

Combined science - Physics

Key stage 4 - Magnetism

Electromagnetism

Mr van Hoek



I do

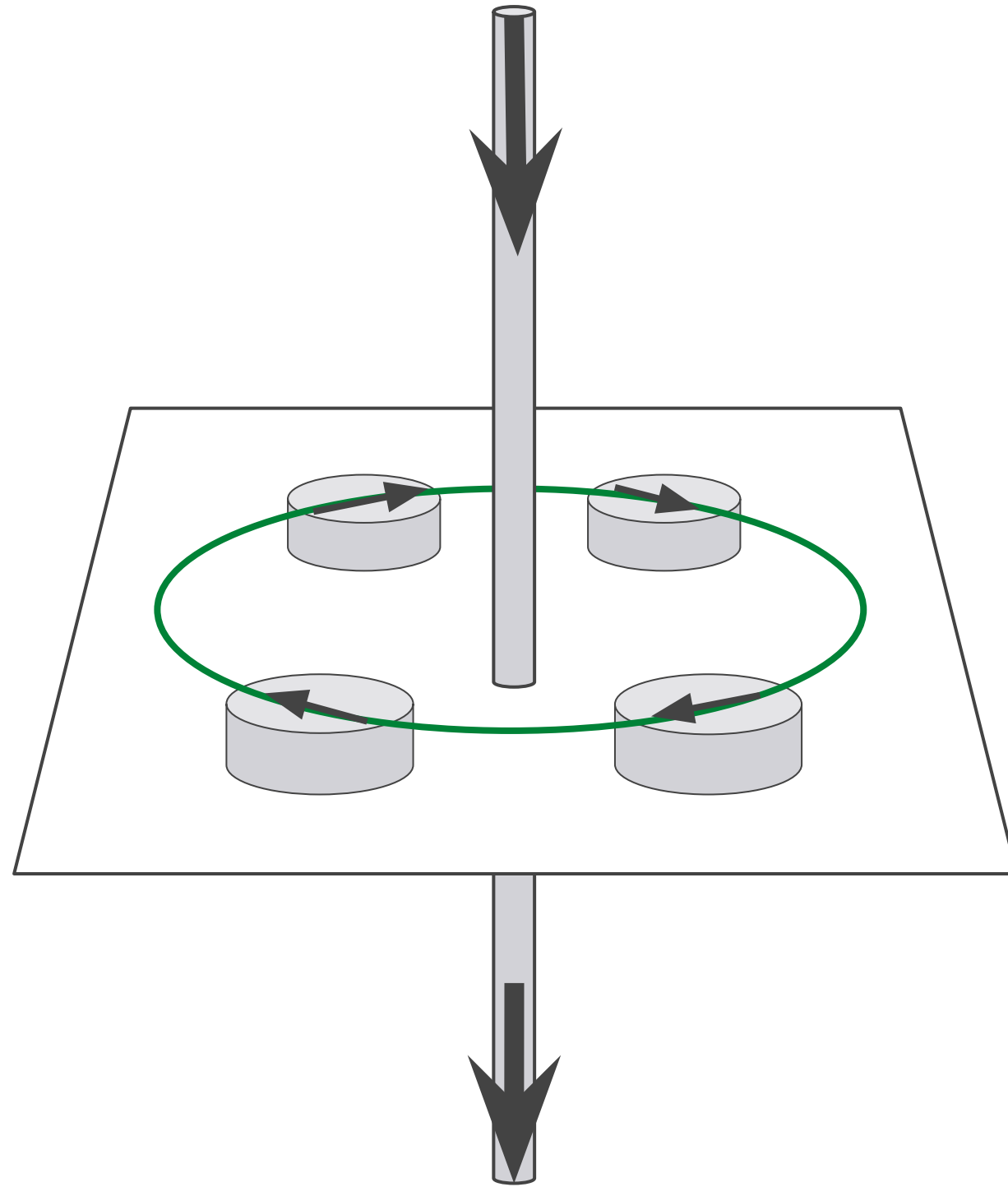


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We do

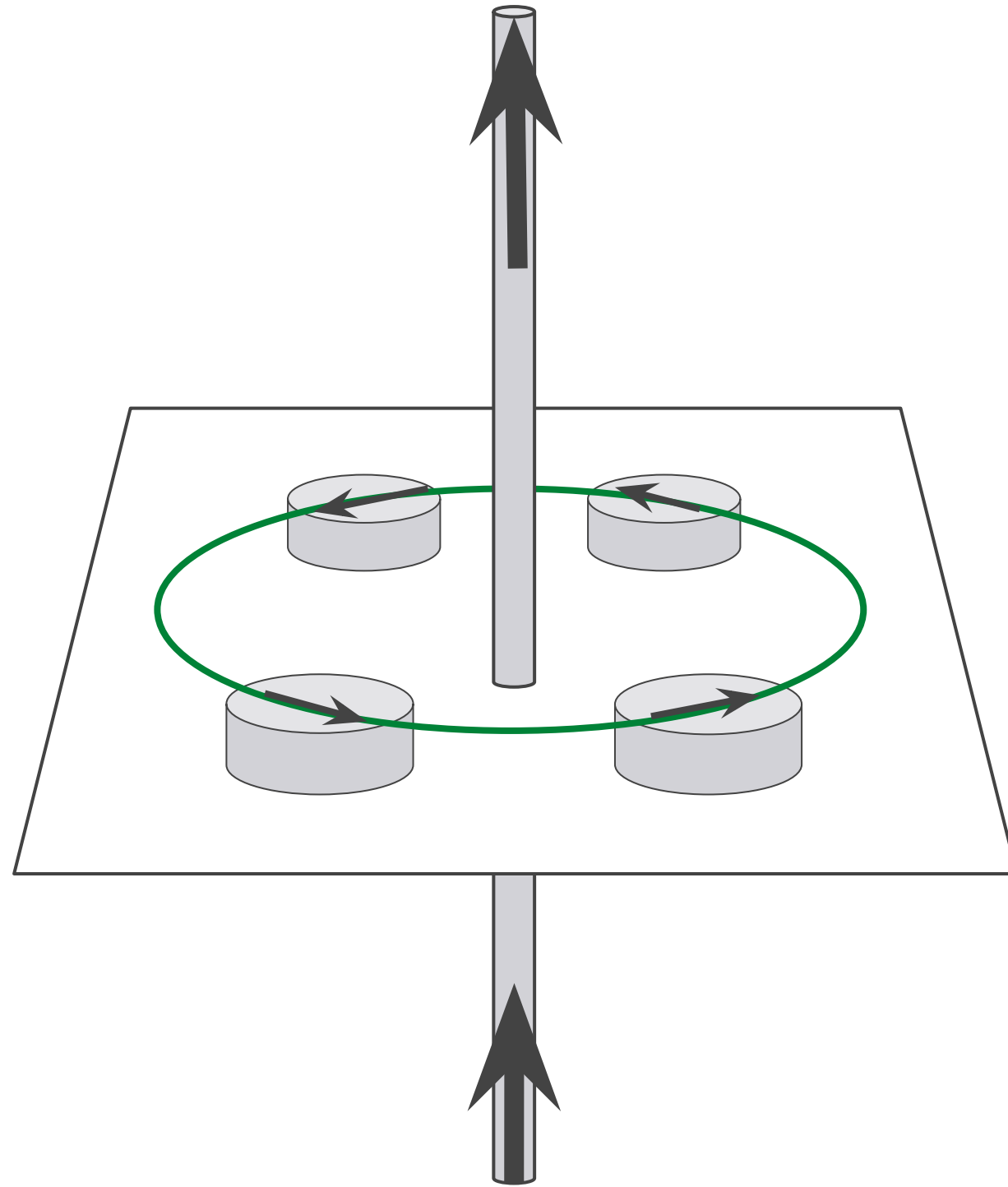


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You do

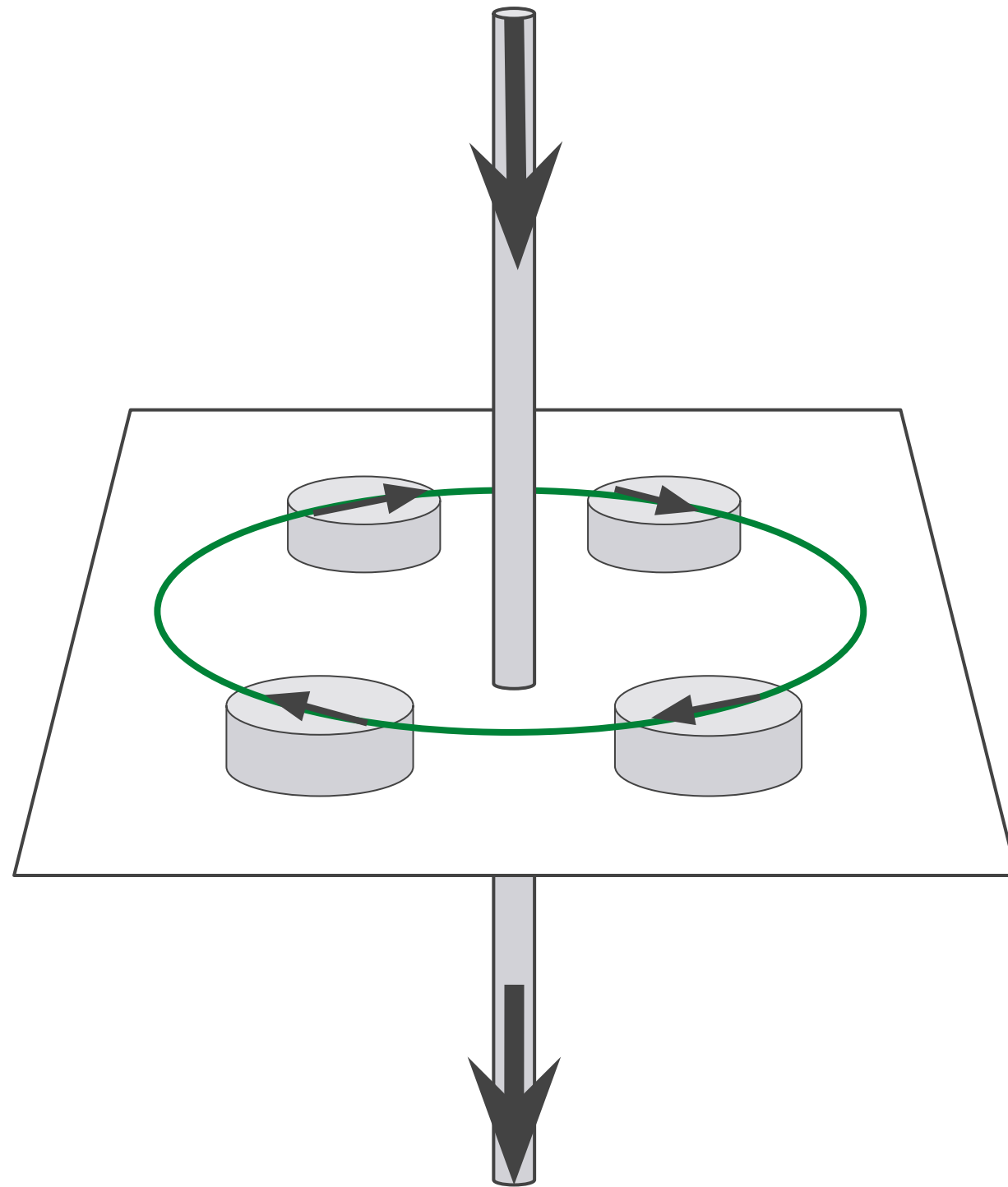
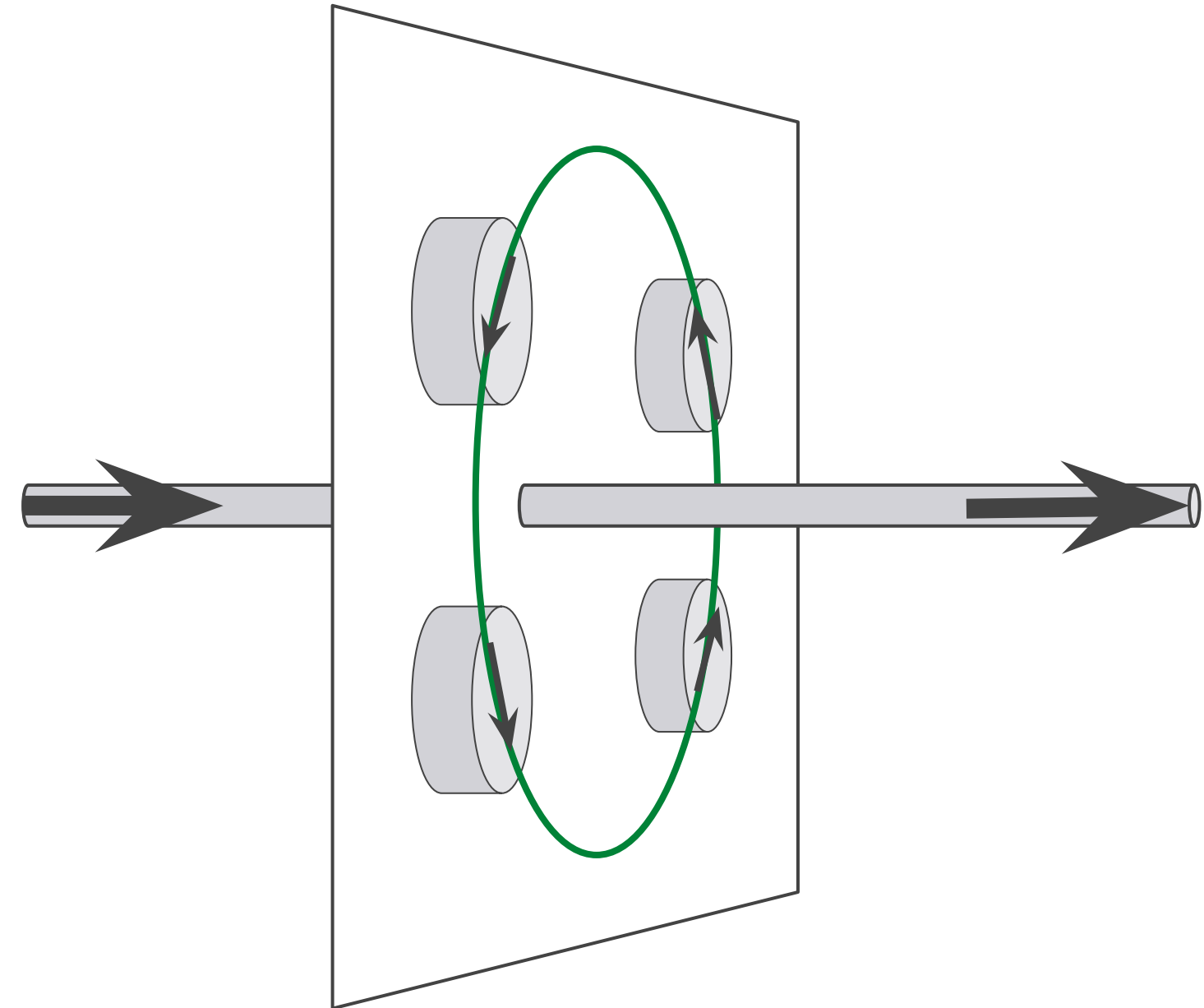


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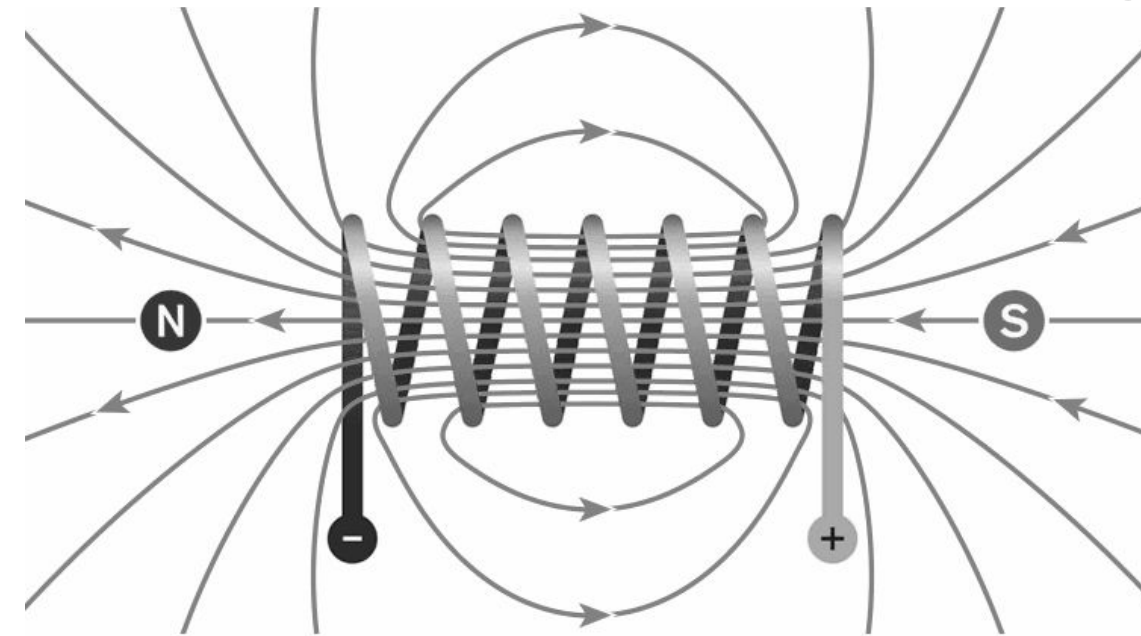
Independent Practice

1. What is made around a wire when a current flows? (Can you draw a picture)
When a current flows in a wire there will be a
2. What happens to the direction of the magnetic field if the current is reversed?
The direction of the field will
3. Explain how, using one of your hands, you can find the direction of the magnetic field flowing in a straight wire?
4. How do you need to shape a wire to get the same magnetic field shape as a bar magnet?



Independent Practice

1. What is a solenoid? *A solenoid is a*
2. A solenoid is shown below with a current flowing.



Describe the magnetic field in and around the solenoid.

3. What is an electromagnet?
4. Why are electromagnets so useful?

Image credits : wikimedia, Rajiv1840478



Investigating electromagnets

Some students carried out an investigation into the factors affecting the strength of an electromagnet. They measured the strength of the electromagnet by seeing how many paper clips were held when the current flowed. Their results are shown below:

a) Describe the patterns in the results.

As the potential difference increases...

As the number of coils increases ...

b) What do you think happened to the paper clips being held when the current was switched off? Explain your answer.

c) What do you think the paper clips are made out of? Explain your answer.

Potential difference (V)	Paper clips held / Number of coils			
	5 coils	10 coils	15 coils	20 coils
2	2	3	5	8
4	3	5	6	9
6	3	7	8	11
8	5	8	10	13
0	7	9	12	15

Image credits : Charlotte Whittick

