Magnets push and pull

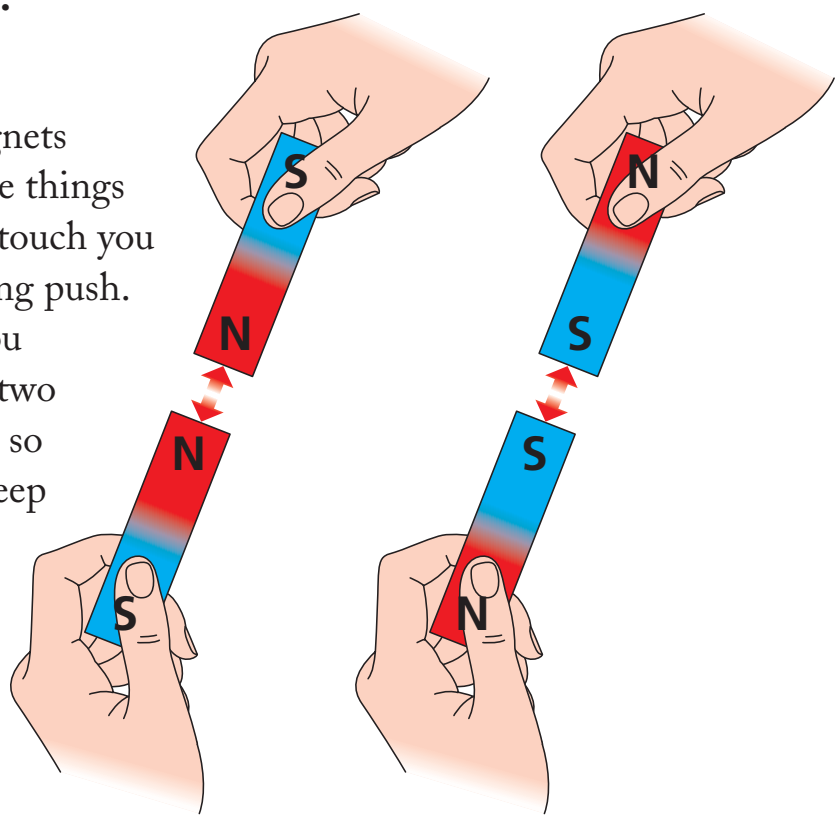
A magnet sometimes attracts, or pulls, and at other times it pushes, or repels.

If you bring the ends of two bar magnets close to each other, some very strange things start to happen. Before the magnets touch you will feel either a strong pull or a strong push.

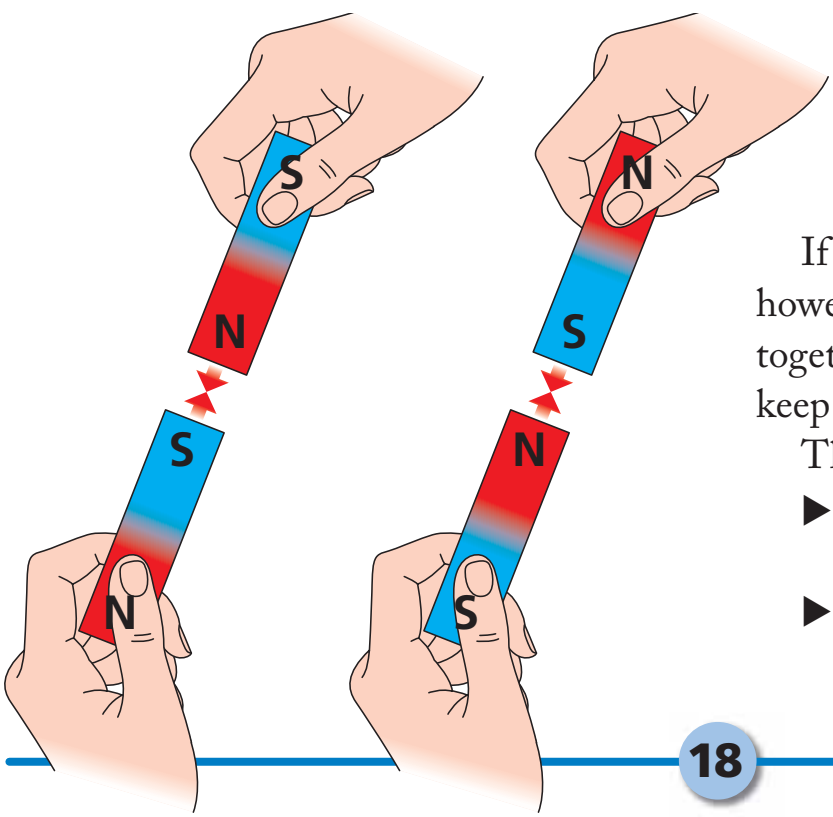
The push can be so strong that you may not be able to force the ends of two magnets together. The pull might be so strong that you may not be able to keep the ends apart.

The magnets you use may have N and S marked on them, or one end might be painted red. The red end is N.

If you try to push two N ends or two S ends together you will find the magnets push back (Picture 1).



▲ **(Picture 1) When you put the same ends of magnets together they push apart.**



◀ **(Picture 2) When you put opposite ends of magnets together they pull together.**

If you bring an N towards an S, however, you will feel the ends pull together and you will have to pull hard to keep them apart (Picture 2).

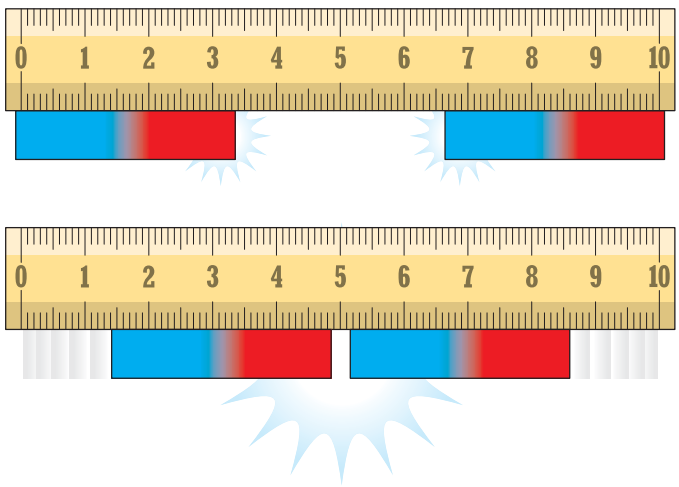
The rules are:

- The same kind of ends push away, or **REPEL** one another.
- Different ends pull on one another, or **ATTRACT**.

Magnets work better when closer together

Place two bar magnets on a table top. Have unlike ends facing one another and place them some distance apart, so they do not appear to affect one another (Picture 3). As you move them closer together you will find the attraction gets stronger and stronger. Magnets need to be close together to work strongly.

▼ **(Picture 3) The further apart the magnets are, the less they attract or repel.**



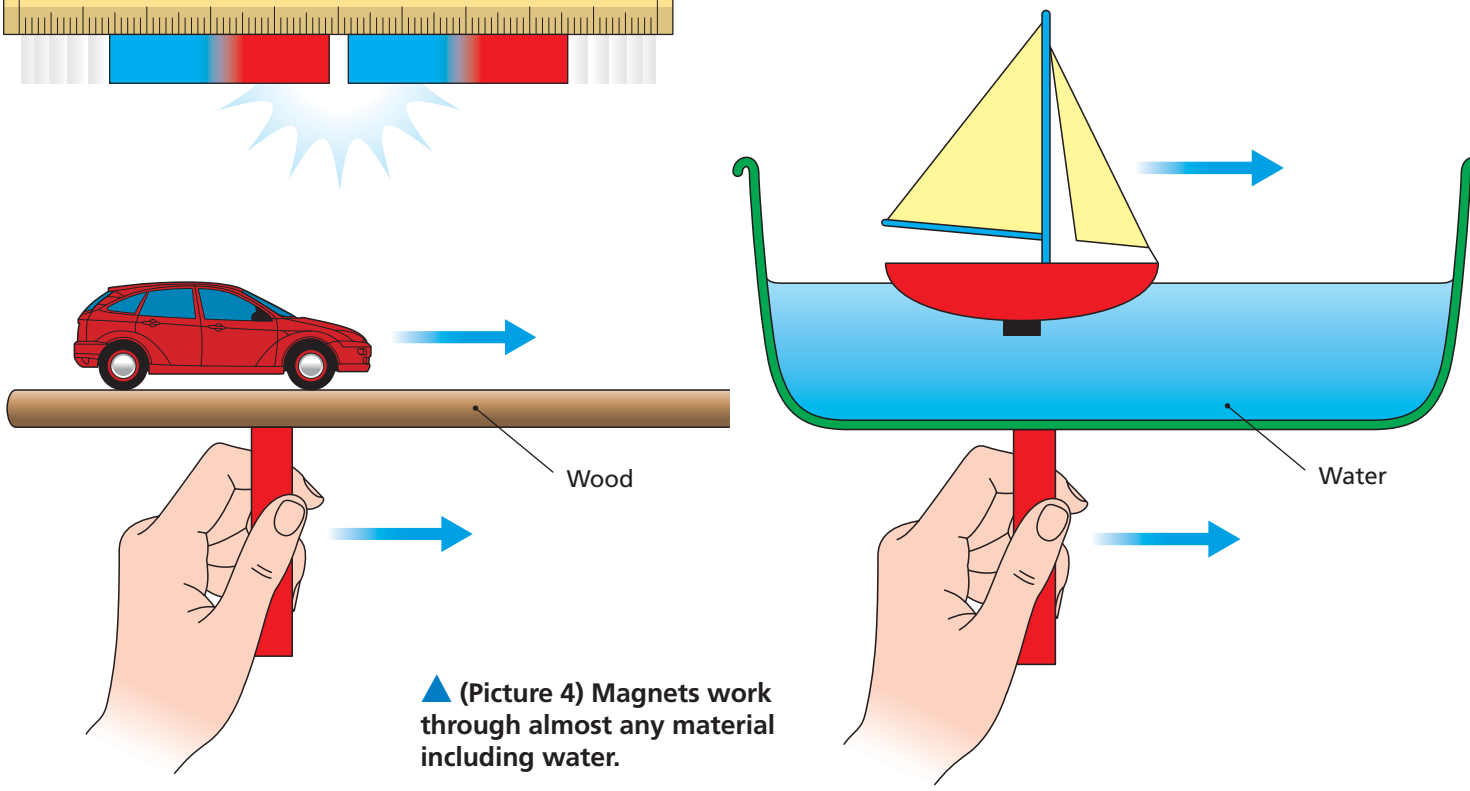
Magnets work through materials

We can see that magnets work through air, but can they work through other materials? Place a piece of paper between two magnets. Has the pull or push become weaker? The answer is that there is no difference.

Magnets work through water just as they do through air, wood or any other material (Picture 4). The only material magnets will not work through is iron or steel.

Summary

- **The same kind of magnet ends will repel each other.**
- **Different kinds of magnet ends attract each other.**
- **Magnets need to be close together to work.**



▲ **(Picture 4) Magnets work through almost any material including water.**

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