SCIENCE FAIR PROJECTS 2012
TEACHER CARMINA GALDAMEZ
1ST GRADE "A" and "B"

Students	Project	Materials	Link video
Group 1 **Desiree Flores** **Juan Carlos Linares** **Francisco Calderon**	**VOLCANO**	• 10 oz bottle • Large baking pan • Aluminium foil • Potting soil • 4 measuring cups • 6 teaspoons flour • 6 teaspoons baking soda • 4 cups white vinegar • Spoon • Funnel • Red and yellow food coloring • Trees to decorate your volcano • Your creativity	**http://youtu.be/8rmhTKbQ4Ik** **http://youtu.be/qGnHQkiyoys** **http://youtu.be/9RoDsActdOU**

VOLCANO

Experimental Procedures

Making the model

1. A 10oz juice bottle was placed on an aluminium-foil lined baking pan

2. Potting soil was added to the pan and shaped like a mountain. Rocks were added to the mountain.

Experiment

1. Using a funnel, add 2 teaspoonfuls baking powder and 2 teaspoonfuls flour.
2. Add 8 drops of red food coloring and 4 drops of yellow food coloring.
3. Using the funnel, add ¼ cup of vinegar to the bottle.
4. Start the stop watch as the foam starts to come out of the mouth of the bottle and measure the time it takes for the reaction to complete (till the foaming stops).
5. Repeat the experiment using ½ cup vinegar and 1 cup vinegar and note down the time for each experiment.

Students	Project	Materials	Link video
Group 2 Fernanda Madrid Fabiola Ruiz Armando Escobar	HOVERCRAFT TOY	Motor pequeño de CC -Helice de plástico - Bandeja de plastoform (telgopor) - Cartón de un paquete de cerales - Cinta adhesiva - Batería de 9 voltios - Alambre de conexión delgado y flexible - Tijeras - Cuchilla	http://youtu.be/Fn7nTdTB2pA You can decide which hovercraft you want to do.

COMO SE HACE HOVERCRAFT TOY

Primero se corta del cartón una figura como se ve en la fotografía. Esta sirve para dirigir hacia abajo el flujo de aire que produce la hélice al funcionar.

Luego cortamos un cuadrado en el centro exacto de la bandeja de plastoform. En este cuadrado se deberá colocar la forma de cartón que hicimos anteriormente.

Ahora tomamos la hélice y el motor y colocamos esta primera en el eje de este último. Podemos sujetar con ayuda de pegamento.

Soldamos dos cables a los terminales del motorcito. Estos cables deben ser luego conectados a la batería de 9 voltios, de modo que es buena idea usar un conector para batertía de 9 v.

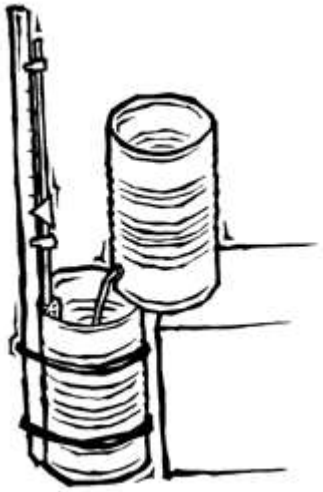
Finalmente colocamos el motor sobre la forma de cartón y nos fijamos que esté en el centro exacto.

Igualmente colocanos la batería de 9 voltios y hacemos funcionar la hélice, si todo va bien el hovercraft se levantará unos milímetros sobre el suelo y comenzará a desplazarse hacia adelante. En caso contrario hay que revisar que todo esté perfectamente centrado.

Si el conjunto es muy pesado para que el aparato se levante, se puede conectar una fuente de poder (pilas, batería de 9 voltios, adaptador,etc.) con ayuda de unos cables largos, tal como se ve en la fotografía de al lado.

Students	Project	Materials	Link video
Group 3 **Fatima Martinez** **Fernando Nuñez** **Alexia Pacheco**	**Film Canister Rocket**		**http://youtu.be/xzn4iJIvRJI**

Students	Project	Materials	Link video
Group 4 **Felipe Solano** **Enrique Suncin** **Daniela Quevedo**	**Water Clock**	• 2 big eye screws • a sturdy, wooden stick, 30 cm (12") long and 2.5 to 5 cm (1" to 2") square • a thin, round stick or dowel, 20 to 25 cm (8" to 10") long, that fits through the eye screws • 2 rubber bands • a marker • glue and a small piece of sturdy paper or cardboard • a cork • 2 empty cans - medium sized, about 28 oz • can opener	**http://youtu.be/WPSWKPT_sOE** **Tell your parents to open the holes of the cans before bringing them to classes.** **http://youtu.be/XlCEHfg__6g** **This is another water clock, but it is more difficult.**



WATER CLOCK

1. Screw the eye screws into the 30-cm stick, the first an inch or so above the level of the cans, the other an inch or so below the top of the stick.

2. Run the thin, round stick through the openings in the eye screws and insert the lower end of the stick into a cork.

3. Fasten the large stick to the outside of one of the cans with the two rubber bands. Make sure the cork at the bottom of the thin stick doesn't rub against the inside of the can.

4. Glue a small paper or cardboard pointer to the thin stick so that it points at, but doesn't touch, the large stick.

5. Use the can opener to make a tiny hole in the side of your second can as close to the bottom as possible. You want the hole small enough so the water only drips out.

6. Fill the second can with water and set it on a platform so water drips from it into the first can. As the water slowly fills the first can, the cork will rise and push the thin stick and the pointer upward. Mark the starting level for the pointer on the large stick. Then every five minutes, as the water drips in, make another mark across from the rising pointer. At the end of the class period, you will have calibrated your clock.

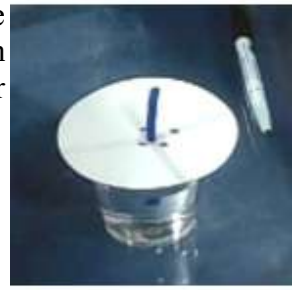
Now, try it again and see if it remains accurate as it counts off the five-minute segments. There are many different designs for water clocks. Look for ideas on building other types of water clocks or come up with your own design. Compare the accuracy of different designs.

Students	Project	Materials	Link video
Group 5 **Monica Flores** **Andres Flores** **Tatiana Marquez**	**Electric motor**	piece of wood acts as a base for a simple electric motor made out of magnet wire and paper clips using D-size batteries from a toy	**http://youtu.be/xZ2HpOAOfbc**
Students	**Project**	**Materials**	**Link video**
Group 6 **Giuliana Vasquez** **Antonio Batarse** **Sebastian Palucho**	**SPIN ART**	**Materials** • Round filter paper (it's like a coffee filter... only thicker!) • Scissors • Small plastic cup	

		• Black pen (water soluble) • Pipe cleaner	

1. Start by using the black pen to mark a dot in the center of the filter paper. Draw a circle of dots around the dot in the middle of the paper.
2. Use the scissors to cut a piece of pipe cleaner about 2 inches (5 cm) long. Fill one of the plastic cups about half full with water. Carefully push the small piece of pipe cleaner into the hole in the center of the filter paper where you placed the center dot.
3. Place the filter paper and pipe cleaner on top of the plastic cup so the pipe cleaner is getting wet. Be careful not to get the filter paper wet yet. As the pipe cleaner gets wet, the water will slowly crawl up to the filter paper and start to get it wet, too. This may take a while, so be patient. It's worth the wait!
4. What happens to the black dots when they get wet? How did the colors get on the paper? Take the paper and the pipe cleaner off the cup of water when the "design" is about half the size of the paper. If you let the paper soak up too much water, the design gets blurry and faded. Set your paper in a safe place to dry.

Try this... Experiment with other black pens found around the house. You'll want to make sure the pens are water soluble to get them to separate into individual colors. As you experiment with different brands of pens and markers, you'll notice that each brand leaves its own unique color pattern on the filter.



Spin Art Chromatography

This technique uses a commercial Spin Art toy or something you can make using a hand-held toy fan with rubber blades and a recycled plastic lid the approximate size of the filter paper. If you want to make your own spin art toy, just attach the plastic lid to the center of the fan blades with the edges of the lid pointing in an outward direction. Lay the filter paper on the plastic lid, allowing the edges of the lid to hold it in place. This method requires a lot of trial and error to get the filter paper spinning just right.

Draw black dots on the filter paper using the method described above or simply touch the tip of the water-soluble black pen to the spinning filter paper to draw a perfect circle in the very center of the

filter paper. Using an eye-dropper or a plastic pipette, drip just a few drops of water onto the middle of the spinning filter paper. The drops of water will mix with the black ink and the

centripetal action of the spinning paper causes the ink to spread out in a circular pattern. The Spin Art Chromatography method is much faster than the traditional wick method, but the color separation may not be as vivid.

Making Rainbow Flowers

1. Using the technique listed above, make 2 or 3 bursts of color on separate pieces of filter paper.
2. Let them dry completely.
3. Cut off the outer white edge of the filter paper so you're left with just a burst of color.
4. Fold the paper into the shape of a flower (petals).
5. Poke a pipe cleaner through the center of the filter paper.
6. Bend the bottom part of the pipe cleaner into the shape of a leaf.
7. Voila! You've made a rainbow flower.

Students	Project	Materials	Link video
Group 7 **Pedro Molina** **Paola Guardado** **Gerardo Colon**	**Magnetic Car**		**http://youtu.be/DV5AZ6487uw**

Students	Project	Materials	Link video
Group 8 **Ximena Hernandez** **Carlos M. Guevara** **Abigail Padilla**	**Aluminium foil boat**	• aluminum foil (10 x 10 cm) • Scotch tape (30 x 1.9 cm) • water container pennies (50)	**http://youtu.be/T_xOnwJvBco**

Steps for Building a Boat

1. Cut foil 10mm x 10mm. The best way to cut the foil is to lay a ruler, with a sharp edge, over the foil at the position you want to make the cut. Then pull the edge of the foil up so that the foil cuts from on end to the other.

2. Cut tape 30mm long. The simplest way to measure the tape is to pull it out of the dispenser along the ruler as shown in the accompanying image.

3. Shape foil in any shape that you feel will hold the most pennies. You can use any object as a template or mold.

4. Use the tape to hold the boat together. You can also use the tape to increase the height of the sides of the boat.

5. Your boat is ready to float and take on pennies.
6. Now the contest begins. The boat that holds the most pennies wins. Make sure you load the pennies evenly.

Students	Project	Materials	Link video
Group 9 **Priscila Guerrero** **Raúl Sifontes** **Fernanda Sayes**	**Electric circuit**	a battery (4 volts recommended) Conductor: a wire A basic on/off switch Consumer: a lamp use your creativity to build a beautiful park	**http://youtu.be/_tyBBxA0hto** **http://youtu.be/PzaYDnT0GWg** **You are going to design a park**

SCIENCE FAIR PROJECTS 2012
TEACHER CARMINA GALDAMEZ
2nd GRADE

Students	Project	Materials	Link video
Group 1 **David Guzman** **Marcela Tudo** **Diego Avendaño** **Paola Lopez**	**BALLOON ROCKET CAR**	• 16-20 oz. plastic water bottle • Drinking straws • Wooden shish-kabob skewers • 4 plastic bottle caps • Balloon • Duct tape or masking tape • Nail, hammer, knife, scissors	**http://youtu.be/A963BG3k_h4**

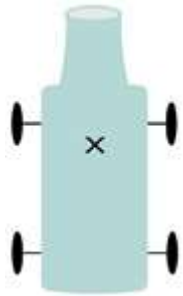
Procedure

The water bottle forms the *chassis*, or body, of your balloon car. You can start by mounting the wheels on this body.

1. Cut a drinking straw into two pieces as long as the water bottle is wide. Use strips of tape to attach them to the bottle - one near the front and one near the back. The axles for the wheels will run through these straws, so line them up carefully so the wheels won't be crooked.

2. Use a hammer and a small nail to poke holes through the center of four bottle caps. Cut two pieces of a wooden skewer about an inch-and-a-half longer than the pieces of straw you taped to the bottle. Push one end of each skewer through the hole in the center of a bottle cap. If the cap doesn't fit snugly on the skewer, use some modeling clay to hold it in place. Next, thread the skewers through the straws on the bottle and attach the other wheels to the other ends. Make sure your car rolls smoothly.

3. Stretch out a large balloon by blowing it up and then letting the air out of it a few times. Next, make a nozzle. The size of the nozzle is very important. If it is too small, the air can't escape with enough force to propel the car forward. If it is too big, the air will escape too fast and the car won't go very far. Create the nozzle by taping four drinking straws together. Insert the straws into the mouth of the balloon and seal the opening by wrapping a strip of duct tape around it several times.



4. To mount the balloon/nozzle on the car, use a knife to cut two perpendicular slits (to make an X) in the top of the car about 4" back from the mouth of the bottle. Thread the nozzle through this opening and out through the mouth of the bottle. Leave about an inch of the nozzle sticking out of the mouth.

5. Find a hard surface, like a long table, linoleum floor, or sidewalk. Blow up the balloon through the straws at the mouth of the bottle. Pinch the base of the balloon to prevent the air from escaping too soon. Set the car down, let go of the balloon, and watch it go!

The air in the balloon is gas under pressure. The air pushes against the balloon, causing it to expand, but the balloon is also pushing back on the air. The pressure of the balloon pushes the air right out through the nozzle, which creates thrust that propels the car forward.

Keep track of how long the car rolls and how far it goes. Try it several times, then try changing the design to see if you can get it to go farther or faster. How will it work if you only use three straws for the nozzle? What if you use a bigger or smaller balloon? Does the car go farther on linoleum or the sidewalk? Why do you think this might be? Will the car go farther if you start it at the top of a ramp?

Decorate your car and have races with siblings or friends. Try to figure out why one car goes faster or farther than another, and keep experimenting to make your design better!

Students	Project	Materials	Link video
Group 2 Alejandra Portillo Ivan Escalante Rodrigo Batarse Paola Diaz	Solar hot dog cooker /	• Pizza box • Black construction paper • Wide • aluminium foil sheet of plastic • Glue • Tape • Scissors • Ruler • Marker • String • Nail • Skewer • Hot dogs/ pancakes	Thea teacher will provide photocopies for this project.

Students	Project	Materials	Link video
		• 2 2-litre pop bottles with	

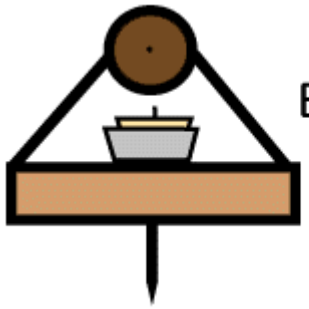
Group 3 **Sebastian Menendez** **Yahir Deras** **Emily Aleman** **Ernesto Morales**	**Tornado**	caps • Duct tape • Silicon caulking • Water • Drill (get an adult's help with this) • Food colouring (optional) • Plastic confetti (optional)	http://youtu.be/mzw3DcDbllg

Students	Project	Materials	Link video
Group 4 **Yuliana Acevedo** **Alejandro Alvanes** **Valeria Orellana** **Mauricio Escalante**	**Steamboat**	1. Metal tube (a cigar tube works great -- ask an adult to get you one) 2. Two pieces of strong, stiff wire (like clothes hanger wire) about 18-inches long 3. Cork that fits snuggly into the end of the tube 4. Two food warmer candles (in metal cups) 5. Balsa wood (4 inch by 8 inch, 1/2-inch thick) 6. Masking tape 7. Hammer and three nails 8. Matches	

1 Put the cork into the end of the metal tube making sure its very tight. Carefully poke a hole through the cork with a nail.

2 Take the two 18-inch lengths of wire. Wrap the wire around metal tube about one-inch from each end of the tube, and twist the wire tightly with the pliers so the tube is firmly held by the wire and won't slide.

3 Cut a boat shape out of the balsa wood, making a triangle bow at one end. Hammer two large nails in each end about one inch in from each end. The nails will help to stabilize.



Back View

4 Mount the two candles about 1-1/2 inches from each end of the wood. Use loops of masking tape to stick the metal cups to the wood.

5 Take the tube with the wire and mount the tube so the wire will hold the tube just above the candles. Wrap the ends of the wire around and under the board and twist the ends neatly on the

underside. (See picture.)

6 Carefully remove the cork from the tube and fill the tube about three-quarters full with very hot water. Tightly replace the cork. Make sure water will drip out the hole in the tube.

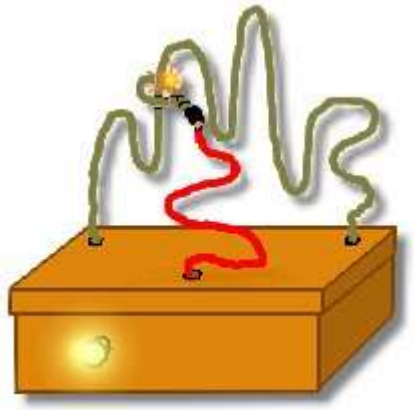
7 Fill up a bath tub or a large sink with water.

8 Put your boat in the water and ask an adult to carefully light the candles.

Students	Project	Materials	Link video

Group 5 **Juan Pablo Queralt** **Cesar Estrada** **Melani Sagastume** **Paola Zepeda**	**Steady Hand**	**Materials Needed:** • shoebox • tape • 1 metre of florist's wire (or other bare wire) • 1/2 metre insulated wire • 9v battery • flashlight bulb (or small buzzer) • ballpoint pen • wire cutters	

Test Your STEADY HAND



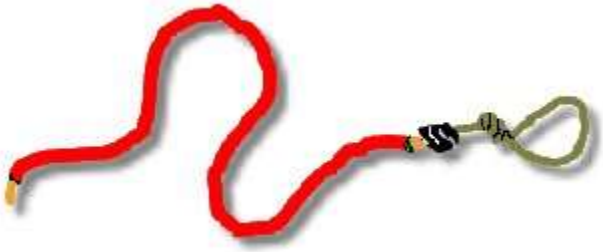
Step 1:

Use the ballpoint pen to poke three holes in the lid of the shoebox, as shown.

Step 2:

Snip off about 2 cm of the insulated wire and put it aside for later.

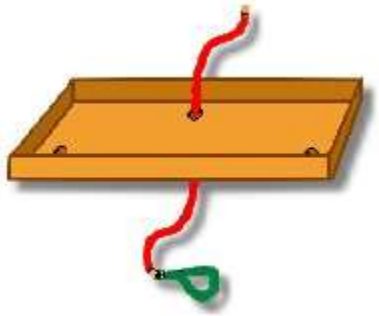
Bare both ends of the remaining wire. Now fashion a small loop out of a short piece of the florist's wire, and twist it onto one end of the insulated wire. Seal the join with tape.



The size of the loop will determine how easy or difficult it is to win the game; the smaller the loop, the harder it is to win. You can modify the size of the loop later if it proves to be the wrong size.

Step 3:

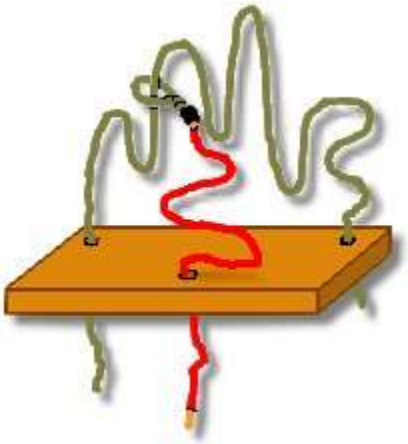
Pass the wire through the single front hole in the box lid, as shown.



Step 4:

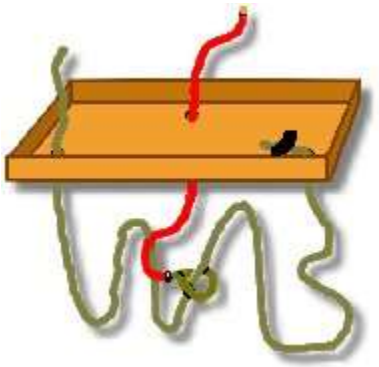
Transform the remaining florist's wire into a series of bends; make sure that the bends aren't too close together, and that they don't touch. Make as many bends as you want. (The more bends there are, the harder the game is to win.)

Pass the loop you made in step 3 onto the wire with the bends, and then insert the ends of this wire into the remaining two holes in the lid, as shown.



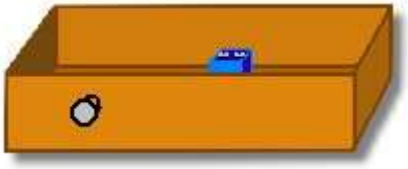
Step 5:

Turn the lid over and tape down the end of the wire on the right.



Step 6:

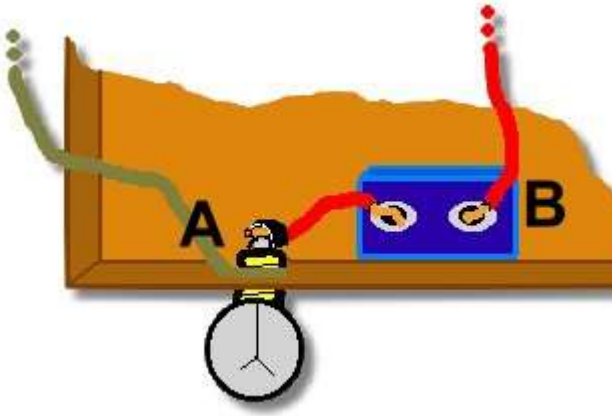
Make a hole in the left front side of the box and insert the lightbulb, as shown. Place the 9v battery in the box.

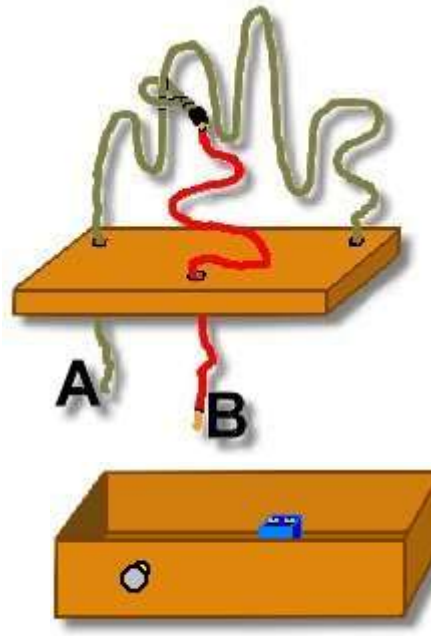


Note: The game is much more fun if you can find a buzzer to replace the lightbulb; wire it like the bulb is wired, as shown below.

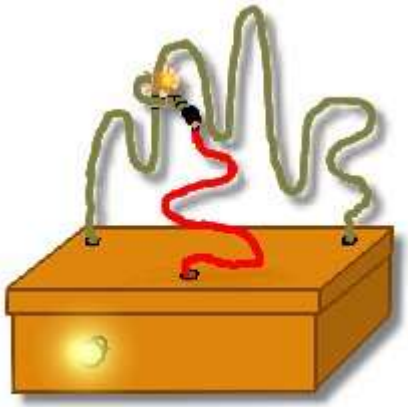
Step 7:

Now we'll show you how to connect the wires.
In order for the game to work, electricity must flow from one terminal of the battery, in a closed path (called a *circuit*), back to the other terminal.

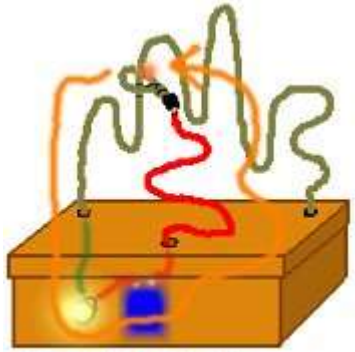




Attach wire **A** to the shank of the bulb; twist it on tight and use tape to hold it. Now get that short piece of insulated wire we cut off at the start, bare both ends, and attach it to the bulb socket tip, and one battery terminal. (Use tape to attach it to the socket tip; if you know how to use a soldering iron, a little solder will hold it permanently in place). Finally, attach wire end **B** (this is the insulated wire with the loop) to the other battery terminal.



Now the game is ready to play. The object is to move the loop around the bends in the wire shape, from one end to the other, *without letting the loop touch the wire*. if the loop is very small, this can be very difficult to do! You'll know when you lose, because the lightbulb (or the buzzer) will come on! When this happens, it means the wire has made a complete circuit.



Complete circuit

Students	Project	Materials	Link video
Group 6 **Ashley Portillo** **Douglas Mancia** **Carlos Lopez** **Alexandra**	**Generator from motor**		http://youtu.be/AP1dSzBEk5c

Students	Project	Materials	Link video
Group 7 **Maya Castillo** **Mauricio Jimenez** **Sebastian Castaneda** **Erika Garcia**	**Viscosity wands**		**The teacher will provide you some photocopies**

Students	Project	Materials	Link video
Group 8 **Cesar Gomez** **Luciana Tobar** **Miguel Reyes** **Adriana Romero**	**Sticky Water**		**The teacher will provide you some photocopies**

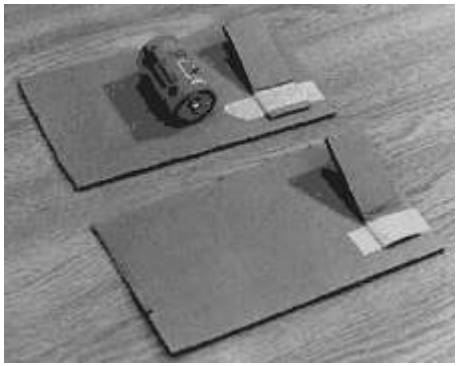
SCIENCE FAIR PROJECTS 2012
TEACHER CARMINA GALDAMEZ
3rd GRADE

Students a	Project	Materials	Link video
Group 1 **Neftaly Figueroa** **Maria Laura Argumedo** **Luis Fernando Batarse** **Josseline Recinos**	**Talk by lightning telegraph**	• two pieces of cardboard approximately 20 cm x 10 cm • two pieces of cardboard approximately 3 cm x 8 cm • three pieces of wire approximately 19 cm long • three long pieces of wire (see note) • one new "D" cell battery • four thumbtacks • two lights (see notes) • wire strippers (or scissors) • pliers • tape	

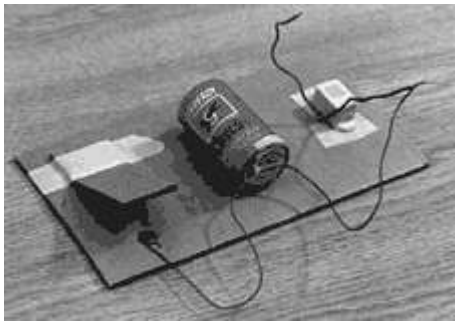
Instructions

1. Using wire strippers or scissors, remove about 1.5 cm of the plastic insulation from the ends of each piece of wire.

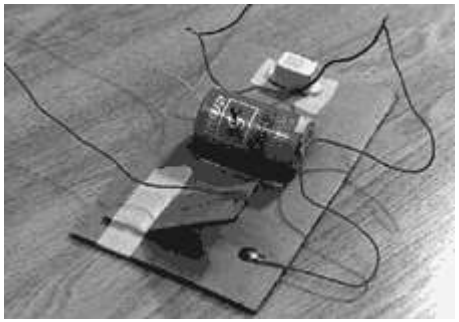
2. We will need to distinguish between the three long pieces of wire. The easiest way to do this is to put a piece of tape on each and letter one A, one B, and one C.



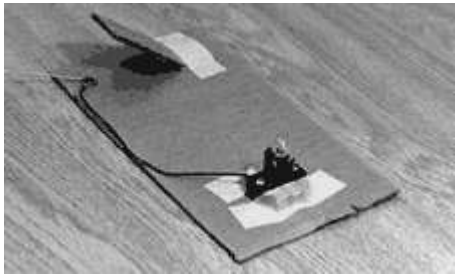
3. Put a bend in each of the two small pieces of cardboard about 2 cm from one end. Tape these pieces to the right side of the larger cardboard pieces. These will be the switches.
4. Tape the battery to the centre of one of the large pieces of cardboard. The positive (knobby) side should be positioned as in the photograph.



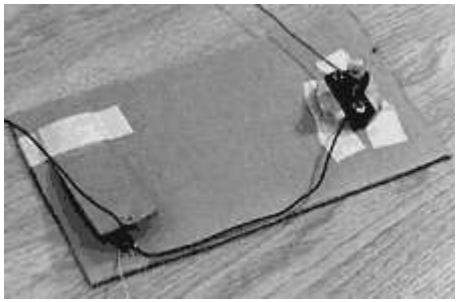
5. Tape two of the short wires to the negative (flat) side of the battery. It's important to make sure the metal from the wire is making contact with the metal part of the battery.
6. Push a tack through the larger piece of cardboard right underneath the cardboard switch.
7. Make a loop in the free end of one of the pieces of wire taped to the battery and hook it around the tack. Use pliers to bend the tack over on the other side of the cardboard so the wire won't slip out.
8. Tape the buzzer to the other side of the large piece of cardboard.
9. Twist the free end of the second wire to the buzzer's black wire. Make sure the metal parts are touching one another. It's also a good idea to wrap tape around the twist to make sure it doesn't come apart.



10. Push a tack up through the underside of the cardboard switch. When you push the switch down, the two tacks must touch.
11. Put a loop in one end of wire A, and hook it around the tack. Use pliers to bend the tack as before.
12. Tape one end of wire B to the positive (knobby) end of the battery. Remember the metal of the wire must touch the metal on the battery.
13. Twist one end of wire C to the red buzzer wire. Wrap tape around the twist.



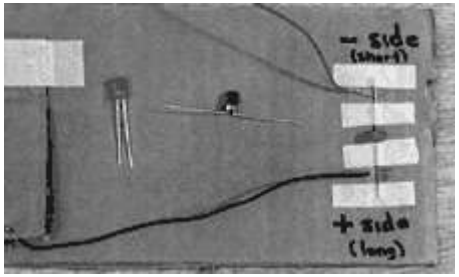
14. Push a tack through the second large cardboard piece below the free end of the cardboard switch. Put a loop in the free end of wire B and one end of the remaining short wire. Hook both wires around the tack. Use pliers to bend the tack back.
15. Tape the light to the other side of the piece of cardboard as shown.
16. Attach the free end of the short wire to the light.



17. Attach the free end of wire A to the other side of the light.
18. Push a tack up through the underside of the cardboard switch. When you push the switch down, the two tacks must touch.
19. Put a loop in the free end of wire C, and hook it around the tack. Bend the tack back.

That's it. Pushing down on the switches completes the electric circuit and turns on the light (or sounds the buzzer)
on the other piece of cardboard. If it doesn't work, check your connections: wire has to be touching wire (or tack)
at each connection. If it still doesn't work, try pushing the wires more firmly against the ends of the battery.

One final note. If you are using LEDs, you may find them hard to connect to the wires. The photo below shows
one easy way.



Morse Code

To send a dot, press down and immediately release the switch. A dash lasts three times as long as a dot. A space between letters is the same length as a dot; a space between words is the same length as a dash.

A .-
B -...
C -.-.
D -..
E .
F ..-.
G - -.
H ....
I ..
J .- - -

K -.-
L .-..
M - -
N -.
O - - -
P .- -.
Q - -.-
R .-.
S ...
T -

U ..-
V ...-
W .- -
X -..-
Y -.- -
Z - -..
Period .-.-.-
Comma - - ..- -
Out .-.-.
(message done)

Students	Project	Materials	Link video
Group 2 **Javier Ortiz** **Ariane Saade** **Sofia Carranza** **Jose Luis Rodriguez**	**Franklin´s bell**	•	http://youtu.be/4ODDGRiEjyA

Students	Project	Materials	Link video
Group 3 **Mariana Palomo** **Rafael Menendez** **Fares Galán** **Allison Aguilar**	**Ice Cream**	**Page 142**	**Science concoction book**

Students	Project	Materials	Link video
Group 4 **María José Portillo** **Diego Vasquez** **Emma Vasquez** **Luis Tobar**	**Streaky paper**	• **color chalk** • **paper or plastic cups** • **rolling pin** • **vinegar** • **zip lock plastic bags** • **plastic spoon** • **large plastic bowl** • **newspaper** • **water** • **cooking oil**	**Science experiment book**

Students	Project	Materials	Link video
Group 5 **Andrea Ibañez** **Daniel Cabrera** **Vanesa Cabrera** **Francisco Martinez**	**Coin battery**	•	**http://youtu.be/a4n1HlsfjZM**

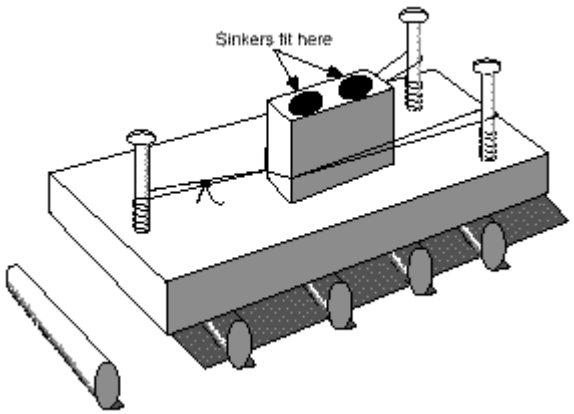
Students	Project	Materials	Link video
Group 6 Marcela Rodriguez Jose Pacheco Walter Juarez Salvador López	**Electric Generator** /		http://youtu.be/xhgHwlj9JPw .

Students	Project	Materials	Link video
Group 7 **Gisela Rios** **Ileana Juarez** **Emilio Saade** **Juan Pablo Morales**	**Serial and paralel circuits**	This is a homemade series circuit consisting of 6 1.5 Volt "D " Batteries, 4 Small DC motors, and 1 Small Lighbulb.	**http://youtu.be/MEimw6IA_qg** **http://youtu.be/WVzX2VOr0VY** **http://youtu.be/PzaYDnT0GWg** **you are free to choose building the house or a hotel**

Students	Project	Materials	Link video
Group 8 **Rene Gomez** **Ricardo Barcenas** **Gabriela Nuñez** **Isabel Salinas**	**Water rocket**		**http://youtu.be/1t663D_gErg**

SCIENCE FAIR PROJECTS 2012
TEACHER CARMINA GALDAMEZ
4th GRADE

Students	Project	Materials	Link video
Group 1 **Mario Arevalo** **Fatima Escobar** **Cecilia Linares** **Jose Salmeron**	**Newton car**		**http://www.teachertube.com/viewVideo.php?video_id=69563&title=Newton_Car_Experiment**

- 

- 25 straight straws (not flexi)
- rubber bands
- string
- block of wood, about 10x20x2.5 cm

- 3 3-inch #10 wood screws
- wood plane
- scissors or matches
- plastic film container
- screwdriver
- pennies or other small weights

    - 1

      Use the plane to round out the front lower edge of the block of wood.

      This will be one of the 10 cm edges. (Picture the block lying flat.) Doing so will allow the car to travel over the straws laid in its path.

    - 2 Screw the three screws into one of the two broad sides of the board, so as to form a triangle centered on the board.

      Two screws will be close to the corners at the end of the board opposite the end that was planed. The third will be at the other, planed end of the board, some 20 cm away, centered between two corners on its own end.

    - 3 Loop a rubber band over the back pair of screws, then pull it forward and tie its center to the third screw with a piece of string.
    - 4 Make a track for the car with equally spaced straws in front of its planed end.
    - 5 Place the film container onto the board, inside the V-shape made by the rubber band. Fill it with weights, e.g., pennies.
    - 6Place the board flat on top of the straws, screw and weight side up.
    - 7 Cut or burn the string to release the rubber band, sending the film container and the car in opposite directions, having exerted equal and opposite forces on each other. The car will accelerate over the straws, which will provide a near frictionless path.

Students	Project	Materials	Link video
Group 2 **Mariella Guzman** **Gerardo Molina** **Camila Figueroa** **Felipe Bolaños**	**Red Cabbage ph indicator** /	In the photocopies	http://youtu.be/6fc8KBz_I9s

Students	Project	Materials	Link video
Group 3 **Valeria Marroquin** **Paola Salguero** **Steven Sanabria** **Benedicto Herrera**	**Rocket**		**http://www.cienciafacil.com/CoheteHid.html**

Students	Project	Materials	Link video
Group 4 **Maria A. Carranza** **Florence Valdes** **Jordan Alvarez** **Gabriela Magaña**	**Giant bubbles**		**http://youtu.be/gQmpVIgDvgQ** **http://youtu.be/PkVrShL6CFk** **http://youtu.be/ph-15dE2EqQ**

Students	Project	Materials	Link video
Group 5 **William Mancia** **Alejandra Jolozides** **Manuel Rodriguez**	**Electric circuit (a city)**	**you have to be very creative to build your own city with lights**	**http://youtu.be/dW3ROe_Z-XY** **http://youtu.be/PzaYDnT0GWg**

Students	Project	Materials	Link video

Group 6 **Johnny Atanacio** **Camila Acevedo** **Luis Rodriguez** **Fernanda Valdez**	**Pop pop boat**	- two 2-litre (1/2 gallon) milk cartons with ends cut off - two flexible drinking straws - one (used) birthday candle, only 1 1/2 cm long - large paper clip - soft drink can, the thin, aluminum, 355 ml type - aluminum foil (only about 20 cm off the roll) - metal tape, 5 cm wide; a piece only about 10 cm long, cut lengthways into 3 equal strips	**http://youtu.be/l66rdJjKL_Y** **http://www.sticksite.com/putputboat/**

Students	Project	Materials	Link video
Group 7 **Adrian Benitez** **Paola Arias** **Karen Guillen** **Fernando Martinez**	**Foxhole radio**	•	**http://youtu.be/Dx_CYXQygCg**