

Magnetic and non-magnetic substances



Physics

Electricity & Magnetism

Magnetism & magnetic field



Difficulty level

easy



Group size

1



Preparation time

10 minutes



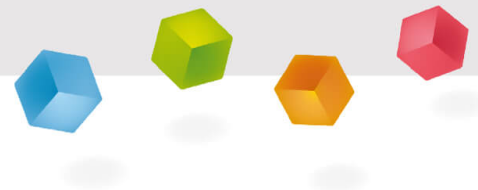
Execution time

10 minutes

This content can also be found online at:

<http://localhost:1337/c/5f4e9a0638db8d0003265b9f>

PHYWE



Teacher information

Application

PHYWE



Screwdriver on magnetic strip

In everyday life we often encounter magnets that we often don't even notice.

In many objects or devices it is exploited that certain materials are attracted by magnets.

Other teacher information (1/2)

PHYWE

Prior knowledge



The students should know which materials are made of iron or contain iron.

Scientific principle



In this experiment, the students investigate the magnetic behaviour of different materials when a bar magnet is approached. They observe that certain objects are attracted by the magnet and are able to divide them into magnetic and non-magnetic materials.

Other teacher information (2/2)

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Learning objective



The students should recognize that objects that are made of iron or at least contain iron are attracted by a magnet.

You can also see that the two pole ends of a magnet do not differ in their effect on iron bodies.

Tasks



1. Examination of objects made of different materials to determine whether they are attracted by a magnet.
2. Check whether the two differently coloured magnet ends have the same effect on the objects examined.

Safety instructions

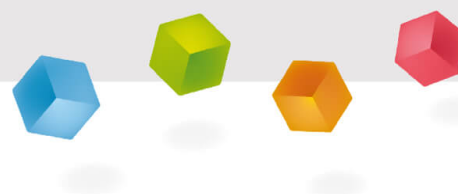
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The general instructions for safe experimentation in science lessons apply to this experiment.

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Student Information



Motivation

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Magnetic board

In everyday life you often encounter magnets that you often don't even notice. In many objects or devices it is exploited that certain materials are attracted by magnets.

You've probably seen a magnetic board before. When you hold a magnet to it, it gets stuck. For example, you can pin notes to it.

But why does the magnet stop at the blackboard? Do magnets stop at all objects or only at certain ones?

Tasks

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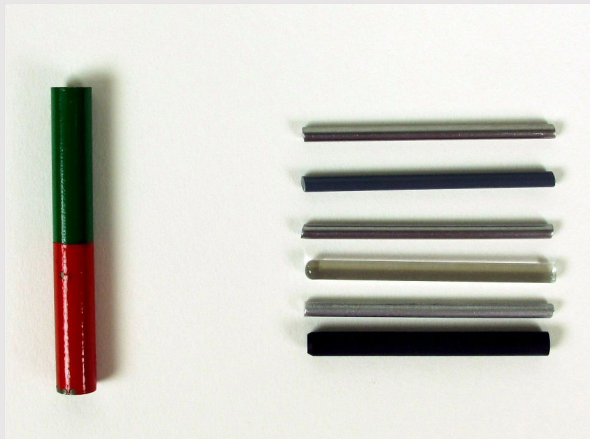
1. Examination of objects made of different materials to determine whether they are attracted by a magnet.
2. Check whether the two differently coloured magnet ends have the same effect on the objects examined.

Equipment

Position	Material	Item No.	Quantity
1	Magnet, d=8 mm, l=60 mm	06317-00	1
2	Conductors/non-conductors,l-50 mm	06107-01	1
3	Polycarbonate plate, 136x112x1 mm	13027-05	1

Set-up

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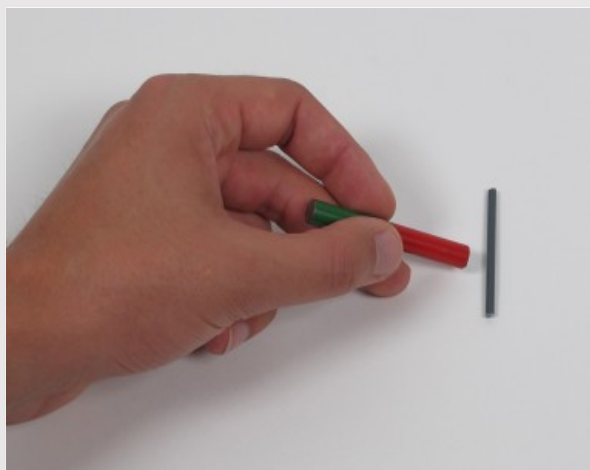
Set "leaders and non leaders"

Place all the rods from the set "Ladder and Non-Conductor" and the polycarbonate plate in front of you on the table.

Also select three items that you want to examine with the magnet.

Procedure

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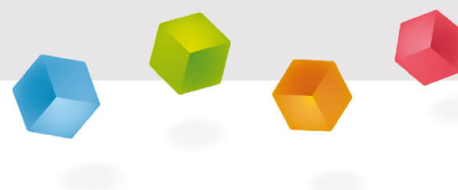
Touching the objects

Touch objects with the end of the magnet marked in red one after the other. See if the object is attracted.

Repeat the examination on all objects with the green end of the magnet.

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Report



Task 1

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The red side of the magnet pulls ... attracts.

☐ Plastics☐ Coal☐ Iron☐ Glass☐ Aluminium☒ Check

Does the green side of the magnet attract other objects than the red?

☐ no☐ yes☒ Check

Task 2

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What other objects have you found that are attracted by a magnet?

Task 3

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Use the right word:

Objects that are attracted by a magnet are made of

☒ Check

Are all metals attracted by a magnet?

☐ no☐ yes☒ Check

Task 4

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Select different coins. Make guesses as to which of the coins will be attracted by the magnet.

Then check with the magnet which coins are actually attracted.

☐ 10 cent coin☐ 5 cent coin☐ 1 cent coin☐ 2 cent coin☒ Check

Slide

Score/Total

Slide 13: Multiple tasks

0/3

Slide 15: Multiple tasks

0/2

Slide 16: Coins and magnetism

0/3

Total amount

 0/8 Solutions Repeat Exporting text