



INVENTOR'S JOURNAL

Tracking your Invention
Journey in Innovation

a program of



University of New Hampshire
Leitzel Center

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 Chain Reaction Machine

This Inventor's Journal is a place for you to record your ideas, activities, research, and discoveries as you create your own chain reaction machine. 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 complex machine. 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 machine was created. It is proof that you came up with the ideas on your own.

About the YIP Chain Reaction Machine Inventor's Journal

Your YIP Chain Reaction Machine Inventor's Journal includes worksheets and activities that you will do in your YIP program. You can write on these pages as you do the activities with your classmates or on your own. You can take notes, draw pictures, and write down key words. Adults may help you with your writing if needed. The rest of the journal is an open space for you to record your own invention story – you can add more notes or drawings or show how you make changes to your design ideas over time.

You do not have to complete every page and you can always go back to pages as you work. Your teacher will guide you through it. But remember, never erase! If you make a mistake or make a change, simply cross it out, and then make your new notes. Your missteps and modifications are valuable parts of your story.

You are welcome to insert additional pages to your journal. Simply staple or clip them in. You may add photographs of yourself working on your invention, drawings, notes taken on different paper, or other records you may have. Each time you record an entry, 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.

When your YIP Chain Reaction Machine 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 journal, so be sure to follow them.

Have fun and good luck!

The YIP Team





CHAIN REACTION MACHINE

Inventor's Journal

This Journal tracks the innovations by

Inventor Name:

Grade: _____

School/Organization Name:

Teacher/Leader Name:



STATEMENT OF ORIGINALITY

I promise that the ideas in this Chain Reaction Machine 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: _____





CHAIN REACTION MACHINE INVENTOR'S CHECKLIST

Checklist of the Chain Reaction Machine Design Process

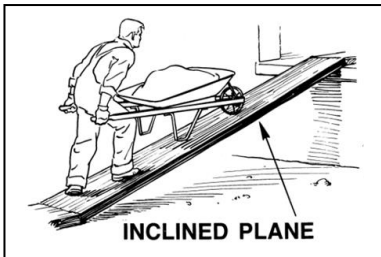
Inventor's Name

- Identify the task to be performed
- List the simple machines used in the chain reaction machine (must include at least 4 simple machines)
- Explain the steps to complete the task from start to finish (must include at least 6 steps)
- Draw design ideas
- Make a chain reaction machine
- Determine if the machine successfully completes the task when run start to finish
- Improve your machine as needed
- Present your ideas
- Have fun



SIMPLE MACHINES

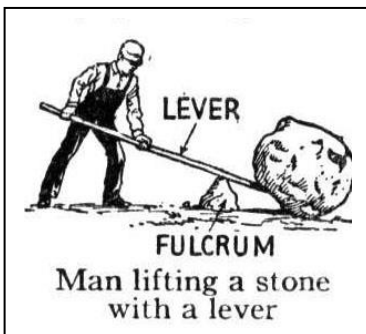
INCLINED PLANE



Makes it easier to move objects upward, but you have to go further horizontally.

Examples: highway or sidewalk ramp, stairs, inclined conveyor belts, switchback roads

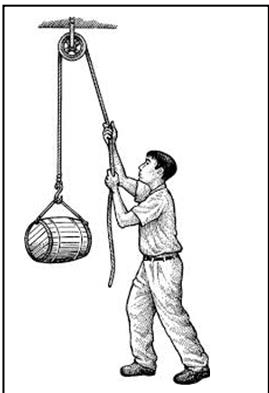
LEVER



Makes lifting weight easier by using a fulcrum to redirect force over a longer distance.

Examples: see-saw, dump truck, broom, crane arm, hammer claw, crow bar, fishing pole, screwdriver, bottle opener

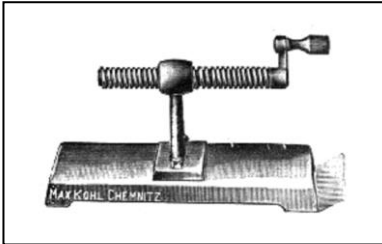
PULLEY



Makes lifting things with a rope easier by redirecting force and the addition of additional pulleys.

Examples: flag pole, elevator, sails, fishing nets, clothes lines, cranes, window shades and blinds

SCREW

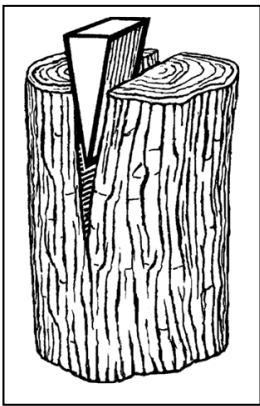


Turns rotation into lengthwise movement

- Takes many twists to go a short distance
- Holds things together

Examples: screws, bolts, clamps, jar lids, car jack, spinning stools, spiral staircases

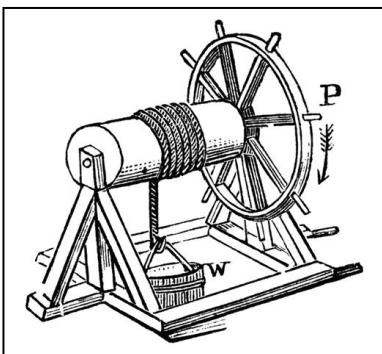
WEDGE



Pushes materials apart, cuts things

Examples: axe, doorstop, chisel, nail, saw, jackhammer, bulldozer, snowplow, horse plow, zipper, scissors, airplane wing, knife, fork, bow of a boat or ship

WHEEL & AXLE



Makes it easy to move things by rolling them, and reducing friction

Examples: car, bicycle, office chair, wheelbarrow, shopping cart, hand truck, roller skates

MY CHAIN REACTION MACHINE DESIGN PLAN

Student Inventor/s:	Date:
What task will your device perform?	
What Simple Machines will you use? (You must use at least 4 machines) 1. 4. 2. 5. 3. 6.	

The machine will work in the following steps: (Your machine must complete at least 6 steps to accomplish the task.)

1.

2.

3.

4.

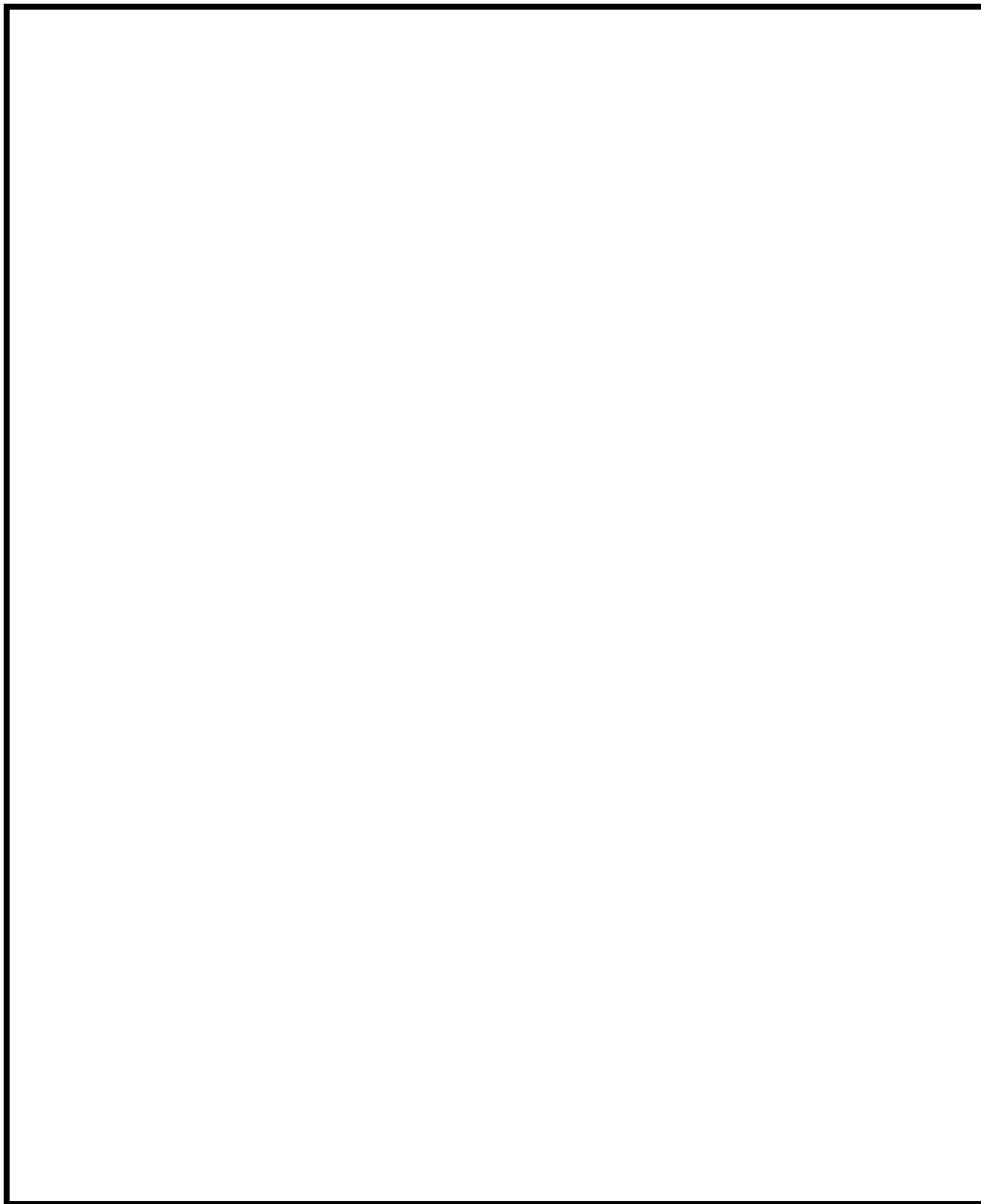
5.

6.

7.

8.

Draw a diagram of your chain reaction machine. Be sure to label each simple machine and briefly describe what they will do and how they will fit together to make the machine work. Be as detailed as possible.



CHAIN REACTION MACHINE TESTING FEEDBACK GRID

It's time to test! Use this grid to help you evaluate your prototype and see where you want to make changes.

What did you like?



How can you make it better?

Do you have any questions?



What new ideas were introduced?

CHANGES TO MY CHAIN REACTION MACHINE

After testing and feedback, I will make changes to my original design plan.

CHAIN REACTION MACHINE NAME IDEAS

Pick one word/prefix/phrase from Group A and one word/suffix/phrase from Group B that seem to really “fit” your Chain Reaction Machine. 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 all your ideas.

GROUP A		GROUP B	
Aqua	Photo	Mister	Away
Travel	Handi	-Izer	Minder
Thermo	Micro	2000	N’ Go
Medi	Pet	Meter	Buster
Ele-	Sleep	-Ator	A-tron
Opti-	Auto	Aid	Ease
Work	Accu	Saver	Alarm
Pest	Compu-	Mate	- O
Mega	Safety	Be-gone	Feeder
Baby	Farmer’s	Max	Glow
Audio	Quick	Buddy	Flex
E-Z	Info	Tote	Freeze
Presto	Super	Rider	Shovel
Tele	Step	No-More	Helper
All-in-one	Pro	Finder	Sure
Nite	Cozy	Shield	Alert
Kiddie	Mini	Pal	Tech

MY CHAIN REACTION MACHINE NAME IDEAS

1. List all the key words and ideas you have for a name for your Chain Reaction Machine below. You may try to combine words or rearrange them, add other words and try different combinations.

2. List at least 2 ideas you have for your Chain Reaction Machine name. You may use your ideas from above to help you. Then take a poll (vote) of your classmates. Which name do they like best? Record the number of votes each name gets in the chart below.

Name Idea	Number of Votes

3. Select your favorite name.

My Chain Reaction Machine is called the

CHAIN REACTION MACHINE JOURNAL PAGE

Record steps to develop ideas, research, and notes as you build your Chain Reaction Machine.

Inventor's signature: _____

Date: _____

CHAIN REACTION MACHINE JOURNAL PAGE

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Date: _____

INVENTION COMPETITION REQUIREMENTS

All projects must have the following components



YIP Inventor's Journal or logbook (hardcopy or electronic version)

The journal documents the student's journey and all aspects of the design process. Journals should be used throughout the development of the project and should not be a report completed after the fact. The journal/logbook should include the following:

- Title Page with Student(s) name(s), grade, school, city and state
- Statement of Originality
- At least one labeled design/sketch/diagram of chain reaction machine
- My Chain Reaction Machine Design Plan (description of the simple task the machine will complete)



Project Presentation

YIP inventors are asked to speak about their chain reaction machine project for 2-3 minutes during the invention convention and then will have 3-4 minutes to put their machine into action to perform the task successfully. Inventors should share their idea and how it was developed as they talk about the steps they took to design and build their chain reaction machine, their tests and results, changes made to the design and challenges they faced throughout the process. Inventors may show drawings and their chain reaction machine as a visual prop as they speak. Young inventors (grades K-2) may use notecards or be prompted by nearby adult; inventors in grades 3-4 may use notecards; and inventors in grades 5-12 may not use notecards. All presentations should include the following:

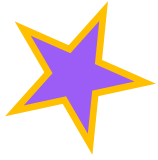
- Student's name(s)
- Student(s) Grade
- School Name, City and State
- Name of Chain Reaction Machine



Video Presentation

All inventors must submit a pre-recorded video presentation for competition. Videos will be used to evaluate originality of the idea and may be used for competition if the format of the competition is changed last minute as deemed necessary by the Young Inventors' Program. Videos should be a recorded version of the project presentation/pitch (or similar). Inventors are encouraged to stand in front of their chain reaction machine and show their machine working from start to finish during the video. All video presentations should include the following:

- Student's name(s)
- Student(s) Grade
- School Name, City and State
- Name of Chain Reaction Machine



Chain Reaction Machine

The chain reaction machine itself is the heart of the invention project and is a required element for competition. A small display may accompany the machine, but the machine serves as the main attraction for this category.

Chain Reaction Machines must include the following:

- Student(s) name(s)
- Grade(s)
- School name
- School city, state
- Chain Reaction Machine Name
- Statement of the task being completed






All Chain Reaction Machines must also:

- Take at least 6 steps to complete the desired task
- Steps and machine components should be labeled appropriately on display or machine
- Incorporate a minimum of 4 of the following simple machines
 - Wheel & Axle
 - Pulley
 - Inclined Plane
 - Screw
 - Wedge
 - Lever

Inventors are encouraged to build machines that are “materials neutral”, meaning they can be made of reused and recycled materials and the overall product should not require money to buy materials. Any materials that are used, whether purchased or found/borrowed, should be listed in the Materials List in the inventor’s journal/logbook.

Project Restrictions

The following items are not allowed on your person or in your project:

-  Electric stun guns, martial arts weapons, or devices
-  Guns, replica guns, ammunition, and fireworks
-  Knives of any size
-  Mace and pepper spray
-  Razors and box cutters

Also: No balloons, glitter, or confetti are allowed in any form. If a project requires batteries, these must be provided by the inventor.



a program of the University of New Hampshire Leitzel Center
<https://www.unh.edu/leitzel-center/young-inventors-program>