

ISTITUTO COMPRENSIVO TRENTO 5

Scuola secondaria di primo grado "G. Bresadola"

a. s. 2015/2016

Electromagnetic gru

progetto realizzato da

Caterina Ceresi, Anna Corni, elisa Sartori

classe 2[^] bilingue

Open day scienze – 16 dicembre 2015

PURPOSE

We'd like to see if a nail connected to a battery can attract metal (like clips) like a magnet does.

QUESTION

If we want to lift some metal, can we use a nail connected to a battery or we have to use a magnet?

HYPOTHESIS

We think the nail will lift some metal because the battery gives electricity to the nail that becomes a magnet.

SOMETHING ABOUT ELECTROMAGNETISM

Electromagnetism is the union between magnetism and electricity. If you put together some iron (the nail) with electricity (the battery), the iron should become a magnet and so lift some other iron (some clips).

INDEPENDENT VARIABLE

We will try to use a magnet in place of the nail connected to a battery.

CONTROLLED VARIABLES

The clips, the structure of the "lifter", the environment where the experiment is conducted.

DEPENDENT VARIABLE

The nail attract the iron but cannot lift it, the magnet can attract some clips if they are 1 cm near.

PROCEDURE

1. Made the structure “lifter” with the cardboard and the wood boxes
2. Wrap the wire around the nail and connect to the other wire
3. Connect both wires to the battery
4. Try to lift some clips
5. Try to put a magnet at the place of the nail and see if it can lift something and what he can lift

MATERIALS

- 1 wood box
- 1 big cardboard box
- 1 long and straight cardboard box
- 2 electric wires
- 1 small paper cylinder
- 1 battery
- 1 nail
- 1 magnet
- some clips

RESULT

You don't always need a magnet to attract the nail, because if you put a nail and a battery together it works in the same way.

CONCLUSION

Our hypothesis was right, because a nail collected to a battery behaves like magnet. However the magnet can lift clips while the "electromagnetized" nail can't: it seems that the force of the magnet is higher than the gravity force.

	CAN IT ATTRACT...		CAN IT LIFT...	
	A NAIL	SOME CLIPS	A NAIL	SOME CLIPS
NAIL + BATTERY	No	Yes	No	No
MAGNET	Yes	Yes	Yes	Yes