



WEEK 17: MAGNETS



Science in the News



Very small pieces of plastic are harmful for ocean life.
Photo credit: Tunatura/Getty

Parents:

For primary learners, work through our full 'magnets' lesson plan with your child. It is based around the national curriculum learning objectives found in the year 3 'Forces and magnets' topic. Download here - [Science Creates Outreach](#)

For secondary learners, the contents can be discussed in more depth using the [original online article](#). **

TINY MAGNETS THAT COULD CLEAN THE OCEAN!

There is a lot of plastic in the ocean. One of the big plastic polluters is microplastic, tiny, almost invisible plastics that are extremely harmful to fish and other nearby creatures.

For a long time scientists have been trying to find ways to remove this plastic from the ocean and now they have come up with a new idea - magnets! These tiny magnetic coils cause a reaction in the water which breaks down the miniscule plastics into material which isn't harmful anymore. Then, because they are magnets, they are attracted to one another; this makes them very easy to remove from the water once they have done their job! These magnetic plastic killing coils are still being developed, but could be a promising tactic for cleaning our oceans!



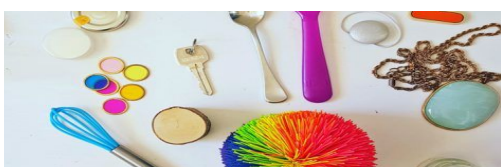
★ Try it at home - What are magnets attracted to?

What do you need?

- A magnet
- Plenty of household items such as: coins, tweezers, blue tac, kitchen foil, candles, metal forks, plastic toys, metal toys, wooden spoons, anything you like!
- Paper and a pen
- A ruler

Why does this work?

Only certain materials are attracted to magnets! This exercise is also good practice for working scientifically, making and testing hypothesis. If you want to learn more about the science behind this, check out our lesson on our website - [Science Creates Outreach](#)

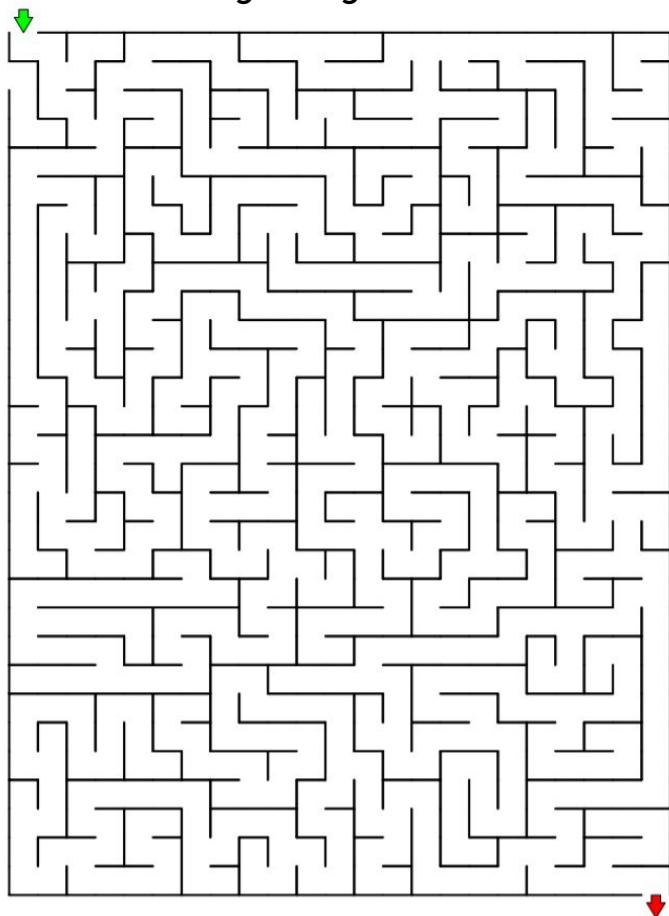


1. First, go through each item you have gathered and make a prediction. Decide whether you think it will be attracted by the magnet or not. You could create a table to record this.
 2. Next, make a list of the items in order, starting with the one you think will be most *strongly* attracted to the magnet.
 3. Then, draw a small cross on the far left side of your paper. Measure 1cm and make another mark. Keep measuring 1cm away and marking the paper. It would be useful to label the marks (see diagram left).
 4. After that, take one of your objects and put it on the cross. Hold the magnet right next to it. If it is not attracted to the magnet at all, make a note of that, but if it is, continue....
 5. Pull the object away from the magnet by 1cm and let go. Do the object and the magnet attract? If they do, move the magnet away by 2cm. Repeat this until they no longer attract together. Make a note of the final distance.
 6. Repeat with each object. Remember to write down whether it was attracted to the magnet or not, and if so, the distance.
 7. After you have repeated this you will have a complete list of what was attracted to the magnet and what wasn't, as well as which one was attracted the most strongly!
- Top tip - the stronger the attraction, the further away the object can be from the magnet.



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Make it magnetic! Check out our lesson for tips on making a magnetic maze!



Read, Watch, Ask



Have a read of our [lesson](#) to learn more about plants.



Watch magnets organise themselves and leap into the air [here!](#)*



Got any questions about today's topic? Email us at info@sciencecreates-outreach.co.uk and we'll answer them!



Did you know?

A magnet will always have two poles, even if you cut it in half!

If you cut a magnet in half, the side that used to be in the middle will now be the opposite to whatever side is left on the magnet. You can keep cutting again and again but all the magnets will have two poles!

Be Inspired!

In this section we interview inspirational members of the Science Creates science community so that you can learn more about different jobs, what they involve and how you can do the same! This week we interviewed Elena from a company called Anaphite.

What does Anaphite do?

Anaphite incorporates graphene into all kinds of stuff. Graphene is a single layer of carbon atoms that, when added into materials, can give them extra strength and electrical conductivity whilst keeping them super lightweight. For example, this can be used to make powerful long-lasting batteries for electric cars, or have a smartphone you can charge in seconds.

What is your job title and what do you do?

I'm a research scientist. I read a lot about certain topics or reactions I want to do, and then try them out in the lab. Things don't always go as planned, but it's always really interesting to see what comes out of the strange mixtures we create!

Do you like your job? Why?

There really is never a dull moment. Not only do I investigate awesome materials, I get to do so with a group of smart and talented people.

How did you get your job?

After finishing school, I studied Chemistry at university for four years. I had to study really hard, but really enjoyed the course. I started working with Anaphite right after graduating.

Have you always wanted to be a scientist?

I've always been really keen about sciences, and at school I could never choose which one I liked best. I feel like Chemistry is great to understand how the world works, but sciences interlink so much that all you need is a sense of curiosity, and a lot of passion and determination!

