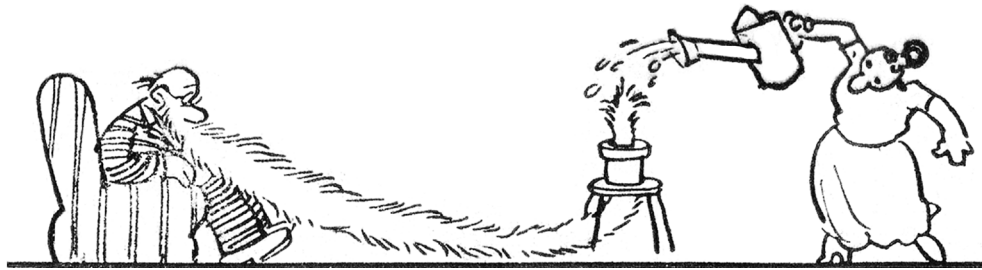


# RUBE GOLDBERG™

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## Resources

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**Rube Goldberg Videos Online:**

<https://www.rubegoldberg.com/rube-tube/>

**RubeWorks Building App Game:**

<https://www.rubegoldberg.com/education/rube-works-game/>

**Rube Goldberg's Original Invention Cartoons Online:**

<https://www.rubegoldberg.com/artwork/automatic-blotter/?c=45>

**Rube in the News:**

<https://www.rubegoldberg.com/rube-headlines/>

**Videos about Rube:**

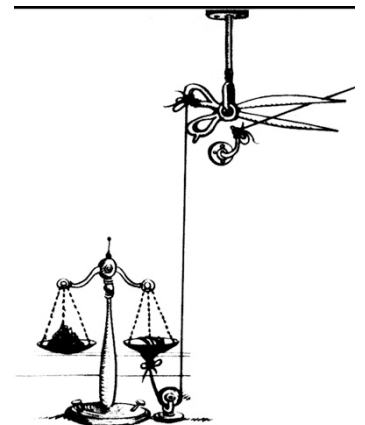
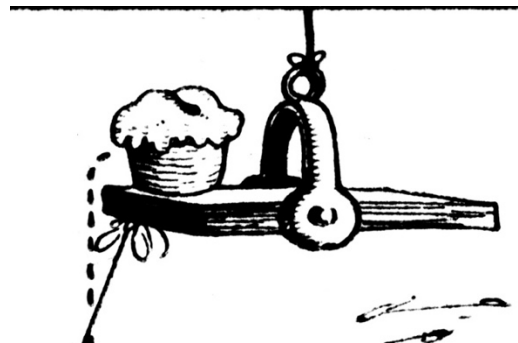
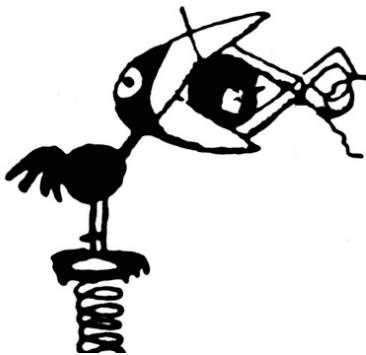
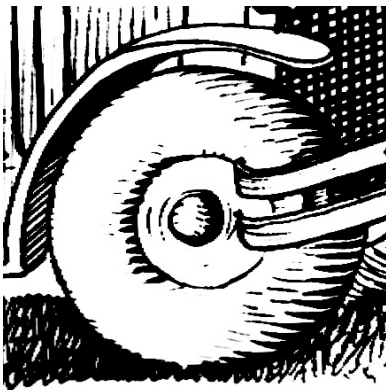
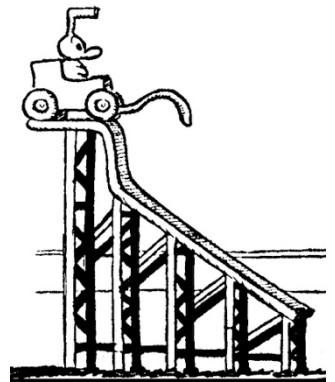
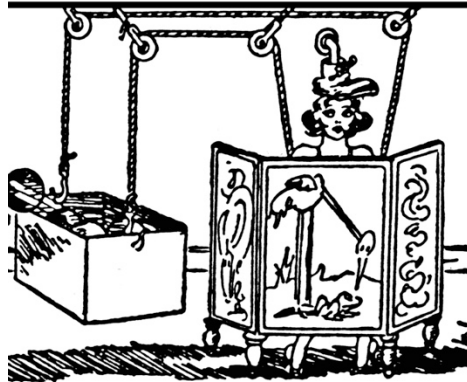
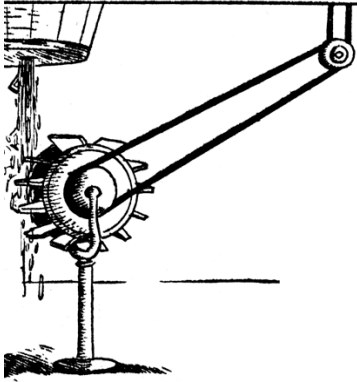
<https://www.rubegoldberg.com/about/>

**Mousetrap Game Info:**

[https://en.wikipedia.org/wiki/Mouse\\_Trap\\_\(game\)](https://en.wikipedia.org/wiki/Mouse_Trap_(game))

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Label the 6 Simple Machines in Rube's Cartoons**



Key words: Pulley, Lever, Inclined Plane, Screw, Wedge, Wheel and Axel

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Circle and Label the Simple Machines in Rube Goldberg's Cartoons

### Simple Way to Find Your Glasses

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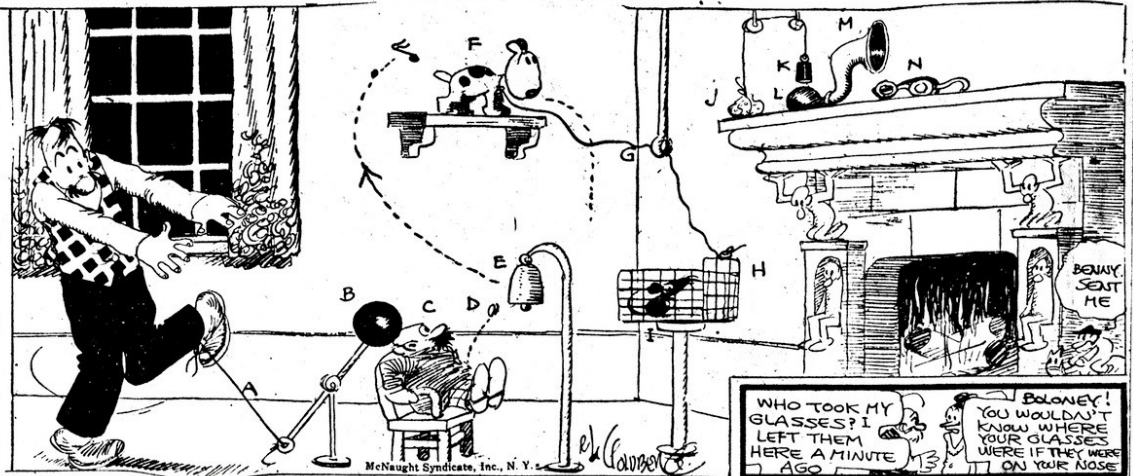
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By Rube Goldberg

AS SOON AS YOU MISS YOUR GLASSES DO A CHARLESTON-STRING (A) CAUSES BALL (B) TO HIT DWARF (C) ON HEAD, SQUASHING HIM SO THAT BUTTON (D) FLIES OFF HIS COAT AND HITS DINNER BELL (E) - OATMEAL-SPANIEL (F) THINKS DINNER IS READY AND JUMPS FORWARD, PULLING STRING (G) AND OPENING MOUSE-TRAP (H) - MOUSE (I) RUNS UP MANTLEPIECE TO CHEESE (J) AND NIBBLES AT IT - AS CHEESE GETS LIGHTER, WEIGHT (K) FALLS ON BULB (L) AND BLOWS AUTO HORN (M), SHOWING YOU EXACTLY WHERE GLASSES (N) ARE - WHEN PUTTING GLASSES DOWN AGAIN, DON'T FORGET TO SET CHEESE AND HORN.



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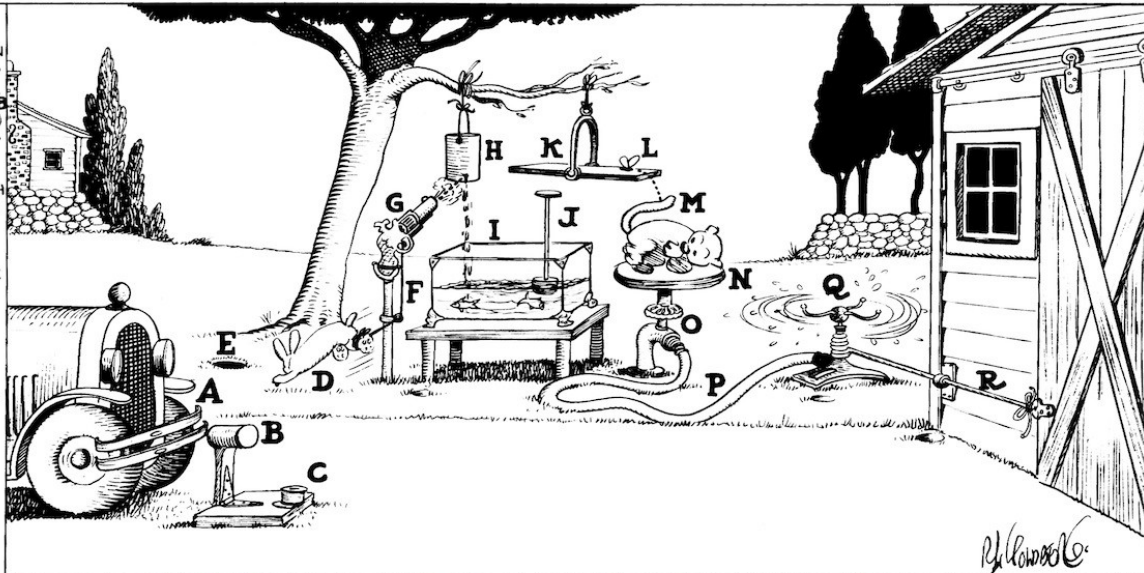
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## Circle and Label the Simple Machines in Rube Goldberg's Cartoons

### Opening the Garage Door by Rube Goldberg

PROFESSOR BUTTS TAKES A DRINK OF STRANGE GIN AND EVOLVES AN INVENTION FOR OPENING THE GARAGE DOOR WITHOUT GETTING OUT OF THE CAR. DRIVE AUTO BUMPER (A) AGAINST MALLETT (B) PUSHING IT DOWN AND EXPLODING CAP (C) RIGHTENING RABBIT (D) WHO RUNS TOWARD HIS BURROW (E) PULLING STRING (F) WHICH DISCHARGES PISTOL (G). THE BULLET PENETRATES CAN (H) FROM WHICH THE WATER Drips INTO AQUARIUM (I). AS THE TIDE RISES IN THE AQUARIUM IT ELEVATES THE FLOATING CORK-UP-RIGHT (J) WHICH PUSHES UP END OF SEE-SAW (K) CAUSING FLEA (L) TO LOSE ITS BALANCE AND FALL ON GEDUNK. HOUND'S TAIL (M) WHO WAKES UP AND CHASES HIS TAIL ROUND AND ROUND CAUSING PLATFORM (N) TO SPIN AND TURN ON FAUCET (O). WATER RUNS THROUGH HOSE (P) STARTING REVOLVING LAWN SPRINKLER (Q) ON WHICH ROPE (R) WINDS ITSELF OPENING GARAGE DOOR.

OF COURSE, IF YOU WISH, YOU CAN DRIVE RIGHT THROUGH THE DOOR. AND THEN THERE WON'T BE ANY OBSTRUCTION LEFT TO BOTHER YOU IN THE FUTURE.



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Name: \_\_\_\_\_ Date: \_\_\_\_\_

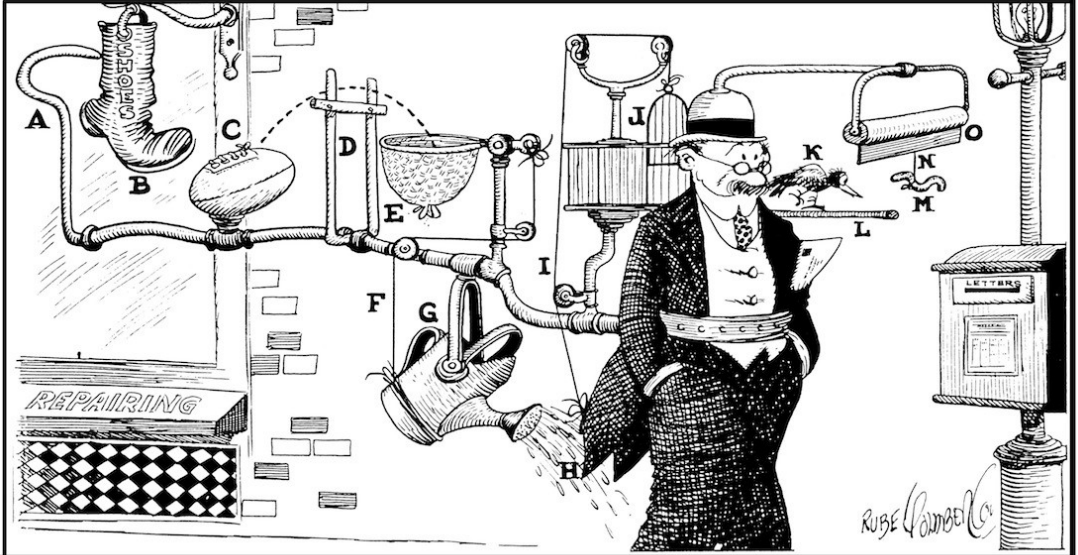
## Circle and Label the Simple Machines in Rube Goldberg's Cartoons

### Simple Idea to Keep You From Forgetting To Mail Your Wife's Letter

By Rube Goldberg

PROFESSOR BUTTS GETS CAUGHT IN A REVOLVING DOOR AND BECOMES DIZZY ENOUGH TO DOPE OUT AN IDEA TO KEEP YOU FROM FORGETTING TO MAIL YOUR WIFE'S LETTER.

AS YOU WALK PAST COBBLER SHOP, HOOK (A) STRIKES SUSPENDED BOOT (B) CAUSING IT TO KICK FOOTBALL (C) THROUGH GOAL POSTS (D). FOOTBALL DROPS INTO BASKET (E) AND STRING (F) TILTS SPRINKLING CAN (G) CAUSING WATER TO SOAK COAT TAILS (H). AS COAT SHRINKS CORD (I) OPENS DOOR (J) OF CAGE ALLOWING BIRD (K) TO WALK OUT ON PERCH (L) AND GRAB WORM (M) WHICH IS ATTACHED TO STRING (N). THIS PULLS DOWN WINDOW SHADE (O) ON WHICH IS WRITTEN, "YOU S-A-P, MAIL THAT LETTER." A SIMPLE WAY TO AVOID ALL THIS TROUBLE IS TO MARRY A WIFE WHO CAN'T WRITE.



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Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Draw a Rube Goldberg Machine

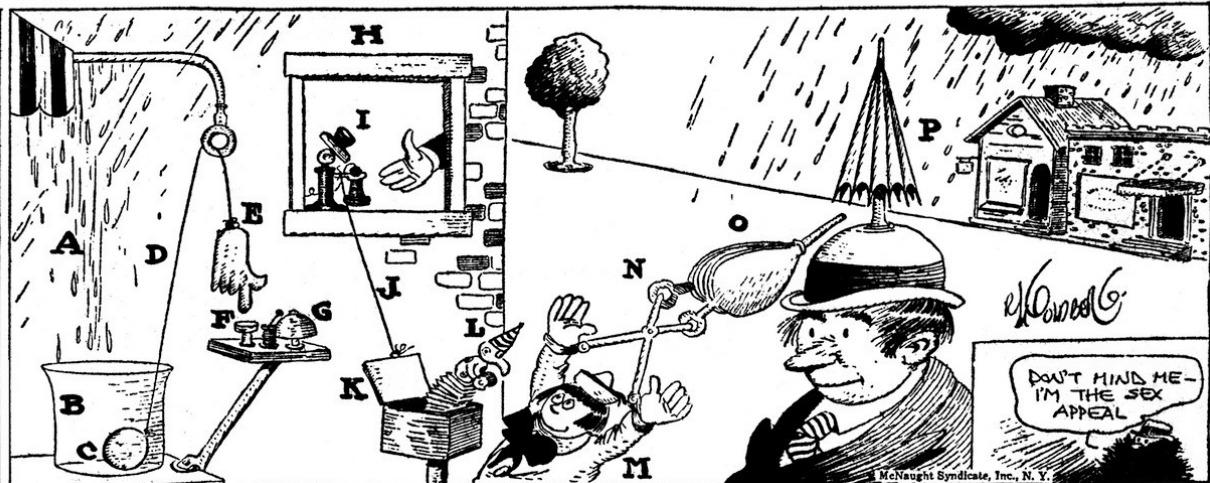
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**Get One of Our Handy Self-Opening Umbrellas**



**By Rube Goldberg**

RAINDROPS (A) FILL TUMBLER (B), CAUSING BALL (C) TO RISE - STRING (D) MOVES WITH BALL AND IRON HAND (E) PRESSES BUTTON (F), RINGING ELECTRIC BELL (G) - MAN IN NEAR-BY BUILDING (H) THINKS HIS PHONE IS RINGING AND PICKS UP RECEIVER (I), CAUSING STRING (J) TO OPEN BOX (K) - JACK-IN-THE BOX (L) JUMPS OUT AND LITTLE BOY (M) IS SO HAPPY HE CLAPS HANDS, CAUSING ARRANGEMENT (N) TO BLOW BELLOWS (O) AND OPEN UMBRELLA (P) !



# Lever

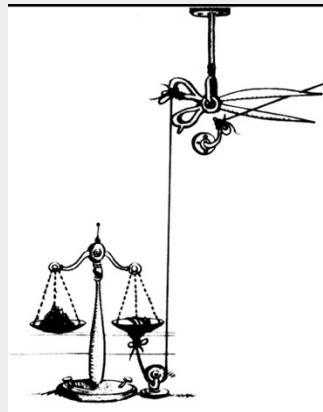
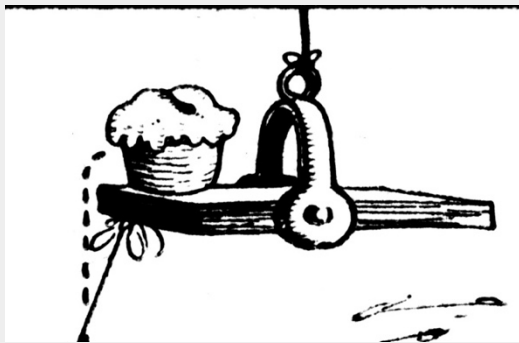
lev·er, 'levər, 'lēvər/, *noun*

1. a rigid bar resting on a pivot, used to help move a heavy or firmly fixed load with one end when pressure is applied to the other.

*Synonyms:* Crowbar.

Make a lever out of the given materials and explore the relationship of the fulcrum to the load. Discover that it is easier to move an object when the fulcrum is closer to the load.

**Materials:** Wooden ruler, Object to lift, Tape, Can or toilet paper roll.



**Does the lever make it easier to lift the load?**

**Move the fulcrum closer to and away from the load. Which is easier to lift?**

**Draw an example of a lever in action.**



# Inclined Plane

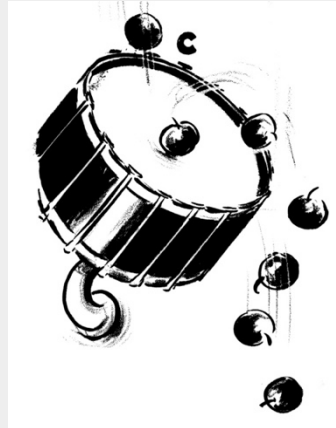
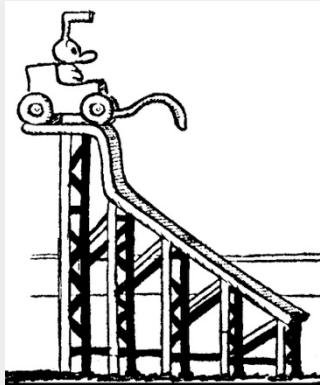
in·clined plane, *noun*

1. a plane inclined at an angle to the horizontal. 2. a sloping ramp up which heavy loads can be raised by ropes or chains.

*Synonyms:* Ramp, slant, gradient.

Make inclined planes with boards varying the slope of the board. Try leaning the board against objects of different heights. Tie rubber bands around the book. Tie the string to the rubber bands and pull the books up the different inclined planes. Also pull the books straight up without using the inclined planes.

**Materials:** 2 Boards varying in lengths, String, Rubber bands, Ruler, Heavy Book.



**Is it easier to pull the book straight up in the air, or up the inclined plane? Why?**

**Look at the stretch of the rubber bands during the straight up pull compared to different inclined planes. During which is the rubber band longer?**

**What is an example of an inclined plane in your every-day life?**

# Wheel and Axle

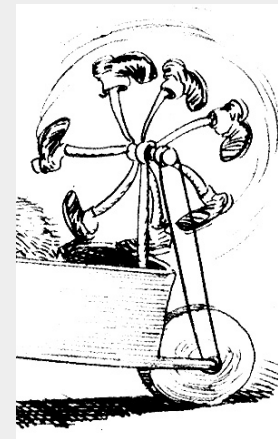
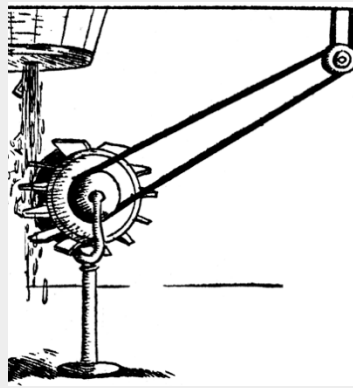
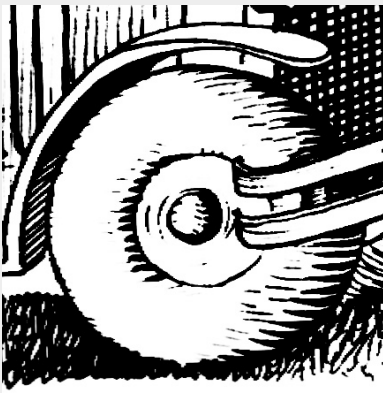
wheel and ax·el, *noun*

1. a simple lifting machine consisting of a rope that unwinds from a wheel onto a cylindrical drum or shaft joined to the wheel to provide mechanical advantage.

*Synonyms:* Axis, shaft.

Push one car on its side and the other on its wheels. Note the difference in distance traveled.

**Materials:** 2 matchbox cars, Rulers.



Which car moved easier, the one on its' wheels or the one on its' side?

If cars did not have wheels, how might they move? Would it be harder this way?

# Screw

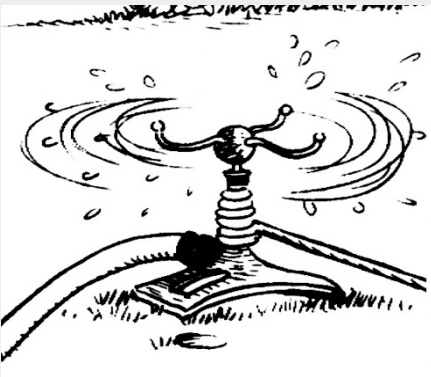
skroo/, *noun*

1. a short, slender, sharp-pointed metal pin with a raised helical thread running around it and a slotted head, used to join things together by being rotated so that it pierces wood or other material and is held tightly in place.

*Synonyms:* Bolt, fastener.

Make a screw out of an inclined plane. Cut the paper square diagonally to make an inclined plane. Tape one of the short edges of the triangle to a pencil. Wrap the triangle around the pencil. An inclined plane is part of a screw.

**Materials:** 9 inch Paper Square, Tape, Pencil, Scissors.



**What is a screw typically made out of?**

**What do we use screws for in every-day life?**

**What tool do we use to get a screw into a piece of wood? Why?**

# Wedge

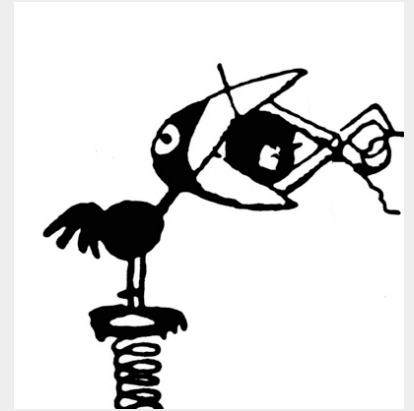
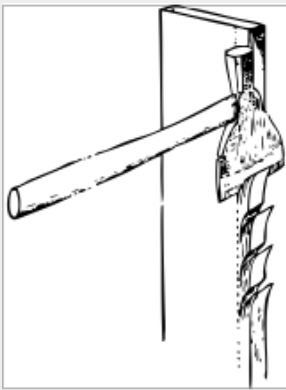
wej/, *noun*

1. a piece of wood, metal, or some other material having one thick end and tapering to a thin edge, that is driven between two objects or parts of an object to secure or separate them.

*Synonyms:* Doorstop, chock.

Scissors are made up of two wedges (the blades) and fixed at an axis point. Cut paper with both sharp scissor and dull scissors. Observe that the sharp scissors cut better than the dull scissors as the wedge's point narrower and therefore slices more easily.

**Materials:** Paper, Dull Scissors, Sharp Scissors.



**Which scissor is easier to cut with, the sharp or the dull? Why?**

**How are the cuts different?**

**Is a scissor a simple machine or a compound of two simple machines?**

# Pulleys

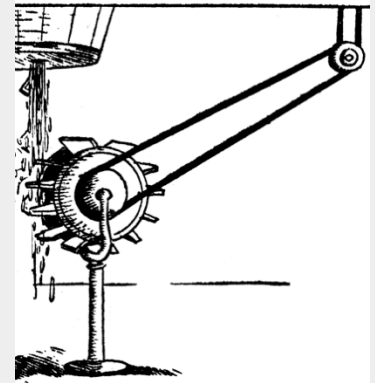
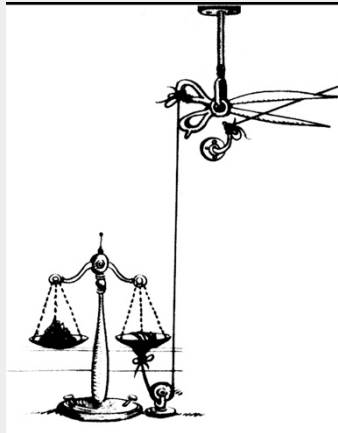
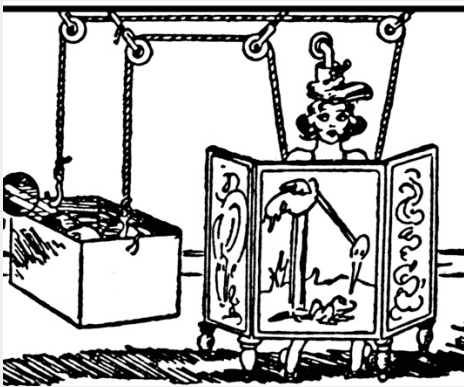
pul·ley, 'poolē/, *noun*

1. a wheel with a grooved rim around which a cord passes. It acts to change the direction of a force applied to the cord and is chiefly used (typically in combination) to raise heavy weights.

*Synonyms:* Sheave, drum.

Make a pulley with a sewing spool, string, and a pencil. Use this pulley to lift an object. Compare lifting the object with the pulley and without the pulley.

**Materials:** Sewing spool, String, Pencil, Object to lift.



**Compare using the pulley and not using the pulley. Which is easier to lift the load?**

**Where do we use pulleys in our every-day life?**

**Draw an example of a pulley system using more than one pulley.**



## Descriptive Words for Machines

### **automatic**

ADJECTIVE

an automatic machine or process works by itself rather than being operated by people

### **automatically**

ADVERB

by a machine, without people doing anything

### **broken**

ADJECTIVE

if a machine is broken, it is not working correctly

### **built**

ADJECTIVE

used for showing where a machine or structure was produced or made

### **clean**

ADJECTIVE

clean machines and processes do not create much pollution

### **clever**

ADJECTIVE

used about a tool, machine, or invention that is unusual but good and effective

### **clockwork**

NOUN

operated by a set of springs that work when you turn a handle or key

### **cordless**

ADJECTIVE

a cordless tool or piece of equipment works without being connected to the electricity supply

### **cranky**

ADJECTIVE

INFORMAL likely to stop working at any time

### **digital**

ADJECTIVE

a digital clock or instrument shows information as a row of numbers

**electric**

ADJECTIVE

working by electricity

**electrical**

ADJECTIVE

working by electricity

**gas-fired**

ADJECTIVE

OLD-FASHIONED using gas as a fuel

**graduated**

ADJECTIVE

a graduated container or piece of equipment has marks on it to show measurements

**hands-free**

ADJECTIVE

hands-free equipment can be operated without using your hands, for example by using a headset or a remote control

**hard-wired**

ADJECTIVE

a hard-wired computer system or other system cannot be changed by the user because it has been built to operate in a particular way

**heavy**

ADJECTIVE

heavy machines, vehicles, or weapons are large and powerful

**high-performance**

ADJECTIVE

designed to be very fast or powerful

**idle**

ADJECTIVE

machines or factories that are idle are not being used

**incompatible**

ADJECTIVE

ideas, systems, or machines that are incompatible are not able to work or exist together because of basic differences

**inflatable**

ADJECTIVE

an inflatable object must be filled with air before you can use it

**jammed**

ADJECTIVE

a piece of equipment that is jammed has some part of it that is not moving correctly

**labor-saving**

ADJECTIVE

labor-saving equipment such as washing machines and vacuum cleaners do jobs in a quick and effective way so you do not have to spend a lot of time doing them yourself

**manual**

ADJECTIVE

operated by a person instead of automatically or using a computer

**mechanical**

ADJECTIVE

operated by a machine or system of moving parts

**motorized**

ADJECTIVE

fitted with an engine, often as an extra benefit

**on-off**

ADJECTIVE

an on-off switch is one that you press to make a machine work or stop working

**plug-in**

ADJECTIVE

a plug-in piece of equipment gets power by being connected to an electricity supply by means of a plug

**portable**

NOUN

something that is portable, for example a small computer, television, or other small piece of electrical equipment

**power**

ADJECTIVE

operated by electricity or by a motor

**programmable**

ADJECTIVE

a machine that is programmable can be given instructions so that it will do something automatically

**pump-action**

ADJECTIVE

a pump-action object is one that has a part that you push or pull to make something come out of it

**push-button**

ADJECTIVE

operated by pressing a button or switch

**radio-controlled**

ADJECTIVE

a radio-controlled toy or piece of equipment is operated using radio signals

**reliable**

ADJECTIVE

a reliable vehicle, piece of equipment, or system always works well

**remote**

ADJECTIVE

capable of being operated from a distance or by using a remote control

**right-hand**

ADJECTIVE

designed or intended for the right hand

**robotic**

ADJECTIVE

used for describing a part of a machine that moves around by itself

**sluggish**

ADJECTIVE

not performing or reacting as well as usual

**smart**

ADJECTIVE

smart machines, especially weapons, use computer technology to make them effective

**souped-up**

ADJECTIVE

INFORMAL made faster or more powerful or effective

**spring-loaded**

ADJECTIVE

operated by a spring inside

**steam**

NOUN

operated by steam

**submersible**

ADJECTIVE

a submersible machine or vehicle can work under water

**unconnected**

ADJECTIVE

not joined to a system, for example in order to provide or receive electricity or communication

**unfriendly**

ADJECTIVE

not easy to use or operate

**unmanned**

ADJECTIVE

used for describing a building or machine that does not have any staff there to manage or operate it. Some people avoid using this word because they consider it offensive to women, and use unstaffed or uncrewed instead

**unsophisticated**

ADJECTIVE

used for describing simple tools and pieces of equipment that are not advanced

**user-friendly**

ADJECTIVE

a user-friendly system or piece of equipment is easy to use or understand

**voice-activated**

ADJECTIVE

a machine or piece of equipment that is voice-activated begins to operate when it hears someone's voice

**wind-up**

ADJECTIVE

a wind-up toy or machine is one that works when you turn a key several times



**wired**

ADJECTIVE

able to receive electronic or computer signals

**wirelessly**

ADVERB

using electronic signals instead of wires

**at the touch of a button**

if a machine works at the touch of a button, it works extremely quickly and easily

**come on stream**

to start to work or be effective

**have a mind of its own**

if a machine or object has a mind of its own, it behaves in a way that you do not expect

**in working order**

working correctly, without any problems

**on the blink**

if a piece of electrical equipment is on the blink, it is not working very well

**on the fritz**

if a machine is or goes on the fritz, it has stopped or stops working correctly

**out of order**

a machine or piece of equipment that is out of order is not working correctly

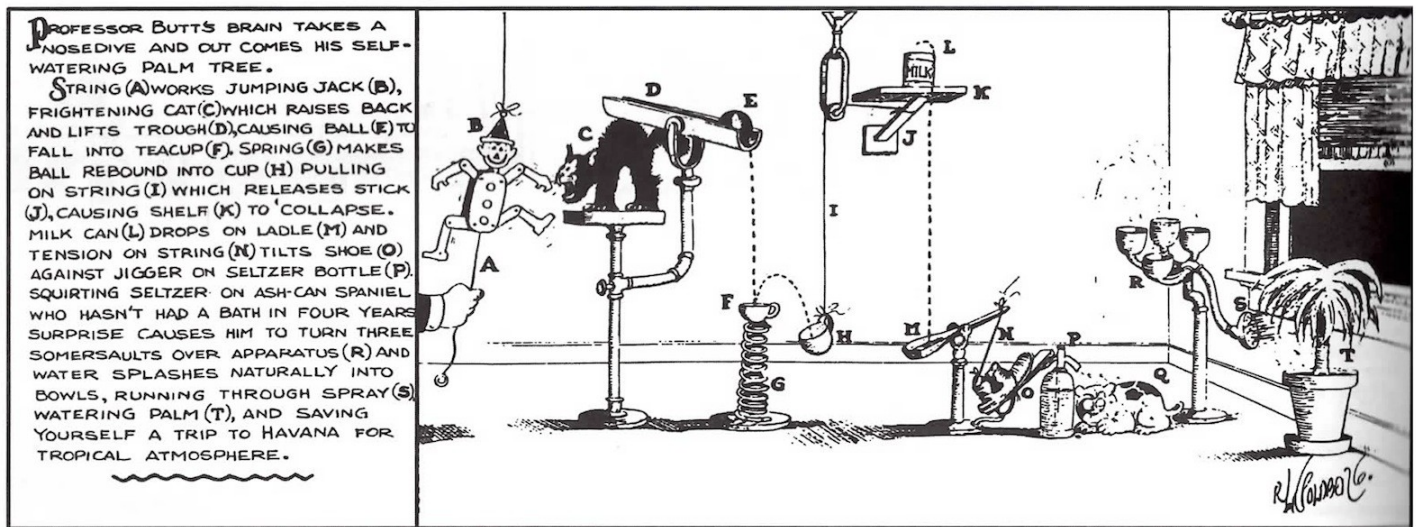
**What is always present but never visible? ENERGY! Label Potential and Kinetic Energy Below:**

**Energy** is the ability to do work or cause change. Much like mass or volume, energy is a property of an object. Movement, sound, heat, and light provide evidence that energy is present and being used.

**Potential energy (PE)** appears in many different forms, and is defined as the energy in matter due to its position or the arrangement of its parts. The various forms of potential energy include gravitational potential energy, elastic potential energy, chemical potential energy, and electrical potential energy.

**Kinetic energy (KE)** is the energy of motion. Potential energy is converted into kinetic energy as soon as the object begins to move. A thrown football, a speeding automobile, a waterfall, or a rock falling from a cliff are examples of objects that have kinetic energy.

## Self-Watering Palm Tree



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## Closing the Windows While You Are Away

