

Physics Learning Journey

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- Build your basic understanding of physics concepts: what **forces** act on a rocket taking off? How do we use **electricity** to light our homes? What can the **temperature** of a body tell us about time of death? How is **energy** transferred between objects? Where else could we live if **earth** was destroyed? Why are **sound and light** so similar and yet so different?

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- Investigate the concept of **energy**, which emerged in the 19th century to explain the work output of steam engines and then became a key tool for understanding chemical reactions and biological systems.
- Describe how **electrical power** fills the modern world with artificial light and sound, information and entertainment, remote sensing and control.

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- Use **the particle model** to predict the behaviour of solids, liquids and gases and this has many applications in everyday life.
- Discover **radioactivity**, it has taken many nuclear physicists several decades to understand the structure of atoms, nuclear forces and stability.
- Work like Engineers who analyse **forces** when designing a great variety of machines and instruments, from road bridges and fairground rides to atomic force microscopes.

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- Learn from astronomers and astrophysicists, who have made remarkable progress in understanding the scale and **structure of the universe**, its evolution and ours.
- Describe the fundamental **properties of waves**, reflection refraction and diffraction.
- Explain how modern technologies such as imaging and communication systems show how we can make the most of **electromagnetic waves**.
- Describe the **electromagnetic effects** that are used in a wide variety of devices and have given us the ability to generate our own electricity

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- Explore the sub atomic world of **particles**, where things are smaller than you thought they were.
- Expand your understanding of **mechanics** and how forces alter the world around us.
- Dabble in **materials science**, examining some of the properties of the materials that we use to build our world.
- Extend your understanding of **waves** and the emerging field of **Quantum Physics**, where things are not as simple as they seem.

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- Gain a deeper insight into **radioactivity** and the changes that take place inside the nucleus.
- Describe the **fields** that permeate throughout space and how they influence the behaviour of all objects, from the very small to the very, very large.
- Dip into **thermodynamics**, how does energy relate to temperature and what happens when we give particles energy.
- Look back at the **turning points in Physics**, when new concepts were first understood and described.