

# Year 8 Physics | Term 5

## Overarching question: What is electromagnetism?

**Topic Overview:** This term's exploration revolves around fundamental questions in physics. Students will delve into the visualization of magnetic fields and understand their characteristics. The focus extends to the practical applications of electromagnets, exploring how to manipulate their activation and evaluating the impact of coil numbers on their strength. The term will also involve hands-on experiences in utilizing electromagnets for various purposes. Additionally, students will distinguish between a solar system and a galaxy, grasping the distinctions in scale, structure, and cosmic significance. Through these inquiries, students will develop a robust understanding of magnetic phenomena and celestial systems.

	Lesson Exploration	Knowledge & Skills	Key Words
Week 1: Lesson 1	INSET		<ul style="list-style-type: none"> <li>• Poles</li> <li>• Attraction</li> <li>• Repulsion</li> <li>• Compass</li> <li>• Magnetic Field Line</li> <li>• Permanent Magnet</li> <li>• Induced Magnet</li> <li>• Bar Magnet</li> <li>• Solenoid</li> <li>• Electromagnetism</li> </ul>
Week 2: Lesson 1	What does a magnetic field look like?	SK22: Describe magnetic field diagrams SK23: Using plotting compass to draw and understand field lines.	
Week 3: Lesson 1	How can we turn electromagnets on and off?	SK24: Use a diagram to explain how to make an electromagnet and how to change its strength.	
Week 4: Lesson 1	How does the number of coils affect the strength of an electromagnet?	SK24: Use a diagram to explain how to make an electromagnet and how to change its strength.	
Week 5: Lesson 1	How do we use electromagnets?	SK24: Uses of electromagnetism.	
Week 6: Lesson 1	What is the difference between a solar system and a galaxy?	KN30: Describing stars and their similarities or differences to the Sun.	

Literacy Links	Numeracy Links
<p><b><u>Reading list for the course:</u></b></p> <p><b><u>Books:</u></b></p> <ul style="list-style-type: none"> <li>• Bill Bryson – A Short History of Nearly Everything</li> <li>• Gerard Cheshire – Energy and Matter</li> <li>• Gerard Cheshire – Forces and Motion</li> <li>• Adrian Dingle – How to Make a Universe with 952 Ingredients</li> <li>• Richard P. Feynman – Six Easy Pieces</li> <li>• Paul Parsons – Science in 100 Key Breakthroughs</li> <li>• Paul Parsons – Science 1001: Absolutely Everything that Matters in Science</li> <li>• Andrew Solway – Generating and Using Electricity</li> </ul> <p><b><u>Websites</u></b></p> <ul style="list-style-type: none"> <li>• Young Scientist Journal - <a href="http://www.butrousfoundation.com/ysjournal">www.butrousfoundation.com/ysjournal</a></li> <li>• School Science - <a href="http://www.schoolscience.co.uk">www.schoolscience.co.uk</a></li> <li>• NASA Carbon Cycle – <a href="http://www.earthobservatory.nasa.gov/Features/CarbonCycle/">www.earthobservatory.nasa.gov/Features/CarbonCycle/</a></li> <li>• Wellcome Trust: <a href="http://www.wellcome.ac.uk/">www.wellcome.ac.uk/</a></li> <li>• Educational resources at the Natural History Museum: <a href="http://www.nhm.ac.uk/education/index.html">www.nhm.ac.uk/education/index.html</a></li> <li>• BBC Science and Nature programmes: <a href="http://www.bbc.co.uk/sn/">www.bbc.co.uk/sn/</a></li> </ul>	<ul style="list-style-type: none"> <li>• Recall equations</li> <li>• Apply equations</li> <li>• Unit conversions</li> </ul>