Inventor’s Journal
for grades K-3
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
Inventor’s Journal

This Journal tracks the innovations by

Inventor Name:

______________________________

Grade: ___________

School/Organization Name:

______________________________

Teacher/Leader Name:

______________________________

Young Inventors’ Program®
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

Problems All Around Me
Ask other people what problems they have around their homes, neighborhoods, or that could be solved with a new invention. List their responses below.

Family

Friends

Neighbors

Yourself

To pick the best idea pick the best idea. To make your selection, ask yourself which idea is most interesting to you, most needed, most original, and one you think you can make using the materials around your home.

Best Idea: ________________________________________________________________
Invention Comic Strip Worksheet

Describe what life would be like without an invention of your choice in the 3-frame comic strip below. Use the first two frames to show life with the invention and the last frame to show life without the invention. You may use words and pictures in your comic strip.

“Life without a ________________________________”
Steps of the Invention Process Worksheet

IDENTIFY – Ask questions to determine what the problem is

UNDERSTAND - Research the problem fully. Who does it affect? What may cause the problem? What might be possible solutions?

IDEATE - Use creative problem-solving to turn an idea into a solution.

DESIGN - Sketch a drawing of the solution and its design. Label the parts. Out their prototype designs.

BUILD - Put your plans in action and build a model (a prototype).

TEST - Test the model to collect data and receive feedback.

REDESIGN - Make adjustments and improvements to their prototype. The Test and Re-Design steps may repeat several (or many) times until the inventor is satisfied with the results.

COMMUNICATE - Present your idea and your solution.
Steps of the Invention Process Worksheet

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UNDERSTAND - Research the problem fully. Who does it affect? What may cause the problem? What might be possible solutions?

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TEST - Test the model to collect data and receive feedback.

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COMMUNICATE - Present your idea and your solution.

In small groups or as a class, discuss the following from the video: The Soccer Ball that Generates Energy. Record your responses:

What steps of the Invention Process were highlighted in the video?

How did Jessica approach the Invention Process? What did she do for each step used?
Do You Know Who Invented the Telephone?
Worksheet

Documentation of an invention is an important step in the creative process. Without documentation, an inventor can lose his creative process. Without documentation, an invention can lose his right to claim a patent if someone contests the date of creation. Throughout history, there are stories of inventors who have fought to prove that they were the first. Perhaps no story is more illustrative of this than that of the invention of the telephone.

We are taught that Alexander Graham Bell invented the telephone and the law upholds that fact. It is Bell who claimed the rights to the patent, a patent that was upheld in numerous court cases. However, a search on the Internet querying “who invented the telephone” returns a wide variety of other answers – Elisha Gray, Phillip Reis, Bourseul, Antonia Meucci, and many more.

So what is the answer? The truth lies with who holds the patent- Bell. Bell was the first to apply and complete the patent process. Meucci is credited with having applied also, but he apparently had been too poor to pursue a patent years before. Meucci died before his court case came up and the case was eventually dropped when the patent expired. A Reis machine was presented in one court case against Bell, but would transmit little more than a squeak. Elisha Gray’s claim was even closer- he had filed a patent caveat the same day that Bell applied for his patent. On September 12, 1878, Bell and Gray entered a lengthy patent litigation. As it usually goes in court cases, documentation is what saved Bell’s case.

In all, the Bell Company fought out thirteen lawsuits that were of national interest, and five that were carried to the Supreme Court of the United States. It fought out 587 other lawsuits of various nature; and with exception of two unrelated contract suits, IT NEVER LOST A CASE.

Bell, and the story of the invention of the telephone, is all about how multiple people can develop and work on an invention independently of each other. This story demonstrates that the one to go down in history as the inventor, is the one who gets the patent and can prove his or her case.
Questions:

1. Why did Bells patent hold up through time?

2. What other items do you associate with their famous inventors?

3. Are they the “real” inventors?

Source: https://www.uspto.gov/sites/default/files/kids/icreatm_guide_ms.pdf
1. SCAMPER with Ice Cream Cone

As your teacher reads the series of SCAMPER cues and related questions about the ice cream cone, record your ideas below.

<table>
<thead>
<tr>
<th>SCAMPER CUE</th>
<th>NOTES AND IDEAS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>S</strong>= SUBSTITUTE</td>
<td></td>
</tr>
<tr>
<td><strong>C</strong>= COMBINE</td>
<td></td>
</tr>
<tr>
<td><strong>A</strong>= ADAPT</td>
<td></td>
</tr>
<tr>
<td><strong>M</strong>= MODIFY</td>
<td></td>
</tr>
<tr>
<td><strong>P</strong>= PUT TO USE</td>
<td></td>
</tr>
<tr>
<td>SCAMPER CUE</td>
<td>NOTES AND IDEAS</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>E= ELIMINATE</td>
<td></td>
</tr>
<tr>
<td>R= REVERSE OR REARRANGE</td>
<td></td>
</tr>
</tbody>
</table>

Now, select one idea you have written above. **Draw an illustration** of this new idea for using the ice cream cone.
2. **SCAMPER On Your Own**

Your teacher will show you (or you will choose) an item you may use every day...or not! Try to look at this item in different ways. Use the SCAMPER technique to help you think of different ways to look at this item. If you do not know what the item is, that is ok. You can still do SCAMPER, because whatever the object is, you are looking at it differently! **Record your ideas** in the chart below.

<table>
<thead>
<tr>
<th>What could you do?</th>
<th>How would it change and what can you do with it now? Draw out your new ideas.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Substitute</strong></td>
<td>Think of a scenario. How could you use this item? Could you use different materials to make it?</td>
</tr>
<tr>
<td><strong>Combine</strong></td>
<td>Think of a scenario. How could you use this item? Could you use different materials to make it?</td>
</tr>
<tr>
<td><strong>Adapt</strong></td>
<td>Can you change a small part of the item to use it for something else? Can you think of another product and make the item more similar to it?</td>
</tr>
<tr>
<td>What could you do?</td>
<td>How would it change and what can you do with it now? Draw out your new ideas.</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Modify</strong></td>
<td>Add parts or change the shape.</td>
</tr>
<tr>
<td><strong>Magnify</strong></td>
<td>Make it bigger, higher, longer, or stronger.</td>
</tr>
<tr>
<td><strong>Minimize</strong></td>
<td>Make it smaller or take parts away.</td>
</tr>
<tr>
<td><strong>Put to Other Use</strong></td>
<td>Can you use this item as it is for anything else?</td>
</tr>
<tr>
<td><strong>Eliminate</strong></td>
<td>What happens if you take parts or pieces away?</td>
</tr>
<tr>
<td><strong>Reverse</strong></td>
<td>Switch the direction of the item.</td>
</tr>
<tr>
<td><strong>Rearrange</strong></td>
<td>Move parts around or change their order.</td>
</tr>
</tbody>
</table>
Take Apart Worksheet

1. Draw your ideas of how the wind-up toy works below:
2. What Makes Me Go?

**Directions:** First, look at the wind-up toy. Watch it move. Why does it move that way? Then, take your toy apart. What parts help the wind-up toy move?

<table>
<thead>
<tr>
<th>What parts do you see?</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>What does the toy do? Not all of its parts move.</th>
<th></th>
</tr>
</thead>
</table>

Draw a model (a picture) of what you think is happening inside the toy to make it move:
It’s TAKE APART time!

How many...?
What did you find while taking the toy apart? Separate all of the pieces into piles and count how many of each part you find.

Screws: ____   Coils: ____   Wheels: ____   Gears: ___

How did you sort your pieces?

After Take Apart

Draw a model (a picture) of what you saw when you opened up your toy. How did it move?
Lunch Line Redesign Worksheet

Draw a sketch of your Lunch Line Redesign, or just one part of the redesign below.
What's Your Problem?
Worksheet

Use this flow chart to help you identify the problem: “When should I do my homework?” and map out possible solutions. Above each arrow, write YES or NO to indicate whether each solution could be successful, or not, and then outline the reason why or why not in the space provided. If needed, add more boxes or arrows.

PROBLEM: When should I do my homework?

POSSIBLE SOLUTION #1: 
Example: Right after school every day.

REASON:
Example: I have soccer practice until 5:30.

NO

POSSIBLE SOLUTION #2:

REASON:

POSSIBLE SOLUTION #3:

REASON:
Part 1. Starting to Make Plans

Now that you have an idea for your invention, you must determine if it meets certain standards. Think about some of the questions below to see if your invention will be successful.

<table>
<thead>
<tr>
<th>Is My Idea...</th>
<th>Yes</th>
<th>No</th>
<th>Needs Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Going to work?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New and original, or an improvement on an existing invention? (Research by asking others, checking the library, and calling stores that would sell your product.)</td>
<td></td>
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<tr>
<td>Creative and unusual?</td>
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<tr>
<td>Useful to all age groups?</td>
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<tr>
<td>Does it have a name that sounds fun and interesting, but still describes what it is?</td>
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<tr>
<td>Too complicated?</td>
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<td></td>
</tr>
<tr>
<td>Too simple?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can it be easily damaged?</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Made from recycled materials?</td>
<td></td>
<td></td>
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</tbody>
</table>
Part 2: Researching Your Invention Idea

Notes from Internet Research:

Notes from Library Research:

Notes from Interviews with People:

Be sure to record this information in you’re the “My Invention Log” section of your YIP Inventor’s Journal.
Does Your Invention Already Exist?

Part 3: Patent Research

How do you find out more about your problem and solution? You perform research. Take notes on your patent search. You will likely need an adult to help with this as each patent contains a lot of information. This is an important activity because you will be asked at your school Invention Fair and other Invention Convention events how your solution is different from other solutions. Your research will lead you to a well thought out answer.

Patent Sites

Use the UPTO site to search for patents that already exist. The results that come up can be difficult to go through, so you may need to ask an adult for help.

Websites: uspto.gov and uspto.gov/go/kids

- Type in your keywords. Search.
- Look over the patents that come up. Click on items that might be similar to your invention to learn more.
- At the bottom of the page click on “Images” to see what the invention looks like.

Patents that are similar to my invention:

Patent Number/Title: __________________________________________________________

How is your design solution different or an improvement?

Patent Number/Title: __________________________________________________________

How is your design solution different or an improvement?

Be sure to record this information in you’re the “My Invention Log” section of your YIP Inventor’s Journal.
Does Your Invention Already Exist?

Part 4: Let’s Go Shopping

Before you can say you have an invention, you need to look at what is already in stores. You can visit stores or go to online stores to look up products. Ask an adult to help if needed.

Keywords!

Write down 3 key words to describe your invention. Use these words when doing your search.

1. ____________________________

2. ____________________________

3. ____________________________

Shopping Sites

With an adult, go to Amazon.com to begin a search for products that already exist. How are these products similar to your invention? Do not be discouraged if your idea already exists; instead think about how your idea is or can be different from or an improvement to the existing product.

- Type in your keywords. Search.
- Look over the products that come up. Click on items that are similar to your invention to learn more.

Products that relate to my invention:

Draw what you see:

How is this like your invention?

________________________________________

________________________________________

________________________________________

________________________________________
How is your invention different?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Draw what you see:

How is this like your invention?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

How is your invention different?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Search other shopping sites too! The more you know the better your explanation will be. Be sure to record this information in your “My Invention Log” section of your YIP Inventor’s Journal.
Invention Materials Worksheet

Use this chart to record materials that you use and any that you purchase. Be detailed!

<table>
<thead>
<tr>
<th>Name of Material or Item Used</th>
<th>Description and/or purpose</th>
<th>Quantity Used</th>
<th>Name of supplier/store where purchased</th>
<th>If purchased, price per item</th>
<th>Total Cost for Material (Price per item x Quantity)</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>
Invention Name Word Ideas Worksheet

Pick one word/prefix/phrase from Group A and one word/suffix/phrase from Group B that seem to really “fit” your invention. Now put them together. Try saying them quickly, and then reverse the word order. Add other words and try several different combinations to see if you can come up with something you like. Ask your friends what they think. List some of your ideas in your YIP Inventor’s Journal.

<table>
<thead>
<tr>
<th>GROUP A</th>
<th>GROUP B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aqua</td>
<td>Mister</td>
</tr>
<tr>
<td>Travel</td>
<td>Away</td>
</tr>
<tr>
<td>Thermo</td>
<td>-Izer</td>
</tr>
<tr>
<td>Medi</td>
<td>Minder</td>
</tr>
<tr>
<td>Ele-</td>
<td>2000</td>
</tr>
<tr>
<td>Opti-</td>
<td>Meter</td>
</tr>
<tr>
<td>Sleep</td>
<td>-Ator</td>
</tr>
<tr>
<td>Auto</td>
<td>A-tron</td>
</tr>
<tr>
<td>Accu</td>
<td>Aid</td>
</tr>
<tr>
<td>Pest</td>
<td>Be-gone</td>
</tr>
<tr>
<td>Compu-</td>
<td>Saver</td>
</tr>
<tr>
<td>Saftey</td>
<td>Mate</td>
</tr>
<tr>
<td>Farmer’s</td>
<td>Max</td>
</tr>
<tr>
<td>Quick</td>
<td>Buddy</td>
</tr>
<tr>
<td>Info</td>
<td>Tote</td>
</tr>
<tr>
<td>Super</td>
<td>Rider</td>
</tr>
<tr>
<td>Step</td>
<td>No-More</td>
</tr>
<tr>
<td>Pro</td>
<td>Finder</td>
</tr>
<tr>
<td>Cozy</td>
<td>Shield</td>
</tr>
<tr>
<td>Mini</td>
<td>Pal</td>
</tr>
<tr>
<td>Kiddie</td>
<td>Tech</td>
</tr>
</tbody>
</table>
**My Invention W’s**

Answer the W’s in complete sentences to describe your own invention.

<table>
<thead>
<tr>
<th>WHAT does it do?</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHEN would I use it?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHY is it helpful? OR WHAT problem does it solve?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHO would I sell it to?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HOW much would I sell it for?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
My Invention Commercial Storyboard Worksheet

Questions to consider when creating your commercial:

1. What is the name of your invention?

2. What is your invention?

3. What does your invention do?

4. How does it make life easier?

5. Who should buy it?

6. Where can you buy it?

7. How much does it cost?
<table>
<thead>
<tr>
<th>Scene 1</th>
<th>Scene 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drawing or Description of Scene:</td>
<td>Drawing or Description of Scene:</td>
</tr>
<tr>
<td>Script</td>
<td>Script</td>
</tr>
<tr>
<td>Scene 3</td>
<td>Scene 4</td>
</tr>
<tr>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Drawing or Description of Scene:</td>
<td>Drawing or Description of Scene:</td>
</tr>
<tr>
<td>Script</td>
<td>Script</td>
</tr>
</tbody>
</table>
SECTION 2: MY NOTEBOOK

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

From the Problems All Around Me page, what problem(s) stand out as things you want to solve?

What are three ways that you can solve these problems?
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: ______________________________
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: __________

Young Inventors’ Program®
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: ________

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Academy of Applied Science
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