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| Year | **9** |
| Topic | **Physics – Magnets & Forces/ Skills** |
| **Lesson** | **Key aim/title/objective of the lesson?**  **These may stretch over a number of lessons as appropriate** |
| 1 | Magnets and Compasses​ |
| 2 | Research Use of Magnets​ |
| 3 | Research Use of Magnets – Marking and improving​ |
| 4 | ​ Investigating Electromagnets Pt1 Planning ​ |
| 5 | Investigating Electromagnets Pt2 Practical |
| 6 | Investigating Electromagnets Pt 3 Evaluation and Peer marking |
| 7 | Investigating Friction Pt1 Planning |
| 8 | Investigating Friction Pt2 Practical |
| 9 | Investigating Friction Pt 3 Evaluation and Peer marking |
| 10 | Investigating Falling Objects |
| 11 | Revision Lesson |
| 12 | Test |
| 13 | Feedback/Next Steps |
| **Key vocabulary and/or key reading**  Keywords checked in spelling tests and definitions  Reading methods and paragraphs  **MISCONCEPTIONS** Pupils often think that:  Magnetic field lines are really there – a magnetic field really is a pattern of lines. All metals can be magnetised to make magnets.  Magnetic poles are always at the end of the magnet and that larger magnets are stronger than smaller magnets,  If an object is at rest on a table, there are no forces acting on it  Gravity stops acting when the object hits the ground,  There is 'more gravity the higher up you go'  Opening a parachute during freefall makes the skydiver go upwards  **Numeracy**  Using data to draw graphs, Reading scales, Drawing Tables, Averages | |

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| **Personal Development** | |
| How is this topic developed beyond the classroom? Eg **learning passport?** | * Students understand how magnets are useful in everyday life and how Forces such has friction and air resistance can be useful. |
| How are **Careers/ IAG** links built into this lesson sequence? | * Forces can be useful in vehicle design, component design, material design. * Designer and material scientist |
| **Fundamental British Values** (democracy, the rule of law, individual liberty and respect and tolerance) |  |

**How does this topic build on *prior* learning?**

See KS2 NC: Students will have learned the effects of air resistance, water resistance and friction, that act between moving surfaces. They will know that some forces need contact between 2 objects, but magnetic forces can act at a distance. They will have observed how magnets attract or repel each other and attract some materials and not others. They will be able to describe that magnets have 2 poles and predict whether 2 magnets will attract or repel each other, depending on which poles are facing.

Some students will have used the term variables, but they are not sure which variable is which. Lots of students will not be sure how to draw a graph or which type of graph to draw.

**How does the work during this topic prepare for future learning?**

Forces and Magnets are principles which are revisited and extended on at GCSE, some of the concepts from this topic which are developed during GCSE are: electromagnets, elastic forces, Newtons laws, terminal velocity and stopping distances.

At A-level Physics students will look at more challenging calculations based on these concepts.

**How will learning be assessed and feedback provided in this scheme?**Assess scientific Planning - identifying variables and drawing a results table.

End of topic MCQ Zipgrade style quiz will check core knowledge of terminology and skills.

