Section 3: Inventions, Innovations, & Crazy Contraptions ~ Yes, You Can Invent!

Marketplace for KIDS©®

Creativity • Problem Solving • Innovation

Help Your Students Plan their Invention Today!

Pages 3-1 to 3-31

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Section 3: Inventions, Innovations, & Crazy Contraptions ~ Yes, You Can Invent!

Section 3: Inventions, Innovations & Crazy Contraptions ~ Yes, You Can Invent!

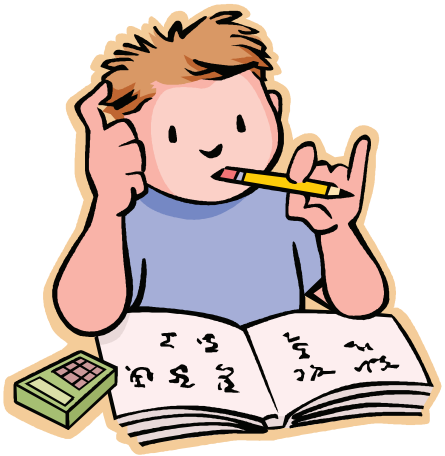
You can easily transform your classroom into an inventor's workshop that will reinforce many of the learning concepts you cover throughout the school year: **Creative thinking, collaborative production, social studies, technology applications, and language arts come alive** when your students can actively apply what you have taught to their very real world experiences.

Choose a general production category such as exercise equipment, infant toys, school supplies, or a recreational area for study and development by your students. Development teams can then use the **FLUID** process to:

1. Create a new or improved product in that category.
2. Design innovative packaging.
3. Develop effective advertising for their product.

A good display would include:

1. A statement explaining the reason for your product or improvement.
2. Documented research showing developments and innovations in the category such as an inventor's log or journal.
3. A criteria chart showing how the brain-stormed ideas were ranked.
4. Sketches and/or photos showing the developmental stages in production.



5. A working model or prototype of the new product.
6. Examples of print and/or electronic media advertising for the product.

Fluid Thinking:

Five Steps for Building More Active and Innovative Thinkers.

Marketplace for Kids is a gathering of young people who want to become the next generation of innovators, inventors and entrepreneurs. Innovative producers are **FLUID** thinkers who are always looking for ways to improve a product. Innovative teachers are always looking for ways to make learning time more effective. Innovative citizens are always looking for ways to improve community life. All innovative thinkers respond to changing tastes, demands, budgets, technological advances and demographics.

Our classrooms are already home to a handful of natural innovators who set the dress, behavior and communication trends among their peers. These exercises will help you channel those natural abilities into more productive areas and teach innovative thinking skills to the rest of the class. **These activities would also make excellent Marketplace for Kids Projects!**

We never know from what source the next new ideas will arise. Let's give all our students the opportunity to be that source.

The Process

FLUID is an acronym representing a thinking and decision-making process outlined by these actions:

The following exercises will help you.

FIND an innovation for students to examine. They will **LIST** specific innovations so you can help them **UNDERSTAND** what motivated the producer, the teacher, or the civic leaders to implement what they considered to be improvements. The next action engages the students' creative potential as they **IMAGINE** new innovations and their analytic and evaluative skills as they **DECIDE** which ones have the best potential for success. Each activity combines at least two curriculum areas and allows for alternative assessment methods.

Yes, You Can Invent!

Every time you figure out a new way of doing something or changing something to fit your needs and improve your way of life, you become an **INVENTOR**!

An inventor is someone who thinks of new ideas to make life easier or better through **INVENTIONS**.

An invention is a new discovery. It can be a new product or a new way of doing things called a **PROCESS**.

Inventions come about in many ways. Usually, inventions happen because someone had to solve a problem. For example, an inventor once got tired of having cold ears in the winter, so he invented ear muffs. That inventor was only 15 years old!

Sometimes inventions are the result of accidents. This is called **SERENDIPITY**. For example, corn flakes might never have been invented if a batch of wheat hadn't been cooked too long!

A new way of making an invention better is called an **INNOVATION**. You may have heard people talking about "making a better mousetrap," which has the same meaning. For example, a regular gas or electric oven is a good way to cook food. But the invention of the microwave oven made cooking much faster, and therefore, it is an innovation in cooking.

Some of the best inventions are very simple, like wire bent to make coat hangers, paper clips, staples and bobby pins. Or, inventions can be **COMPLEX**, with many parts - like telephones, compact disc players, cars, and VCR's.

Think how life would be with no electric lights, no TV, no radios, no computers, no scotch tape, and no ball-point pens, to name just a few things we depend on every day.

Inventions have always been important to America. Our founding fathers created a special section of the Constitution to encourage people to invent. The first leaders of America granted special rights called a **PATENT** to protect an inventor's ideas from being copied by others.

Inventors and Inventions

Here are some examples of what others have created to solve problems or just to have fun. Try to imagine what problems these people may have had or why they wanted to create these things. Think about how many modern inventions were created or depended upon these initial inventions.

Inventor	Invention
Aboriginal peoples	Boomerang
Sir Isaac Newton	Calculus
Thomas Edison	Electric light bulb, record player, etc.
Count Alessandro Volta *(Italian)*	Discovered constant-current electricity and made first battery
Luigi Galvani	Discovered that muscle and nerve cells produce electricity
George Washington Carver	Many different peanut products
Wright Brothers	Airplane
Galileo Galilei *(1610-1642, Italian)*	Improved telescope, helped found modern scientific method
Walter Morrison	Aerobie/Frizbee
Charles Menches	Ice cream cone
Donald Duncan	Yo-Yo
Alexander Calder	Mobile
Alexia Abernathy	No-spill bowl
Mary Anderson	Windshield wipers
Josef Merlin *(Belgian)*	Wheeled shoes
James Plimpton	Roller skates-ball bearings
Peer Hodgson *(1949)*	Silly Putty
Ralph Samuelson	Water skis
Chester Greenwood	Ear flaps
Laszllo Biro	Ballpoint pen
Levi Straus	Jeans
George DeMestral	Velcro
George Washington Gale Ferris, Jr.	Ferris Wheel
Robert Goddard	Liquid-fuel-propelled rocket
Andre-Marie Ampere *(French)*	Worked with electromagnetism, invented galvanometer

Inventors and Inventions, Continued...

Inventor	Invention
Edward Jenner *(English)*	Vaccination for smallpox
Benjamin Banneker *(1731-1896) (Free Black in Maryland)*	Built a wooden clock with hand-carved moveable parts, using only a pocket watch and a picture of a clock as models. It kept time for more than 50 years.
Carolus Linnaeus *(1707-1778) (Swedish Born Carol von Linne)*	Developed a binominal system for classifying plants and animals.
Sir Isaac Newton	The reflecting telescope
Johannes Kepler	"Father of Modern Optics"
Roger Bacon *(1214-1292) (English)*	Established certain principles of modern scientific method
Theodore H. Maiman	Built first laser in 1960
John Bardeen, Walter Brattain and William Shockley	Invented the transistor in 1947
Jonas Salk *(1953)*	Developed the first trial polio vaccine
Sir Alexander Fleming *(1928)*	Discovered penicillin
John James Macleod and Sir Frederick Banting *(1921)*	Discovered insulin
Christian Eijkman and Frederick Hopkins *(1903)*	Demonstrated the existence of vitamins
Wilhelm Roentgen	Discovered X-rays
Guglielo Marconi	Transmitted first telegraphic signal though the air
Heinrich Hertz *(1887)*	Discovered electromagnetic waves
Joseph Lister *(1865)*	Pioneered antiseptic surgery
Louis Pasteur *(1863-1864)*	Developed process known as pasteurization
Hermann von Helmholtz *(1821-1894)*	Formulated one of the basic laws of physics, the Law of Conservation of Energy: Energy can neither be created nor destroyed, only transformed from one form into another. This is called the first law of thermodynamics. He founded the modern science of acoustics, the study of sound. He invented the ophthalmoscope, the instrument used by doctors to examine the eye.
Joseph Henry *(1797-1878)*	Improved electromagnets, developed an early electric motor, the first telegraph and invented the electric relay. An electro magnetic unit of measurement, the *henry*, is named after him.

Other Inventors, Artists, Writers, Musicians:

Alfred Nobel
Alexander Graham Bell
Bill Gates
Carl Sagan
Sir Isaac Newton
Thomas Edison
Shel Silverstein
Rudyard Kipling
E.B. White
Agatha Christie
Edgar Allen Poe

Mark Twain (Samuel Clemens)
William Shakespeare
Vincent van Gogh
Ludwig van Beethoven
Georgia O'Keeffe
Leonardo da Vinci
Oliver Wendell Holmes
Pablo Picasso
Charles Schulz
Frank Lloyd Wright

Other Inventions:

Disposable diapers
Roller coaster, Merry-Go-Round
Catapult
Clocks
Sling shot, Bola, Slinky, trampoline
TV/radio/record player/CD/DVD, computers, calculators
Vacuum cleaner
Egg carton/milk jugs
French fries, energy bars
Satellites/space travel machinery
Steam engines and internal combustion engines
Cement and asphalt

Dishwasher or pressure washer
Permanents, other hair treatments, hair dryers, blow dryers
Scissors, Magic Markers, paper clips, paper cutter
Reading glasses/lenses/bifocals
Microscope/electron microscope
X-ray/MRI/CT scan/centrifuge/blood pressure monitors/diabetic monitors/other medical
Teddy bears
Exercise/sports equipment
Fashion designs
Games/Monopoly, etc.
Pop-up books/alphabet books/musical books

Glossary

Brainstorming: Looking for solutions to problems by coming up with many possible answers.

Complex: Made up of many different parts.

Fantasy Invention: Imaginary solutions to imaginary problems, like dreaming of ways to transverse time.

Innovation: A new idea, method or device designed to improve something.

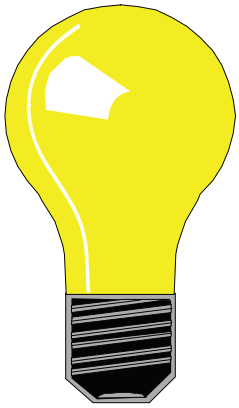
Ingenuity: Adept or skillful at producing new and creative inventions or ideas.

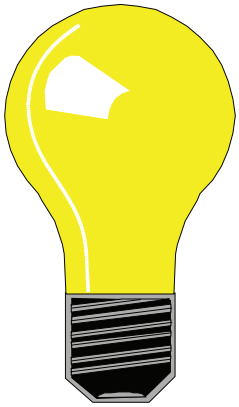
Imagination: Using your mind to picture objects or ways of doing things that may or may not really exist.

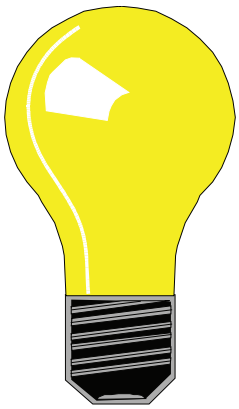
Invention: A discovery or new finding which is useful and has a purpose. Inventions are made after studies and experiments by an inventor.

Inventor's Log: A written record of daily activities, which is very important for an inventor to keep while working on an invention.

Marketing: Business-related activity involved in the moving of a product from a producer to a buyer including selling, advertising, pricing, and packaging.







Patent: An inventor's right to keep others from making, using or selling his or her invention.

Problem Solver: A person who looks for new ways to achieve solutions; an inventor is a problem solver.

Process: A step-by-step way of doing something.

Prototype: An original, full-scale and usually working model of a new product or new version of an existing product

Research: The study and investigation of a subject with the purpose of learning as much as possible about it.

Serendipity: The unexpected finding of something useful or valuable.

Survey: Asking a question of a group of people to gain an opinion or information. Surveys are often an important part of the marketing process.

Trademark: A name, symbol, or other device identifying a product, officially registered and legally restricted to the use of the owner or manufacturer.

Before You Begin...

...Helpful Hints

Here are a few tips to keep in mind:

- Remember: **EVERYONE** can be an inventor!!!
- Think like an inventor! Inventors are problem solvers, so learn to look at old problems in new ways.
- Make sure all of your inventor's logs or journal entries and drawings are neat and complete. Always use proper spelling and grammar. Use a dictionary or thesaurus if needed.
- Try to make your invention work as efficiently as possible with as few parts as necessary to accomplish the task.
- Inventors solve problems economically. Think about the cost of materials involved and production time needed before you make your invention.
- Be certain the invention is safe to use and safe to make. If tools are needed, get permission from your parents to use them, and ask for help if it is needed.

Keep a Log: Maintaining a detailed log is essential to the success of your invention project. A log is a dated, written record of your ideas, research, experiments, and tests.

Don't Get Discouraged: It may take several tries to make your invention work just the way you want it to work, but all of your attempts will be worth the effort! Keep trying!

Inventors learn from their mistakes and what doesn't work. As an inventor, you have many resources to help you invent. Ask parents or guardians, grandparents, teachers, or other responsible adults to help you during the invention process.

How To Get Ideas For Your Inventions.
Ask Lots Of Questions!
Get Extra Help From Outside Sources!

You have many friends waiting to help you get started on your invention. One of the best places to start is at your school or local library. You can read about inventors, how they solved problems and how their ideas became inventions.

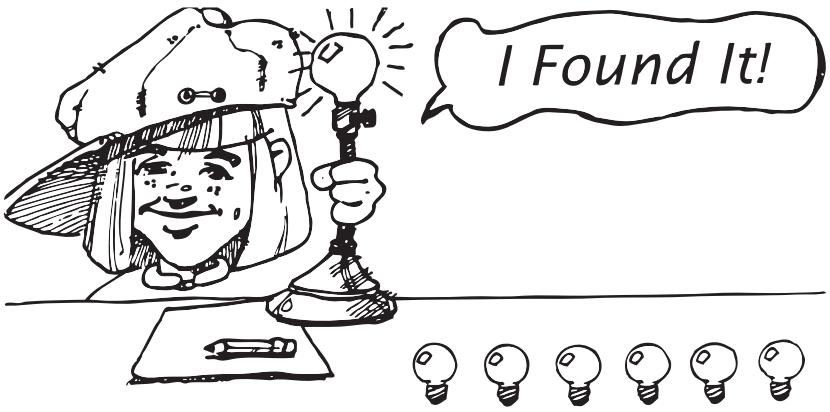
Talk to your librarian to see what special resources might be available to help you with your project. In addition to visiting your library, you can start your own collection of invention books.

Another great way to get started is by visiting a nearby museum! There you will probably find examples of famous inventions on display. Museums of history or science and technology are great sources of information about how inventions have changed our lives. Many even have working models to show you how things work.

Talk to as many experts as you can in your field of interest. Try to find some inventors to talk to. Remember to ask your parents and teachers if you need help along the way. For more information about inventions and patents, contact a patent lawyer.

Read Article 1, Section 8 of the Constitution; it is one of the few places in the Constitution that refers to science and technology and the important roles they play in America's growth.

> *"To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."* Article 1, Section 8 of the Constitution



8 Steps to Inventing

Use the following checklist to help you invent a solution to a problem.

1. Look for problems to be solved. You may want to find a problem that you, a family member or a friend face in daily life. Set some time aside each day to brainstorm! Did you know that your mind is 1000 times more powerful than even the most powerful computer?

2. Plan your invention.

3. Use your imagination. Let your mind run wild! Think crazy thoughts. Remember, everyone laughed at Henry Ford when he invented the car! In 1889, Charles H. Duell, director of the US Patent Office said, "Everything that can be invented has been invented." Wow! It sure is a good thing that inventors were not discouraged by his lack of vision!

4. Do the necessary research and gather facts and information to make sure that your invention will work.

5. Keep a detailed log of your work. Write down all of your ideas, experiments, research, tests, and successes in your log. Your log will be a written record of the entire invention process. Write down all your trials and what worked and what did not work. Inventors learn from their mistakes!

6. Draw your invention. Make a detailed drawing and label all parts. If necessary, make two or three drawings so others will be able to understand exactly how your invention works.

7. Make a prototype (model) of your invention.

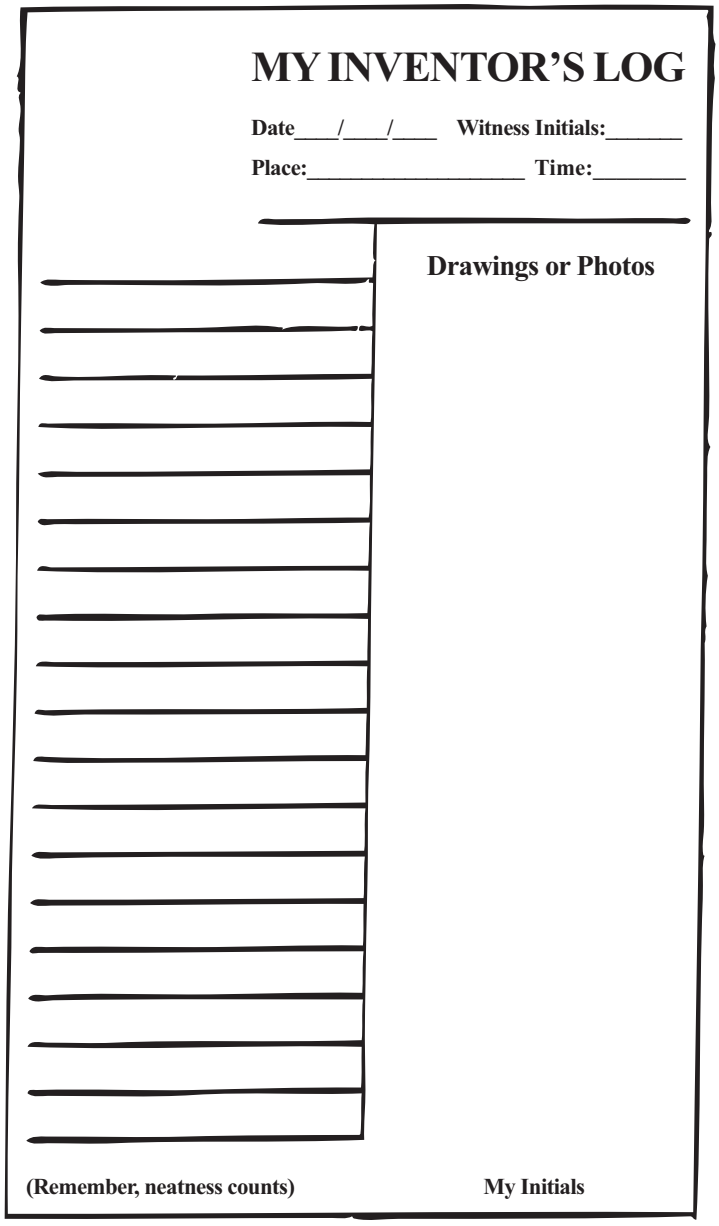
8. Name your invention.

8 Steps To Inventing, Continued...

Step 1: Begin Your Inventor's Log Or Journal

All inventors keep a log or journal to record their work and their thoughts. Not only is it a wise thing to do, it will prove that **YOU** had an idea first and will help you plan your invention.

Follow the suggestions below for keeping a log and tackle your problem like a real inventor!



1. Date and initial your notes every time you work on your ideas. Show where you were at the time you had the thought.

2. Remember to use complete sentences. Watch your spelling. Many important people will be reading your journal!

3. Describe all your ideas, tests and results in great detail. Write about your plans that did not work. Inventors make many attempts before finding the best one.

4. Make a drawing of your ideas when possible.

5. List costs and describe all materials used.

6. Include photos of your work. They are excellent proof of what you have invented.

7. Have another person sign your log as a witness to prove the work and ideas are your own.

Inventor log starter sheets are on page 3-30.

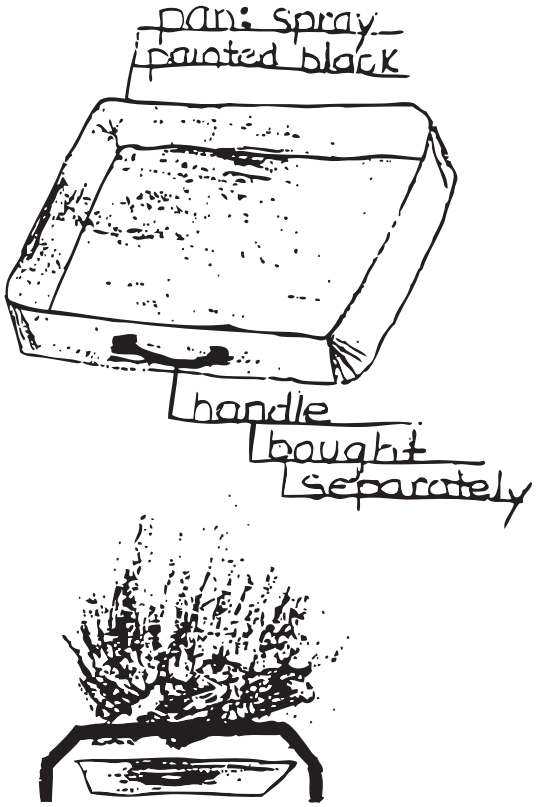
8 Steps To Inventing, Continued...

MY INVENTOR'S LOG
EXAMPLE

Date 11-25-08 Witness Initials M.O. Place Home Time 11:30 a.m.

My invention keeps the ashes together when you build a fire. The pan slides under the grate in your fireplace. When it is full, slide it out and empty it. I bought a ($1.19) aluminum pan and attached a metal handle. ($1.50) At my house whenever someone would clean the fireplace, we would have a mess to clean up.

DRAWINGS OR PHOTOS



(Remember - neatness counts!)

My Initials K.C.

8 Steps To Inventing, Continued...

Step 2: Use Your Imagination!

When you think of an inventor, you probably think of an absent-minded professor. This is not true. Anyone, including you, can be an inventor. All it takes is a combination of imagination, ingenuity, and hard work.

You probably have an endless supply of new, creative, and original ideas in your head. They could be ideas for fast-moving, super trains, or ideas for new ways for seeing-impaired people to navigate through supermarkets. All of your ideas, no matter how wild and crazy, are good ideas. Let your imagination lead you down an exciting path towards new ways of thinking about the world.

Do not be embarrassed about your ideas. Alexander Graham Bell was ridiculed when he described his telephone invention to others. Yet, he did not give up.

Try this exercise:

Close your eyes and imagine yourself talking on the phone to your grandmother who lives three thousand miles away. Suppose you wanted to invent something that would transport you to your grandmother's living room in a matter of seconds. What would that invention be? This can be your first **FANTASY INVENTION**! Would it be a little room that you walk into, press a button and you are immediately transported across the country? Would your invention be a hand-held device that you point at a person and they are quickly zapped to another place? Would you have to wear a special outfit to use your machine? Could more than one person travel at once?

Why would this invention be useful? Would this invention be good for business travelers as well?

Make a drawing of you and your new invention in the box below.

What other ideas do you have for a fantasy invention? Write them in your inventor's log.

8 Steps To Inventing, Continued...

Step 3: Look for Problems That Need Solving

"Necessity is the mother of invention" An old wise saying!

Problems are invitations to find solutions. Did you know that all inventions solve problems? Here's your chance to become an inventor. But first, zero in on a problem.

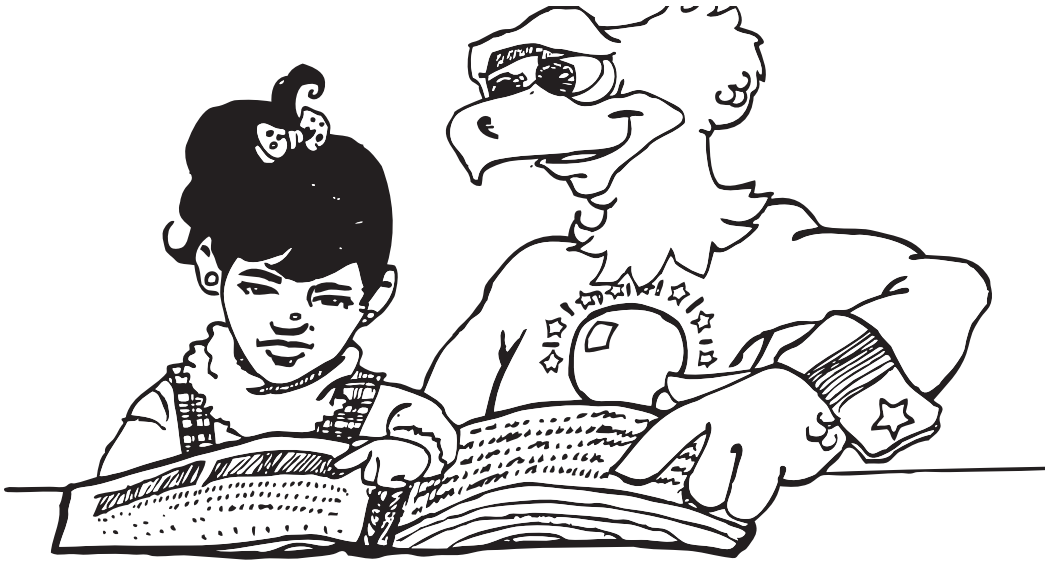
Don't worry now about solving the problem, that part will come later. Just try to think of as many problems as possible and make a list of them. How often have you said or heard someone say "Someone should invent something that does this," or "There must be a better or an easier way to do this?" This is called **BRAINSTORMING**, and it's a great way to get ideas for an invention project.

Use the ***"Be A Problem Solver"*** exercise on the following pages to think of problems that need solving.

Determine what bothers your friends and family the most, and be sure to record your answers. The information you will receive is important. Asking questions and recording the answers is called a **SURVEY**.

SURVEYS are important in the development of new products and services, and are part of the **MARKETING** process which involves the selling, advertising, and packaging of a product.

Be certain to record your survey questions and responses in your log. A survey will be excellent documentation for your invention project.



8 Steps To Inventing, Continued...

Be a Problem Solver

Ask yourself the following questions and you're on your way to thinking about a new invention.

1. **Think about school, home, work, and leisure activities: What are some of the problems you think about?**

2. **What tasks or chores can I make easier or more efficient?**

3. **What objects do I use that could work better, last longer, be made from other products, less expensive or more "green" or environmentally-friendly?**

4. **What is my favorite thing to do, and what would make it even more fun, interesting, and safe?**

5. **Now, look at things around you and ask yourself: What will make things around me work better? Do you know of someone who has special needs?**

8 Steps To Inventing, Continued...

6. **What will make products easier to use?**

7. **What can I add to or take away from something to make it work better, faster, easier or be less expensive?**

8. **What new uses can I invent for something I already have?**

Remember, when thinking about inventions, they can be either an object (product), service, or a new way of doing something (process).

Now that you have completed the Problem Solver exercise and made a list of a lot of problems that bug you, get your family and friends into the act. Ask your parents, neighbors, and friends to tell you what problems they have with chores or tasks.

WOW! You really are a Problem Solver!
Be Sure to Record Your Ideas in Your Inventor's Log!

8 Steps To Inventing, Continued...

Step 4: Plan Your Invention

Now the fun begins! Look at your list of problems and think about some ideas to solve them. Be creative! Put **ALL** your ideas on paper. Let your imagination run wild!

Give yourself plenty of time to let your ideas grow. Think of as many ways as possible to solve each problem and pick the ones that seem best. From all your brainstorming activities, pick the problem and idea for a solution that is the most promising to work on for your invention project.

Make a plan for your invention and write it in your log. Include any materials you will need, a rough sketch of your idea, ways to test it, and as many details as you can think of.

Think about what makes a good invention. Ask yourself:

1. Is my idea really **NEW**?
2. Is my idea **USEFUL** or **HELPFUL** to me or others?
3. Can I make my invention so that others can **AFFORD** to buy it?
4. Is it possible to **MAKE A MODEL** of my invention with easy-to-find materials?

If you can answer "yes" to these questions, you've got a good idea!

1. **Write down possible solutions to your most perplexing problem:**

2. **If it needs to be changed, what parts can you keep?**
   Make a new trial or prototype, write down every step in your inventor's log or journal.

3. **Now, identify the best solution:**

8 Steps To Inventing, Continued...

Check to see if your invention idea is marketable. Why will people be interested in your invention and buy it?

Survey your family, friends, teachers, fellow students, and people in your community. Ask many questions about your invention idea and get lots of different opinions.

Ask yourself these questions:

1. Do you think my invention idea will solve my problem?

2. Would you use my invention?

3. Do you think my invention would be marketable?

This is the second survey you will perform. In the first, you asked people you know about what problems they would like solved in their chores and daily lives. This survey will provide feedback on the ideas you have to solve those problems.

Write some sample survey questions below.
Example: Is my product easy to use? What might make it better?

1. _____

2. _____

3. _____

4. _____

5. _____

Be Sure to Record All of Your Plans In Your Inventor's Log!

8 Steps To Inventing, Continued...

Step 5: Research Inventions and Inventors

Talk to local experts. For example: Aaron Lademann, the 1992 Fourth Grade National Winner (Invent America Program), invented The Blaze Buster to prevent his family's wood burning stove from overheating. He talked to fire chiefs in his community and managers of stores that sell wood burning stoves.

Keep in mind some of the basic principles of invention we've learned so far in the process including safety, simplicity, and keeping costs down.

RESEARCH is gathering facts and information so you can approach a subject with as much knowledge as possible.

Perform research to see if your idea already exists. Check retail stores, catalogs, local patent depository libraries, and businesses.

If you need to make changes in your invention for it to work better, now is the time. If you decide that your invention really doesn't solve the problem as well as you imagined it would, try again! The important thing is **NOT TO BE AFRAID** to make changes or start over; sometimes it leads to even better ideas and inventions.

Now is the time to go to the library. Talk with the librarian. Ask lots of questions. Read books about inventing and products that might be similar to your idea.

Now that you're coming along with your invention, it's time to take a look at it to see if it's accomplishing its purpose. This is a time for evaluation and testing. At this stage in making your invention, you are free to make changes in your project to make it work better. You can also decide at this time whether your invention really will solve the problem.

Try and discover if there is an even easier and better way to solve your problem.

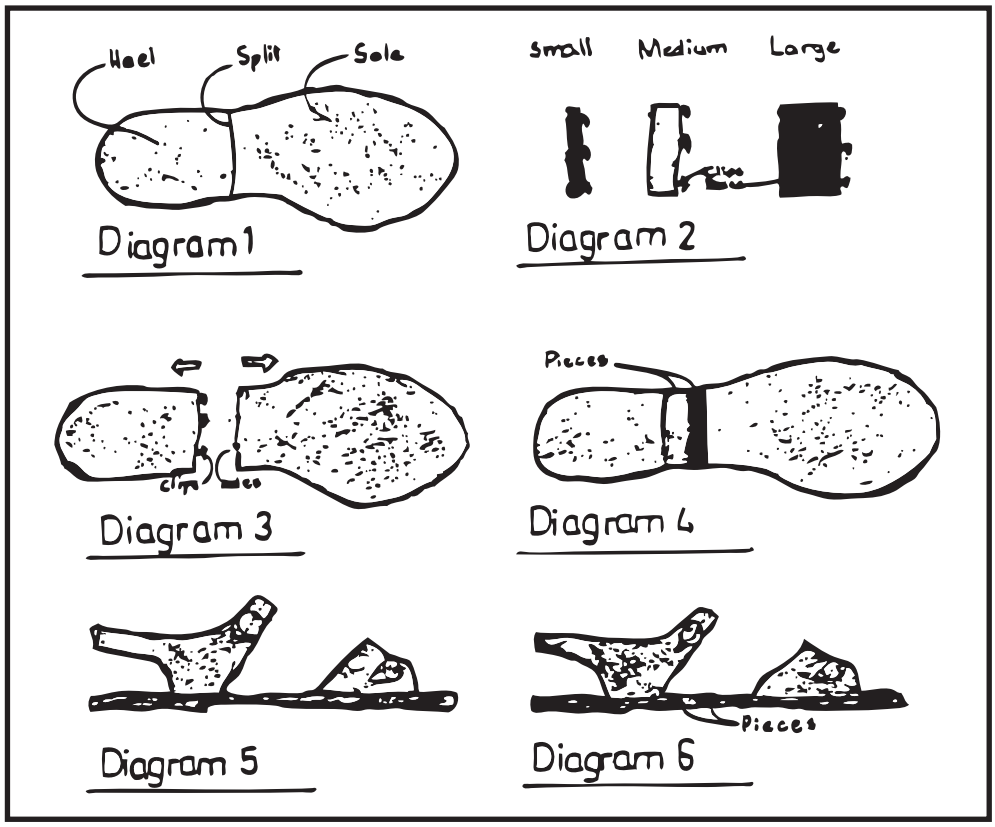
Stretch your mind by using all resources available to you!

Be Sure to Record Your Research Notes In Your Inventor's Log.

8 Steps To Inventing, Continued...

Step 6: Draw Your Invention

All inventors make drawings of their inventions to show how they work. Here is an example of an **INVENT AMERICA** drawing:



"I discovered a problem after one summer when my perfectly good sandals were too small, and I had to go out and buy another pair for next year. My idea to solve this problem is to make a sandal that will get bigger as your foot grows."

Kristen Harfmann, East Aurora, New York

Draw some quick sketches of your ideas on scratch paper. Practice until the drawing looks the way you want it to appear in your entry form. Pick what you think will look and work the best.

Draw all the parts of your invention and label them clearly, neatly, and correctly so that others will be able to understand how your invention works and looks.

This is important to document your original idea or invention.

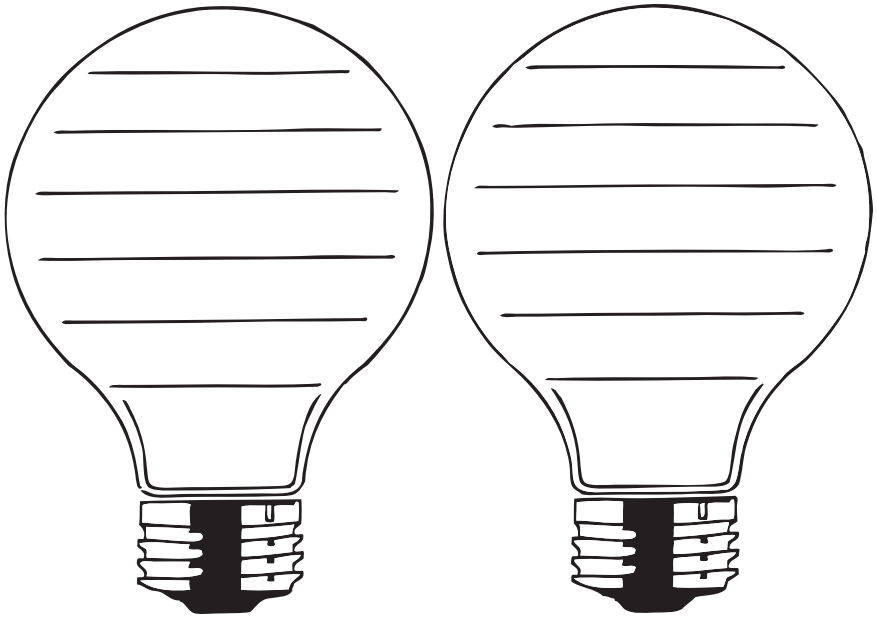
8 Steps To Inventing, Continued...

Step 7: Make a Model of Your Invention

You are ready to make a model of your invention idea. First, ask yourself what supplies you will use and how much the supplies will cost. **List them in the light bulbs.**

Remember, the best inventions work with the fewest and least expensive parts.

Use your imagination.



From the drawing you just completed, you can now make a model of your invention. A model will make your invention more interesting and will show how it works. You may have help from anyone in making your model as long as your invention ideas, illustrations, and written description are your own. **Give credit in your log to anyone who helps you and have them initial that log entry.** ***See page 3-31 for student page.***

Here are some ideas for making your model:

1. Get a book about making models from your library.
2. Think about the materials you might use such as clay, wood, paper, cardboard, and paper maché.
3. Make sure that your model will not break easily.
4. Make sure your finished prototype is safe with no sharp edges and that all pieces are attached securely. Check for fire and electrical safety.

Your prototype does not need to actually work; it just has to represent your invention idea. Try to make your prototype model as attractive as possible. This will help you in the next step, **MARKETING** your invention!

8 Steps To Inventing, Continued...

Step 8: Name Your Invention

You did it! You've invented something and it deserves a great name. There are many ways to name your invention. Try adding some names of your own to the lists below:

For the way it works, in other words, its **FUNCTION**:

Sunglasses	typewriter	hair dryer	squirt gun
dustpan	ear muffs	skateboard	screwdriver

With **FUNNY** and **CLEVER** words to lure customers:

Silly Putty	Cool-Whip	Cabbage Patch Kids
Jell-O	Hula Hoop	Flip Flops

After the **INVENTOR**:

Goodyear Tires	Ford Automobiles	Heinz Ketchup
Ferris Wheel	Morse Code	Singer Sewing Machines

For what it is **MADE OF**:

ice cream	peanut butter	soap suds
rubber cement	down jacket	shredded wheat

Rhyming names, abbreviations, acronyms, or **DESCRIPTIVE NAMES**:

VCR	CD player	Betsy Wetsy
Super Soaker	Munchkins	Bio-Tee

8 Steps To Inventing, Continued...

Picking the right name is important. It can help interest people in your invention and show your creativity. The right name can help people remember your invention, too! A great name gives your invention personality and makes it come alive.

In the lines below, write your five favorite names for your invention:

_____

_____

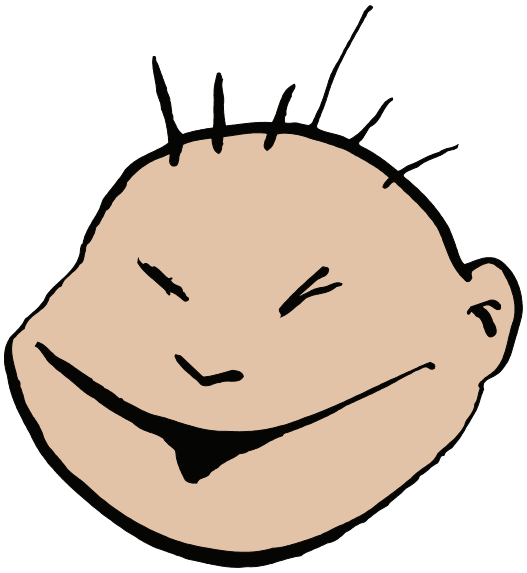
_____

_____

Choose your favorite and you have named your very own invention!

The name of my invention is:

_____



Be Sure to Record All of Your Ideas for Names In Your Inventor's Log.

8 Steps To Inventing, Continued...

Make a Display Board

Since you will be displaying your invention at **Marketplace for Kids**, it is a very good idea to make a display board or poster which outlines all of the steps of your invention process.

Your display board should be bright and colorful, with lots of photographs and illustrations. Make your display eye-catching and easy to read.

Your display board should include:

The title of your invention.

The purpose of your invention.

An explanation of your invention's operation.

A diagram of your invention with all parts labeled.

Photos of your invention.

Results

Inventor's Log and Prototype (model) including:

Journal Entries

Research

A record of costs and supplies

Graphs, pictures, magazine, and newspaper clippings that relate to your invention.

Jingles, songs or poems about your invention.

Results of your research.

Biography of the inventor - you!

Be sure to record all the materials and costs involved in making your prototype (model) in your log.

Draw a picture of your prototype (model) invention in your inventor's log.

8 Steps To Inventing, Continued...

CONGRATULATIONS!

You did it! You became an inventor!

Now that you've completed the entire invention process, the last step is one of the most fun: sharing your invention with others!

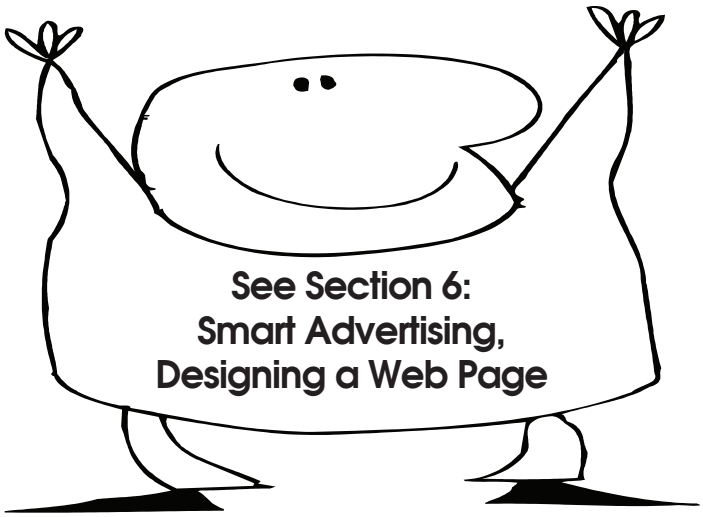
1. Write a jingle or a rap to advertise your invention.

2. Plan a TV commercial or newspaper ad for your invention and share your plans with friends and family.

3. Create a marketing plan for your invention, including costs of production, selling price, and projected profits.

4. Make several models of your invention and give them to friends and family as gifts.

5. **Showcase at a Marketplace for Kids Education Day!**



**See Section 6:
Smart Advertising,
Designing a Web Page**

Be Sure to Record the Results of Your Invention Showcase in Your Inventor's Log.

Crazy Contraptions

Marketplace for Kids always has room for the wacky and wondrous. The World can always use more creators and technicians. A creative teacher prizes the Rube Goldberg's in his or her class knowing that they are following in the footsteps of our resourceful parents and grandparents who could repair anything with baling wire or retool a farm implement from materials found in the junk pile.

For example, after you have taught units on simple machines, let production teams create working models of original gadgets that combine two or more simple machine elements. A real example for them to look at is the can opener which combines the lever, the wedge (which is really two inclined planes placed back to back) and the wheel and axle. Remember that critics laughed at Leonardo da Vinci's helicopter sketches!

A good display would include:

1. The name of the prototype.
2. A written description of possible uses.
3. Sketches showing the developmental stages.
4. Pictures of the individual simple machines used in the contraptions.
5. A working model.

Another idea would be to combine three unrelated things or ideas into an original contraption. As an example, take an item from each list to create a new thing:

TOOLS	FURNITURE	ACTIVITY
Hammer	recliner	play a musical instrument
computer	desk	empties trash
blender	lamp	feeds the pet
weed whacker	clock	throws a ball

Invention teams could combine the elements of a weed whacker and a recliner to make a machine that would throw a ball into the air for solo batting practice. A good display would include:

1. The list of choices available.
2. Sketches that show brainstorming of possible combinations.
3. A diagram or a working model of the new contraption.
4. Ideas for an effective ad campaign.

Present Your Contraptions at a Marketplace for Kids Education Day!

What Every Young Inventor Should Know About Patents/Intellectual Property

What is a "Patent?"
A patent is a right, granted by the United States to an inventor, to exclude others from making, using, or selling an invention throughout the United States without the inventor's consent.

How many United States patents are there?
Over 7 million.

Can anyone sell my invention if I do not have a patent?
Yes.

Are there different types of patents?
Yes. A **"utility" patent** protects the **function** of an invention. A **"design" patent** protects the overall **appearance** of an invention.

How long does a patent last?
A utility patent lasts for 20 years. A design patent lasts for 14 years.

What is patentable?
Any new, useful and non-obvious, process, machine, manufactured article, composition of matter, or any new and useful improvements to any of these types of inventions.

What is NOT patentable?
Perpetual motion devices, abstract ideas, laws of nature, naturally occurring substances, and printed matter are not patentable. Also if an invention is **publicly shown** more than one year ago, (trade show, magazine, etc.) it is no longer patentable.

Should an inventor patent every invention they make?
No. An inventor should only patent inventions that are "marketable."

What is the first thing an inventor should do after inventing something?
They should immediately write their idea into a notebook and sign and date the entry. Maintaining detailed records of your invention in the early stages is the most important thing an inventor can do.

Can I do a free patent search on the Internet?
Yes! A great patent search site is Google Patents located at: **www.google.com/patents/**

What Every Young Inventor Should Know About Patents/Intellectual Property, Continued...

What is in a patent application?
A patent application includes an abstract, a specification, at least one claim, and usually at least one drawing. An abstract is a brief overview of the invention. The specification describes how the invention is constructed and operates. The claims are the most important part of the patent application since they describe the type of protection the patent will have.

If I file a patent application, am I guaranteed to get a patent?
Unfortunately no. The U.S. Patent & Trademark Office will do their own patent search and determine whether or not you should get a patent.

What are the total costs for getting a patent?
The total costs, including government fees, are generally between $4,000 to $6,000 depending upon the complexity of the invention.

Can I draft my own patent application to save money?
Yes! See the PatentWizard 3.0 software program below.

Are there other types of Intellectual Property?
Yes. There are trademarks, copyrights and trade secrets.

Web Sites of Interest

National Inventor Fraud Center	**www.inventorfraud.com**
U.S. Patent and Trademark Office	**www.uspto.gov**
Patent Café	**www.patentcafe.com**
U.S. Patent & Trademark Depository Library at UND	**www.library.und.edu**

FREE PatentWizard 3.0 Software Program!

You can download a special version of the Patent Wizard 3.0 software program for **FREE** as a participant of **Marketplace for Kids**. Simply go to: **www.patentwizard.com** where you can download the PatentWizard executable file. RUN this file after downloading and simply follow the instructions.

Marketplace for KIDS ©®

Creativity • Problem Solving • Innovation

My Inventor's Log or Journal!

DATE: _____/_____/_____

PLACE:_____

WITNESS INITIALS: _____

TIME: _____

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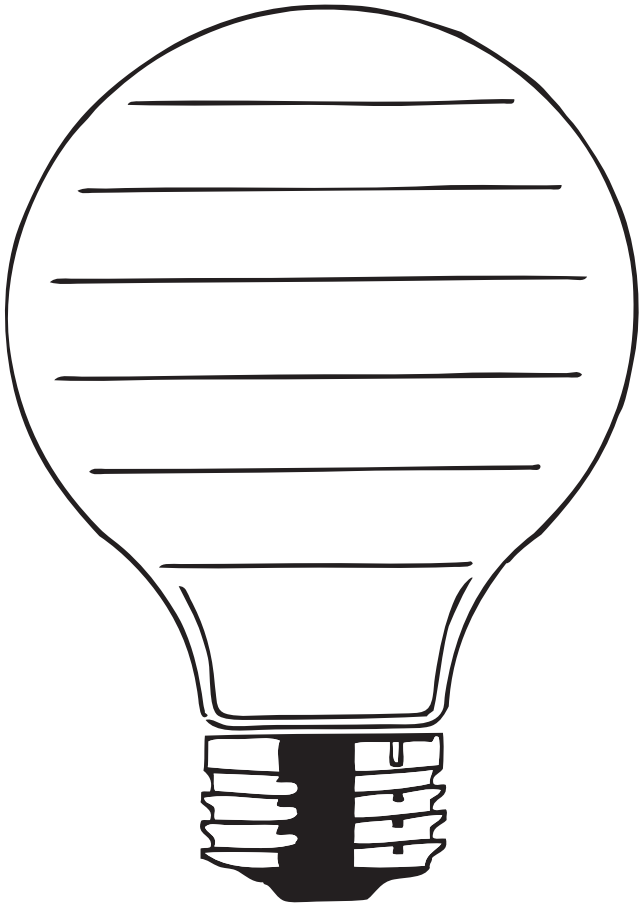
Drawings or Photos

(Remember, neatness counts)

My Initials: _____



Use your imagination!