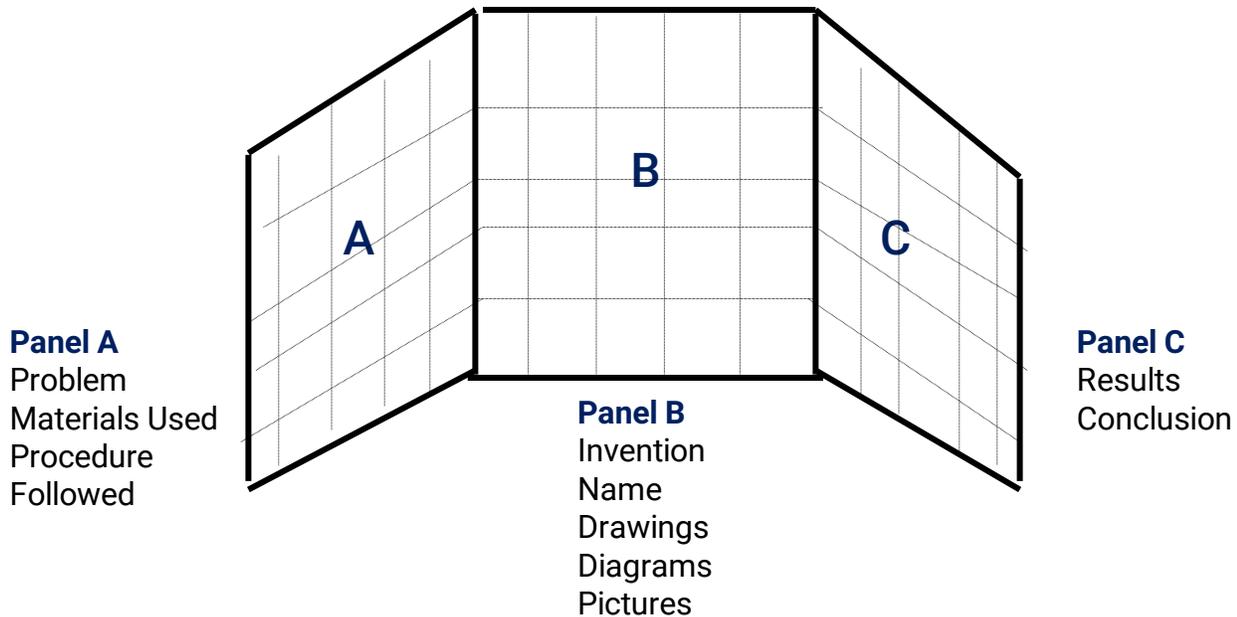
* Adapted from *Science Buddies*, "Science Fair Project Presentation Speech Tips".

Questions Judges May Ask You

- How did you come up with your invention idea?
- Did you work on the first idea you thought of?
- What disappointments/hurdles did you have while working on your invention?
- Did you build any prototypes before this invention?
- What was more fun for you: thinking up your invention or building it and making it work?
- Where did you get your materials/supplies?
- Have you thought of ways to make your invention even better?
- If you could have this invention built using any material, what would you choose?
- Did you have fun inventing?
- What else would you like to tell us about your invention?

Display Board Requirements

Your display board is an opportunity for you to highlight the most important aspects of your invention process, show off your creativity, and market your product. This is an example of what a Display Board might look like, but you can be creative and make it your own.



Maximum size: A tri-fold display board may be a maximum of 48" wide and 36" tall (the board should be 24" with both 12" sides folded in.)

Display boards must have the following information in one consolidated place on the poster:

- Student(s) Name(s)
- Name of Invention
- Student(s) Grade(s)
- Student(s) School
- School City, State
- Statement of the problem
- Explanation of the invention as a solution to the problem
- Details of model construction
- Diagrams of design

Your display may also include many items, such as:

- How you thought up your idea
- Your research on if your invention already exists
- A statement of the problem solved
- Other brainstormed idea solutions which were unsuccessful and/or improvements
- Other people's impressions about the usefulness of the invention
- Personal testimonies of your own uses
- A short autobiography
- Photographs and/or diagrams

Helpful Hints:

- Materials for the poster may be pre-printed or hand written
- Photographs, illustrations/drawings, charts are encouraged
- Use font or handwriting that is readable (in style, color and size)
- Use colors that pop and look good together
- Use correct spelling and grammar
- Use proper punctuation



a program of The Academy of Applied Science

Academy of Applied Science
2 ½ Beacon Street, Concord, NH 03301
603-228-4530 x213 | @fuelthespark
www.aas-world.org