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I. Hantschk/H. Fibi present: Science Hits 4 Kids

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In-Service-Teacher-Training

Science Hits 4 Kids

University of Education Vienna

**Low-Cost-Experiments
and Didactics**

Material and Experiments for Classroom-Teaching

**Biology
Chemistry
Physics
Primary Science
Safety and Security**

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Electric Current



**The switch is open,
the electric circuit is
interrupted.**

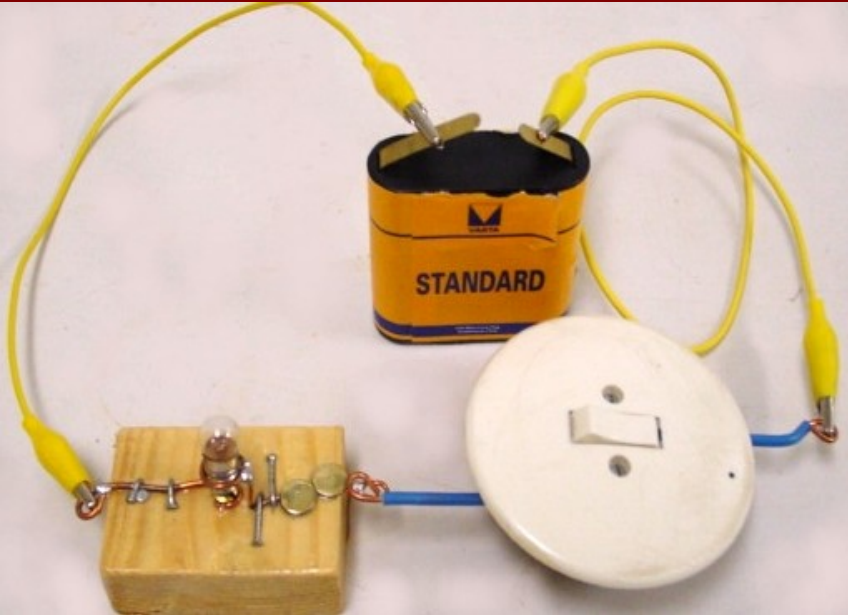


**This electric circuit is
closed.**

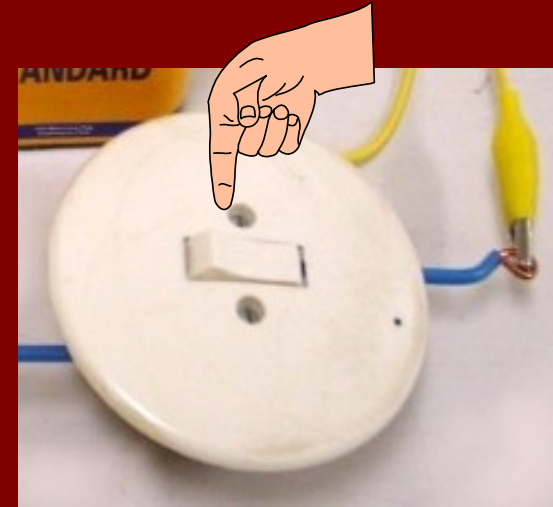


How to build an electric circuit.

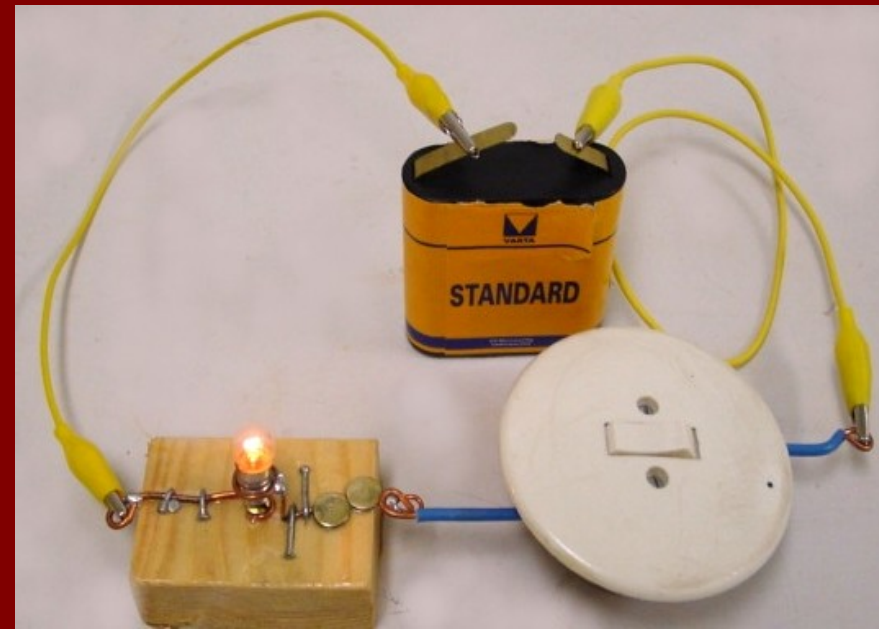
The electric circuit is open.



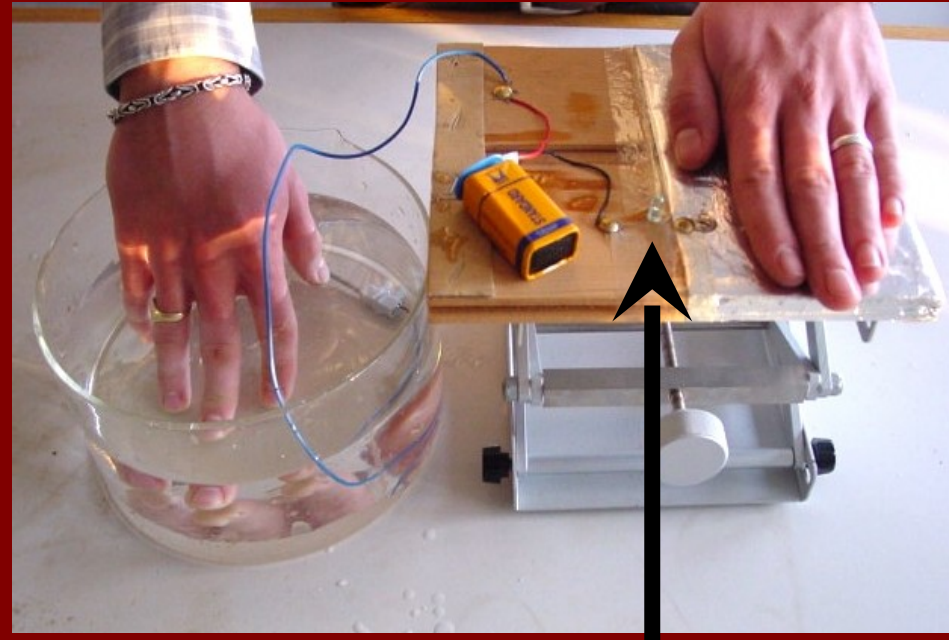
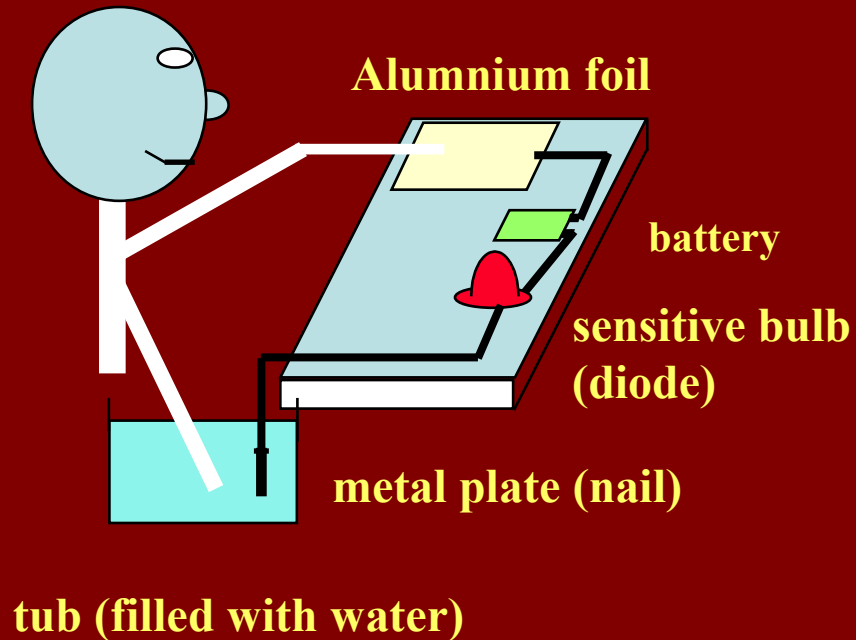
Depress
the
switch.



The electric current is closed.



Water and Electricity are a dangerous Couple !



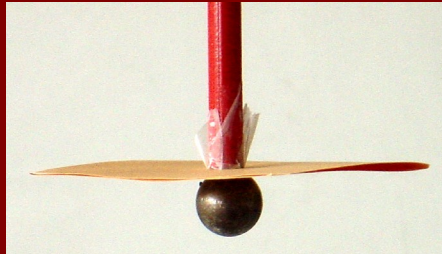
The diode shines only poor because of the low, not dangerous electric current.



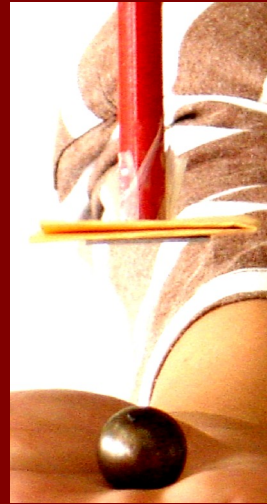
Magnetism



magnets
float



The iron sphere
adheres...



This iron sphere
falls down...

Why does this work ??



Self-made Compass

**Paralleled you get competence -
scientific vocabulary in English**

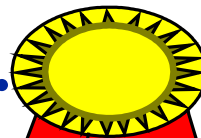
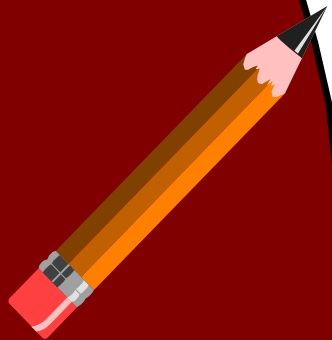
Magnetic Levitation

For enabling magnets
to float,
the

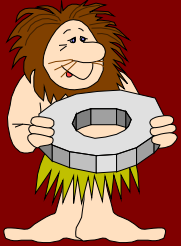
.....

magnetic poles

..... one another.



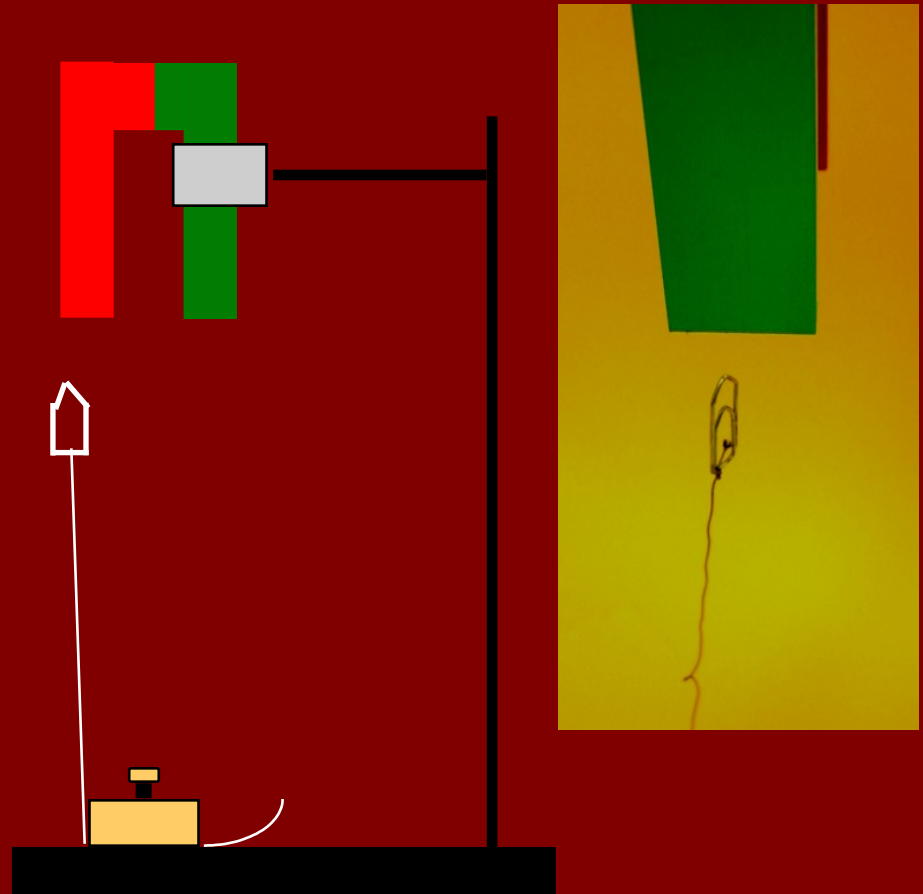
Does the Clip float ?



horse-shoe-magnet
stand rod (wood),
 $l = 1 \text{ m}$
boss
clamp for magnet
thread
mass
paper clip



**Tie a clip to a thread.
Adjust the length of the
thread by means of the
mass so, that the clip
floats.**



Magic with Air



funnel on top

Seal made of e.g. modelling clay

**Water cannot flow into the bottle,
because the air inside cannot escape.**

**If the seal is penetrated by a needle,
then air escapes and water flows into
the bottle.**



Magic with Air

Water flows into the cylinder,
but does not leave it !

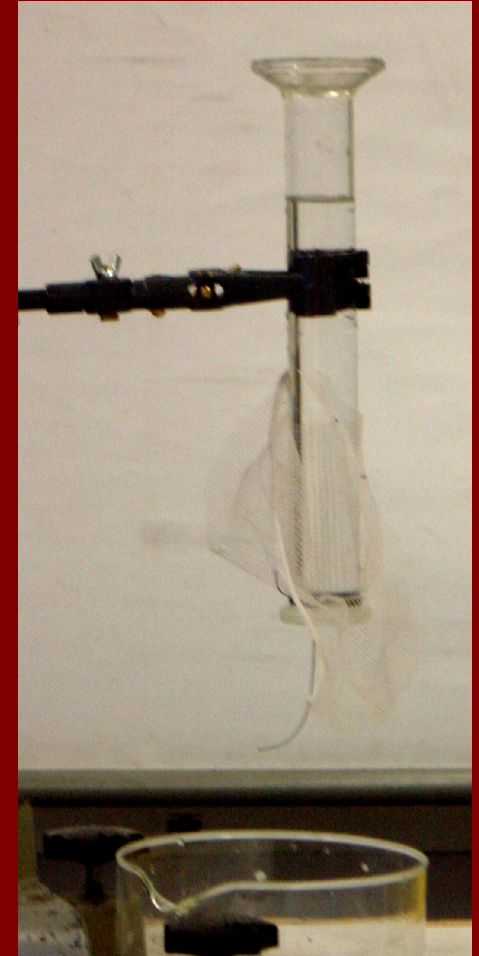


It clatters
because the coin jumps.

Who has squashed
the oil tin ?



The standard level rises !



The air stops it !

Blow Air into the bottle – get Water out !



Air blown into the bottle presses water out of it.

„Air-Tube“ has it's end in the air.

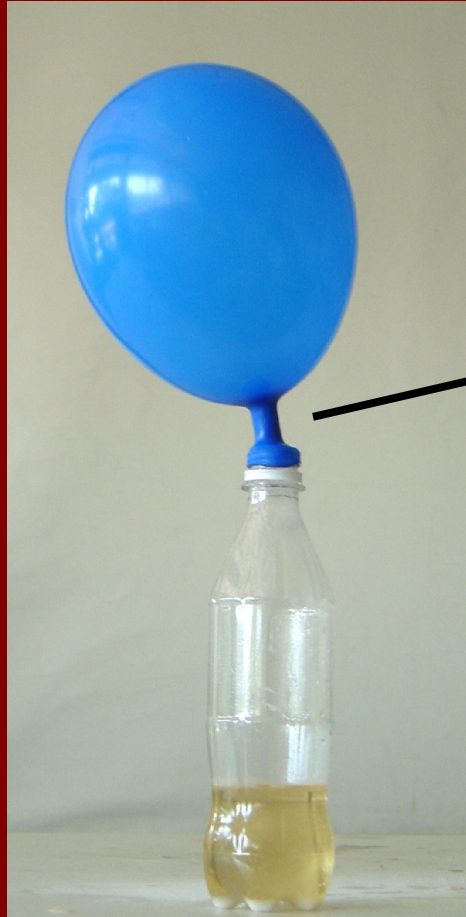
„Water-Tube“ is put into the water.

Inflating with Carbon Dioxide

A balloon is filled with sodium hydrogen carbonate, vinegar is poured into a plastic bottle. Then the balloon's contents is poured into the bottle, too.

Sodium
Hydrogen
Carbonate
in the
Balloon

vinegar



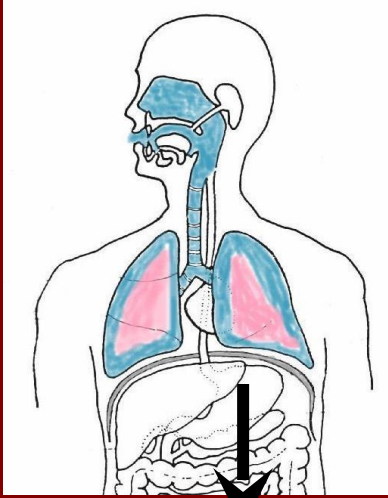
The generated CO_2
inflates the balloon.

Tie up the ballon
and set it free.



Tie up the opening of this ballon filled with carbon dioxe and let set the balloon free.

The Lung's Function



downwards: breath in
upwards: breath out

Diaphragm

„Bottle-Thorax“

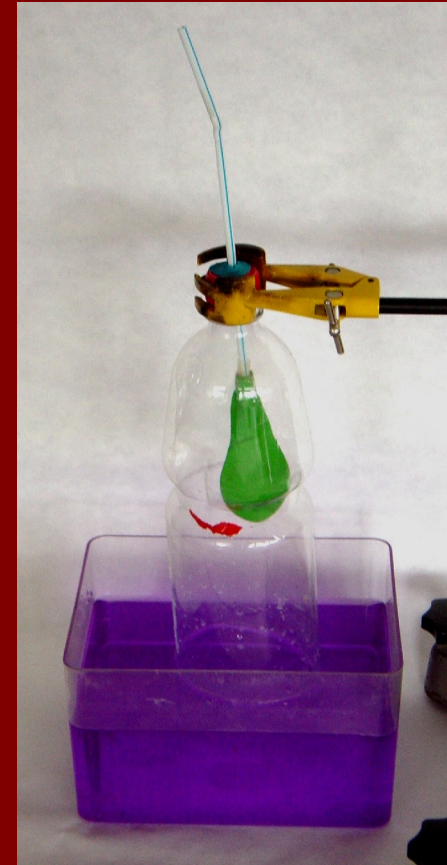
„Balloon-Lung“

„Lung“

„Diaphragm“



downwards: breath in
upwards: breath out

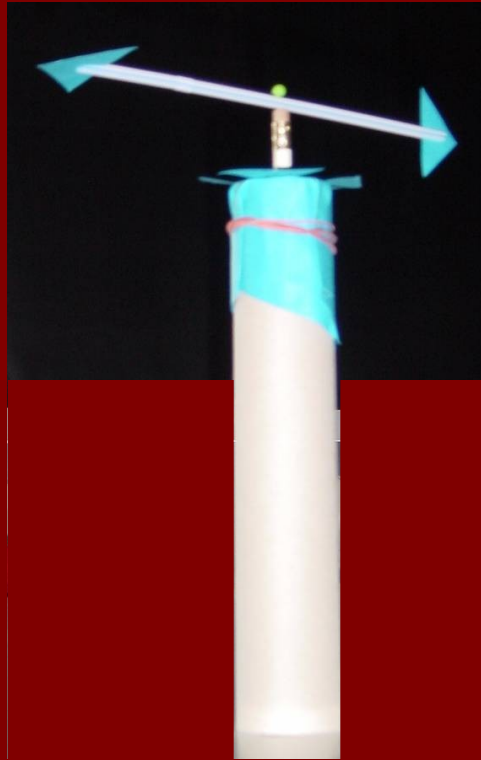


Moving down – smaller volume
- air is pressed out of the lung
Moving up – larger volume –
air is sucked into the lung.

and much more...



**Building a
Merry-Go-Round...**



**From where does the
wind come ...**



**Of what colours does a colour
consist ?**

