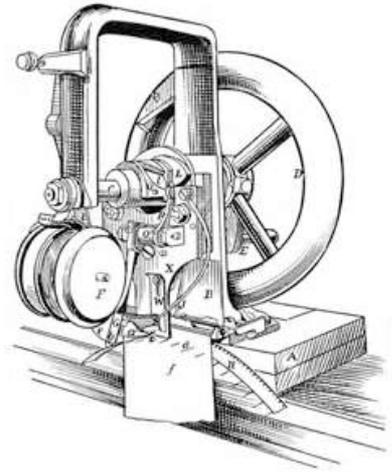


# ***Invention Convention Packet – 2015-2016***



Student Name: \_\_\_\_\_

	<b>Assignment**</b>	<b>Due Date</b>	<b>Teacher Comments</b>
<input type="checkbox"/>	Invention Convention Initial Reflection and parent signature	Wednesday, Feb. 17 <sup>th</sup>	<b>Read through the entire packet with your child and sign on pg. 11</b>
<input type="checkbox"/>	Finding an Idea worksheet	Friday, February 26 <sup>th</sup>	
<input type="checkbox"/>	Intent to Invent  **Teacher approval is required before continuing! **	Friday, March 11 <sup>th</sup>	
<p>My invention, approved by the teacher, is _____.</p> <p>As soon as your invention is approved, you should start developing, building, and testing your invention. <b>The invention you're making will be made at home. You will NOT be given class time to work on building it. Think of it as on-going homework!</b></p>			
<input type="checkbox"/>	Problem Being Solved (1 page summary for Tri-Board)	Wednesday, March 30 <sup>th</sup> <b>It needs to be finished, typed, and ready to eventually paste onto your Tri-Boards.</b>	
<input type="checkbox"/>	Research and Development	Friday, April 15 <sup>th</sup>	
<input type="checkbox"/>	Advertisement <b>This will be done in-class.</b>	Friday, April 22 <sup>nd</sup>	
<input type="checkbox"/>	Final Invention Model & Blueprint (Final Draft for Tri-Board)	Friday, April 22 <sup>nd</sup>	

	<p>Research and Development Summary</p> <p>(1 page summary for Tri-Board)</p> <p><b>We will begin these in-class but most students will need to finish these at home.</b></p>	<p>Thursday, April 28<sup>th</sup></p> <p><b>By Thursday, it needs to be finished, typed, and ready to paste onto your Tri-Boards.</b></p>	
	<p>Conclusion</p> <p>(1 page narrative describing your invention process.)</p>	<p>Thursday, April 28<sup>th</sup></p> <p><b>By Thursday, it needs to be finished, typed, and ready to paste onto your Tri-Boards.</b></p>	
	<p>Short Speech About Project</p> <p><b>This will be done in-class.</b></p>	<p>Wednesday, May 4<sup>th</sup></p>	
	<p>Self-Evaluation Score Sheet</p> <p><b>This will be done in-class.</b></p>	<p>Wednesday, May 4<sup>th</sup></p>	
	<p>Patent Application</p> <p><b>This will be done in-class.</b></p>	<p>Wednesday, May 4<sup>th</sup></p>	
	<p>Invention Convention</p> <p><b>**Dress Rehearsal**</b></p>	<p>Wednesday, May 4<sup>th</sup></p>	<p><b>Please bring your invention to school. We are going to practice presenting our Tri-Boards and inventions in-class.</b></p>
	<p>Invention Convention &amp; Science Symposium at Pudong Campus</p>	<p>Friday, May 6<sup>th</sup></p>	<p><b>Please bring your water bottle and a snack to this all-day event. (It's going to be a long and exciting day! 😊)</b></p>

\*\*Please note: There are a couple of in-class assignments that are not listed on this page but may be assigned as homework as well.

***Congratulations...you've finished!***

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11	* The Invention Convention Initial Reflection & Parent Signature
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13-14	* Intent to Invent Form
15	* Background Research
16	* Research & Development Summary Notes
17	* Bibliography Worksheet
18	* Blueprint Drawing Rough Draft
19	* Student Self Evaluation Rubric
20	* Patent Application

Note: Some of the items for the Tri-Board Layout are NOT included in this packet.

Those are written summaries or conclusions that will need to be typed and printed out. This includes the final Blueprint drawing as well.

\* Pages to complete.

Dear Parents,

This year the students in Grades 5 will be participating in a science fair called the ***Invention Convention & Science Symposium***. It is designed to promote your child's problem-solving and creative-thinking skills. This packet was designed for the students who elected to complete the Invention Convention component of the fair. Your child will be following a step-by-step process to invent a new product or develop a new method for doing something that can help improve their lives.

We will begin our preparation for the Invention Convention by having students learn about inventors, their inventions, and using the SCAMPER technique to think creatively and participate in the design process. By doing this, we hope the students have gained an appreciation for the invention process, and thus, be better prepared to create their own inventions.

The first step in the actual invention process will be finding an idea for an invention. Your child will be encouraged to find a problem that needs to be solved. He or she may ask if you have a need for something that will help you solve a problem. Your interest and encouragement at this stage will help to make the invention process a fun learning experience for your child.

Once your child has settled on an idea and researched it to make sure that the idea has not been used before, he/she needs to complete an *Intent to Invent* form and bring it to me for approval. Then your child can begin the planning stage.

As your child begins the actual process of inventing, your continued interest and encouragement will be helpful. Discuss the progress he or she is making and any problems that are encountered. Remind your child that although inventors often experience failure along the way, they remain persistent and keep trying and thinking of new ideas to solve a problem. Once the invention has been completed, your child will apply for a patent by completing a *Patent Application* form.

The Invention Convention & Science Symposium will be held at the SCIS Pudong Campus on **May 6, 2016**. You are invited and encouraged to attend the event.

We know your child will enjoy and benefit from this experience in scientific problem solving. Although we want you to encourage your child in this inventive effort, we ask you *not* to become overly involved in your child's project. Your support and cooperation are greatly appreciated. We hope to see you at the Invention Convention & Science Symposium!

Sincerely,

Ms. Peterson & Mr. Leatherman

SCIS Grade 5 Team

# Student Timeline & Assignment Descriptions

All students must adhere to this timeline. This will allow you to better plan your invention, and use time more efficiently. Make sure you save your work at each stage, because you will need to be able to make changes and print out a final copy for use at the convention.

## Wednesday, February 17<sup>th</sup> ***Invention Convention Reflection & Parent Signature***

Complete this reflection after reading through the *Dear Parent letter*, *Student Timeline*, *Steps for Students* and *the Layout Board*. Read through these materials with your parents before filling out the reflection.

## Friday, February 26<sup>th</sup> ***Finding an Idea Worksheet***

Completing this handout will help you begin to define exactly what it is you are planning to do for the Invention Convention. By the time you get to the end of the sheet you should have **one** definite idea of what you will be doing.

## Friday, March 11<sup>th</sup> ***Intent to Invent Form***

On this form you will write a brief description of your idea, the process you will follow when creating your invention, and the materials you plan on using.

## Wednesday, March 30<sup>th</sup> ***Problem Being Solved***

Use the information you have on your Finding an Idea form to help you write a page detailing the exact problem you are aiming to solve. By the deadline you must hand in your typed final copy giving details of the problem being solved, why you think it is a problem, and how your invention will solve that. This sheet, which will be in Position 2 on the layout board, will give the audience an idea of how you came up with your idea. *This is not a specific page in your notebook. You're on your own!*

## Friday, April 15<sup>th</sup> ***Research and Development Form***

Answer each of the questions on this form to provide a short overall description of the research and development work you have done. The answers you give to these questions will be used to help you write up the next page for your layout board.

## Friday, April 22<sup>nd</sup> ***Advertisement - IN-CLASS***

You will now plan a strategy to market your invention. Consider your potential customer and how best to convince that customer of the value of your idea. You must write and design an advertisement for a newspaper, magazine, or the Internet. Your advertisement will be displayed in Position 5 on your layout board.

### Friday, April 22<sup>nd</sup> ***Invention model completed***

Your model should now be complete. Now there are many finishing touches to prepare for the *Invention Convention*, two weeks away.

### Friday, April 22<sup>nd</sup> ***Blueprint***

Every great inventor starts with an idea and then makes a sketch of how he/she thinks the invention will look. You are no exception and in this stage you should make a detailed sketch, or conceptual model, of exactly how you think your finished product will look. Remember that this is a scientific diagram and needs to be clearly and accurately labeled. Your Blueprint will be displayed on your layout board in Position 3. *We've provided a place to draw out rough sketches in this notebook but your final version should be on a separate and nicer piece of paper.*

### Thursday, April 28<sup>th</sup> ***Research and Development Summary***

Using your answers from the Research and Development form, explain in detail the kinds of steps you have taken to research and develop your invention. By this deadline, you must hand in the typed final copy that outlines and explains in detail the research and planning involved in your invention. You need to answer how you identified a problem, how you researched the problem, how you solved the problem, who helped you, and how you tested your invention. You also need to show that you have looked to make sure this is a new invention, not a copy of someone else's idea. This part of the project is Position 4 of the layout board - a summary of your Invention Process. *This is not a specific page in your notebook. You're on your own!*

### Thursday, April 28<sup>th</sup> ***Conclusion***

This is Position 7 of the layout board. This part of your project should be a personal narrative describing your thoughts and feelings regarding the invention process and your invention. You can talk about what went well, what didn't go well, and what you might change next time.

### Wednesday, May 4<sup>th</sup> ***Short Speech - IN-CLASS***

What are you going to say to people at the convention? You need to write down a plan detailing what you will say and practice your speech. How can you convince people the world **needs** what you have invented?

### Wednesday, May 4<sup>th</sup> ***Tri-Board Display - IN-CLASS***

***(You may want to make things at home to put on it.)***

We will devote considerable class time making our Tri-Board displays. Students are encouraged to make additional decorations and attention-grabbers to 'tease' their audience to pay careful attention to the unique and marketable qualities of their inventions!

## Wednesday, May 4<sup>th</sup> ***Final Tri-Board Display Completed***

By this point your project should be complete! Everything should be assembled and you are ready for the Invention Convention. Your layout board should be decorated so that it is attractive and eye catching. Be sure that you are confident with your product or idea so that you can talk openly to all of the people who will be there to see your incredible invention.

## Wednesday, May 4<sup>th</sup> ***The Final Model of your Invention Ready for Display***

This is Position 6 of the layout design. You must now have the final model ready for display at the Invention Convention. Today is the day you bring your model to school. This is the most visual part of your project that people will look at to fully understand your invention. (Note: if your idea is very complex and difficult to create, then your model does not necessarily have to function perfectly, but it should resemble the finished product).

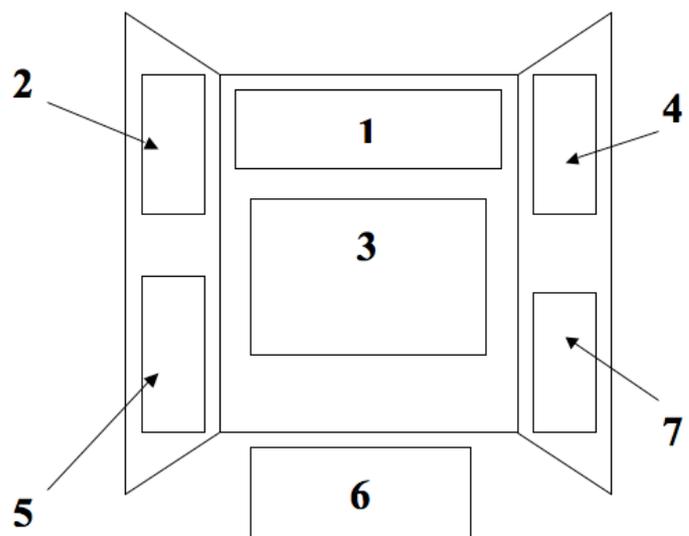
## Friday, May 6<sup>th</sup> ***Invention Convention & Science Symposium***

Here we go! The displays are up, the crowds are gathering, excitement is in the air. Be confident, be proud, and do your best. Make sure to speak clearly and slowly when speaking with people. Enjoy the day as people learn about all your hard work!

# Layout Board for the Invention Convention

*Note: The Tri-Board will be completed at school.*

1. The name of the invention. (Title)
2. Problem Being Solved paragraph
3. Blueprint
4. Research and Development Summary
5. Invention advertisement
6. A model of your invention. (This will be on display in front of your layout board.)
7. Conclusion



# Inventing Tips & Helpful Websites

## Step 1: Learning About Inventors

The first step in becoming an inventor is to learn all that you can about inventors and their inventions. You will discover how and why certain products were invented. Did you ever wonder why the safety pin was invented? Or how toothpaste was packaged before it was put into tubes? And how about mousetraps? Did you ever think about how many different types have been invented? In reading about inventors, you will learn that their inventions were made to fill a need. You will also learn that successful inventors:



- Keep an open and curious mind.
- Are always looking for a better way to do things, and do not resist change.
- Gather as much information as they can about an idea before they begin to invent.
- Keep trying to find a solution to their problem. They go through a lot of trial and error as they seek a solution.
- Do not give up.
- Continue to improve their products.

## Step 2: Finding an Idea

It can be said that need is the mother of invention. Your idea for an invention will come from something that you or someone you know needs.

There are several ways to find ideas for inventions. One way is to ask people if there is anything they need. Another method is called brainstorming. You can brainstorm alone or with others. Here is an example of how brainstorming works. Name an object such as a lunch box. Take ten minutes to list everything you can that is wrong with lunch boxes. Next, find a way to correct some of the problems. Your ideas for solving the problems can be a big step toward inventing a new or improved product.



Keep in mind that your invention does not have to be a product. Instead, it can be a process for doing something. For example, it may be a better way of memorizing a list of objects, or a new card game.

When you find an idea you like and you want to make it into an invention, complete the **Intent to Invent** form. Fill it out, have your parent sign it, and then return it to your teacher.

## Step 3: Research and Planning

Before an invention can be successful you have to make a plan. Your plan should include all the steps you can think of, from beginning to end. When writing your plan, ask yourself questions such as these:

- What can I read about that will help me with my invention?
- Whom can I talk to about solving problems and planning properly?
- What materials will I need?
- How can I control the cost of my invention?

- What steps should I follow?
- How much time should I allow for each step?
- How can I test my invention?
- How can I be sure my invention is safe to use?



Don't be surprised if you have to change your plans along the way. Sometimes a plan will not work as well as you first thought it would, so keep an open mind. You may even discover a better way of completing a certain step.

#### **Step 4: Developing, Testing, and Displaying**

Now the work begins. Follow your plan step by step. If you have difficulty with a certain part of your invention, talk to an expert. Try different things until you overcome the difficulty. Most of all, don't give up! As Henry Ford, one of the inventors of the automobile, once said, "Failure is only an opportunity to start again more intelligently."

If your invention is a new way to do something, describe your process in a written report. Give all the important details of your process. To show that your idea works, you should test it. The results of your test should be written into your report.



When you are finished with your invention, complete the **Patent Application**. Fill out the application and have your teacher and principal sign it. You are now almost ready to attend the Invention Convention.

Be sure to make plans for displaying your invention. An attractive display is important. You will want people to be attracted to your invention. A good promotion plan should include posters or other eye-catching materials. Remember, an inventor has to sell people on her or his product or process. You will also need to design packaging for your invention and write an advertisement for it. You will be judged on how well you promote your invention.

#### **Step 5: Attending the Invention Convention & Science Symposium**

On the day of the convention, you will be given a number and a place to display your invention. When you set up your display, include all reports, test results, and your model.



You will be talking to and showing your invention to many people. Try to convince them that the world needs what you have invented. If you think someone is missing the point of your invention, or is not asking the right questions, speak up. Sometimes new ideas take a while to catch on.

Enjoy the convention! You will have the opportunity to visit the other inventors to see and admire their work. Keep an open mind and be positive. Be proud! You are a scientific problem solver.

# Web Links

<http://web.mit.edu/invent/r-archive-2.html>

<http://www.invent.org/>

<http://www.eurekaalert.org/>

<http://www.eduplace.com/science/index.html>

<http://inventors.about.com/od/famousinventors/>

<http://www.enchantedlearning.com/inventors/indexa.shtml>

<http://www.kyrene.org/schools/brisas/sunda/inventor/main.htm>

<http://www.kidzworld.com>

**The vast majority of the information included in the package above was found at the Houghton Mifflin/ Education Place website- Invention Convention:**

<http://www.eduplace.com/science/invention/index.html>

# The Invention Convention Initial Reflection

What do you think the most interesting part of this project will be for you? Why?

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Which part of this project do you think you are going to find most difficult? Why?

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Do you or your parents have any general comments about this project?

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Thank you for your support, encouragement and assistance with your child's Invention Convention project. Please sign below indicating that you have read this reflection and have gone over the requirements and due dates with your child. Your child should complete and turn in this page by **Wednesday, February 17<sup>th</sup>**.

-----

I have read the requirements for my child's Invention Convention project and understand what is expected. I understand that my child is expected to research and build an invention that has not been patented before, and that there will be a lot of online research required to successfully complete this project.

Student Name \_\_\_\_\_

Parent Signature \_\_\_\_\_ Date \_\_\_\_\_

# Finding an Idea

*Circle the method you used to find your idea.*

Talking to People

Brainstorming

*Complete this table listing at least **four** different ideas of inventions you might create to fulfill a need in someone's life. Remember, "Necessity is the mother of all inventions."*

A "problem" my friends/family have...	One solution or invention I could make to solve this problem or help "make their lives easier" ...

***Write your invention ideas below, sorting them into the correct Invention Category.***

Food	Convenience	Health & Safety	Travel	Communication	Tools

# Intent to Invent

Student Inventor \_\_\_\_\_

Grade Level & Teacher \_\_\_\_\_

Campus \_\_\_\_\_

I, \_\_\_\_\_ intend to invent \_\_\_\_\_

A brief description of your invention:

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I have looked at and investigated whether or not my invention exists at the following four websites:

	Different combination of <b>Key Words</b> I used:	Website Name and URL
#1		
#2		
#3		
#4		

Teacher Comments:

Note: If you found a similar invention during any of your online searches, please describe below how YOUR invention will be different and more unique than the ones you found. (If your invention is NOT unique, you will **not** be granted a patent and will need to start the inventing process over. So, please research thoroughly!)

---

---

---

These are the steps I will take in making my invention:

#1 \_\_\_\_\_

#2 \_\_\_\_\_

#3 \_\_\_\_\_

#4 \_\_\_\_\_

#5 \_\_\_\_\_

I think I will need the following materials to build a model of my invention.

---

---

---

---

I will practice science safety rules at all times.

\_\_\_\_\_

Student's signature

\_\_\_\_\_

Parent Signature

# Background Research\*

Good research begins with great questions. Read about similar inventions and/or materials for your invention. You must defend **how** yours is different and **who** would prefer it to something else. This is part of your **Research and Development**.

\*Note: some of these websites might be the same as on your Intent to Invent form.

	Key Words I typed into the search engine:	Website URL address
#1		
Notes:		
#2		
Notes:		
#3		
Notes:		

# Research and Development Summary Notes

Answer each of the following questions briefly to provide a short overall description of the research and development work done on your invention. Use additional pages if necessary. Be sure your answers are readable.

## Part I:

1. What did I read that helped me with my invention?

---

---

2. Who did I talk to about solving problems and planning properly?

---

---

---

3. What materials did I use?

---

---

## Part II:

4. How did I control the cost of my invention?

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---

---

5. What steps did I follow? What problems did I have to overcome?

---

---

---

6. How did I test my invention or process?

---

---

---



# Bibliography Worksheet

Note: You won't fill in every item depending on the type of source. Name: \_\_\_\_\_

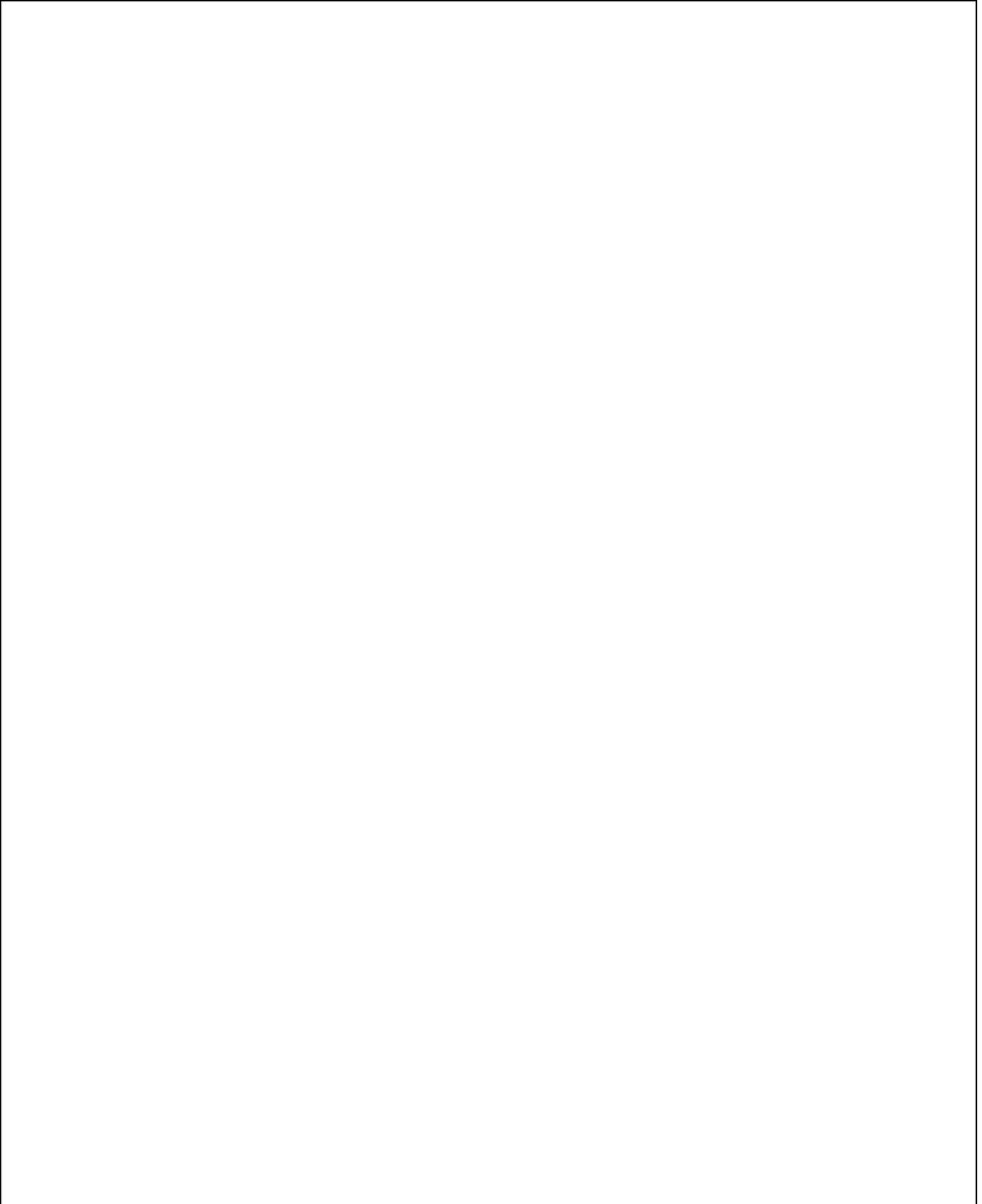
This source is a: <input type="checkbox"/> Book <input type="checkbox"/> Magazine <input type="checkbox"/> Newspaper <input type="checkbox"/> Website <input type="checkbox"/> Other _____		
Author's Last Name	First Name	Middle Initial
Date Published	Publication/Website Title	
Title of Article (periodicals, encyclopedias, websites)		
Place Published (books only)	Publisher (books only)	Editor (if applicable)
Edition (if applicable)	Volume Number (periodicals or encyclopedias)	Page Number(s)
Website is a <input type="checkbox"/> Company <input type="checkbox"/> Organization <input type="checkbox"/> Government <input type="checkbox"/> Newspaper/Magazine <input type="checkbox"/> Other _____		
The URL is http:// (websites only)		Last Date of Access (websites only)
This source is a: <input type="checkbox"/> Book <input type="checkbox"/> Magazine <input type="checkbox"/> Newspaper <input type="checkbox"/> Website <input type="checkbox"/> Other _____		
Author's Last Name	First Name	Middle Initial
Date Published	Publication/Website Title	
Title of Article (periodicals, encyclopedias, websites)		
Place Published (books only)	Publisher (books only)	Editor (if applicable)
Edition (if applicable)	Volume Number (periodicals or encyclopedias)	Page Number(s)
Website is a <input type="checkbox"/> Company <input type="checkbox"/> Organization <input type="checkbox"/> Government <input type="checkbox"/> Newspaper/Magazine <input type="checkbox"/> Other _____		
The URL is http:// (websites only)		Last Date of Access (websites only)
This source is a: <input type="checkbox"/> Book <input type="checkbox"/> Magazine <input type="checkbox"/> Newspaper <input type="checkbox"/> Website <input type="checkbox"/> Other _____		
Author's Last Name	First Name	Middle Initial
Date Published	Publication/Website Title	
Title of Article (periodicals, encyclopedias, websites)		
Place Published (books only)	Publisher (books only)	Editor (if applicable)
Edition (if applicable)	Volume Number (periodicals or encyclopedias)	Page Number(s)
Website is a <input type="checkbox"/> Company <input type="checkbox"/> Organization <input type="checkbox"/> Government <input type="checkbox"/> Newspaper/Magazine <input type="checkbox"/> Other _____		
The URL is http:// (websites only)		Last Date of Access (websites only)

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# Blueprint Drawing – Rough Draft

Use this page to sketch out ideas for your Blueprint drawing, which will go on your Tri-Board display at the Invention Convention. Remember this is just a worksheet to help you brainstorm.

**Note: The final Blueprint will be made on a separate piece of paper with clearly labeled parts and diagrams.**

A large, empty rectangular box with a thin black border, occupying most of the page below the text. It is intended for students to sketch their blueprint drawing ideas.

# Invention Convention

## Self Evaluation Score Sheet

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Finding an Idea	Identified a question that did not merit investigation.	Identified a question that was difficult to test or investigate.	Identified a question that was interesting to the student and could be investigated.	Identified a question that was interesting and relevant to the student and could be easily investigated.
Research and Development	No evidence of research undertaken.	Evidence of research provided includes the name of one source that was used for reference.	Evidence of research provided includes the names of three sources that were used for reference.	Evidence of research provided includes the names of more than three sources that were used for reference.
Blueprint	No blueprint included.	Blueprint did not match invention. No labels are present.	Accurate blueprint that matched invention and was easy-to-follow. Clear labels included.	Carefully and accurately drawn blueprint that clearly matched the invention and was easy-to-follow. Clear labels included.
Advertisement	Incomplete work.	Limited persuasion, distracting grammar, spelling, and punctuation errors.	Attempts a creative format, uses advertising techniques, minor grammar, spelling, or punctuation errors.	Eye catching format, persuasive language, uses advertising techniques with no significant spelling or punctuation errors.
Conclusion	Limited conclusion with little or no reflection of possible changes.	Conclusion summarizing thoughts and feelings of some parts of the process. Reflection on possible changes that could be made.	Very detailed conclusion clearly summarizing thoughts and feelings of entire process. Reflection on possible changes that could be made.	Extremely detailed conclusion clearly summarizing thoughts and feelings of entire process. Reflection on possible changes that could be made.
Display	No thought given to presentation or use of space and color. Some items missing.	Presented some attention to detail. Some thought given to color and space. All necessary items included.	Very well presented with attention to detail. Very good use of color and space. All necessary items included.	Beautifully presented careful attention to detail. Excellent use of color and space. All necessary items included.

# Patent Application

As the inventor named at the bottom of this page, I hereby declare that my school address and citizenship are listed below my name. I truthfully believe that I am the original, first, and only inventor of the invention entitled:

\_\_\_\_\_

## Declaration

- I do not know and do not believe that the invention was ever known or used in any country before I invented it.
- I do not know and do not believe that the invention was ever patented or described in any book, magazine, or newspaper in any country before I invented it.
- I do not know and do not believe the invention was in public use or on sale in any country.

Full name of Inventor _____
Grade Level of Teacher _____
Principal _____
Full name of School _____
Street address of School _____
City _____ Country _____ ZIP _____
Citizenship _____
Signature of Inventor _____ Date _____

Signature of Teacher \_\_\_\_\_

Signature of Principal \_\_\_\_\_