4.3 **Investigating the strength of a magnet**

Aim

1. **To determine how strong a magnet is, by picking up paper clips or staples.**
2. **To try and suspend a paper clip in mid air with a magnet.**
3. **To find what materials stop magnetism**

Equipment

2 bar Magnets, various sheets about 5cm square (paper, cardboard, plastic, metal) ruler, many paper clip or staples, cotton thread, stand to tie on cotton.

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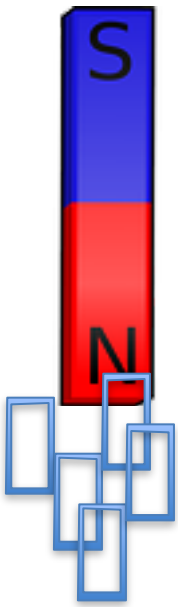
Experiment 1. Testing Strength



1. Test the strength of the first magnet at various positions around the magnet by picking up small metal pieces (paper clips or staples)
2. Record the number of paperclips it holds in the table.

3. Now test for the second magnet.

4. Now put the two magnets together so they attract and retest.

Results

	Count of number of paperclips or staples		
Positions of the magnet	**Magnet 1**	**Magnet 2**	**Two Magnets**
At one end			
At the other end			
At the side			

Conclusion

1. Which part of a magnet is strongest?

2. Which magnet is strongest?

3. Are two magnets stronger than one?

Experiment 2 Testing what stops magnetism

Do materials in between magnets and metal stop magnetism?

Try paper, cardboard, plastic and metal

Predict first:

Results

Material	paper	cardboard	plastic	metal
Did it stop magnetism				

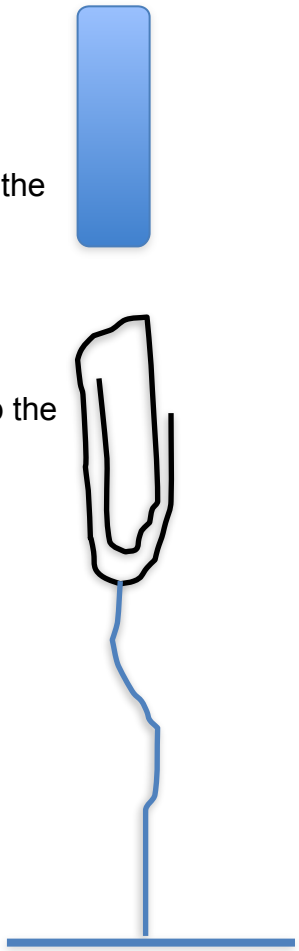
Conclusion

1. Was your prediction correct?

2. What else might you try?

Experiment 3 How far can you suspend a paperclip before it falls?

You need magnet, ruler, cotton thread, paper clip and a stand or chair to tie the thread to.



1. Tie some cotton thread (about 20cm) to a stand or chair.
2. On the other end tie a paper clip.
3. The idea is to lift the paper clip with the magnet.
4. Now pull the magnet slowly away from the paper chip and try to keep the paperclip from falling.
5. If you can measure the distance of the gap.

How far did the magnet go before the paper clip fell?