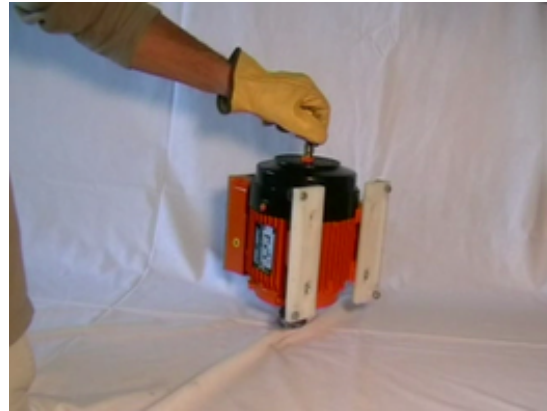


## Application No. 194: Series of experiments

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### Stunning and educational experiments for pupils

Mr. Coulon is a teacher at the grammar school E. Belin de Vesoul. He regularly conducts magnet experiments with his students. Some of them he captured on video. The first two videos demonstrate the strong adhesive force of our largest disc magnet ([www.supermagnete.de/eng/S-45-30-N](http://www.supermagnete.de/eng/S-45-30-N)).



In video 3 and 4, Mr. Coulon experimented with two large copper discs and supermagnets (disc magnet and block magnet Q-40-20-10-N ([www.supermagnete.de/eng/Q-40-20-10-N](http://www.supermagnete.de/eng/Q-40-20-10-N))); here the Faraday Induction Law can be illustrated.

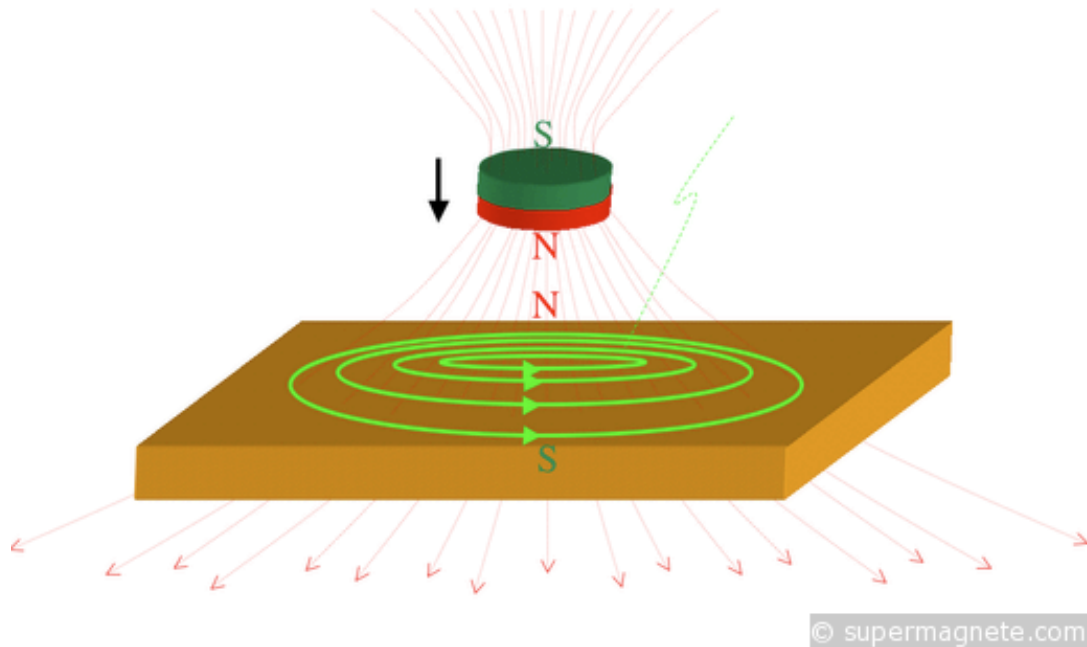


Have fun watching and doing it yourself - but always wear thick gloves like Mr. Coulon!

Youtube Video: [www.youtube.com/watch?v=CcMBmEUPnJ8](http://www.youtube.com/watch?v=CcMBmEUPnJ8)

Youtube Video: [www.youtube.com/watch?v=5KrDrBozebl](http://www.youtube.com/watch?v=5KrDrBozebl)

Youtube Video: [www.youtube.com/watch?v=eR38dhHW7Rc](http://www.youtube.com/watch?v=eR38dhHW7Rc)



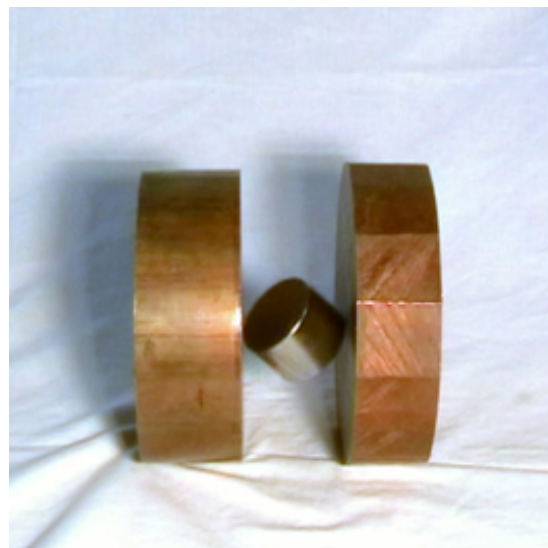
The physical explanation for this remarkable deceleration is the Faraday Induction Law:

Dropping the magnet causes a B-field flow change in the conductor board (copper in this case). That induces circular currents in the conductor (Foucault currents, green in the graph).

The induced currents in turn produce a magnetic field, which is opposite of the falling magnet (Lenz's Law ([en.wikipedia.org/wiki/Lenz%27s\\_law](http://en.wikipedia.org/wiki/Lenz%27s_law))), which slows it down.

The same effect can also be seen in the fourth video:

The Foucault currents induced in the copper discs cushion the moving speed of the magnet that is dropped in between.



Youtube Video: [www.youtube.com/watch?v=-KnfZdrONPE](http://www.youtube.com/watch?v=-KnfZdrONPE)



Note from the supermagnete team: Further experiments on the topic of induction can be found "here" ([www.supermagnete.de/eng/projects/induction](http://www.supermagnete.de/eng/projects/induction)).

### Articles used

S-45-30-N ([www.supermagnete.de/eng/S-45-30-N](http://www.supermagnete.de/eng/S-45-30-N))

Q-40-20-10-N ([www.supermagnete.de/eng/Q-40-20-10-N](http://www.supermagnete.de/eng/Q-40-20-10-N))

Online since: 10/03/2009

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