Curriculum Content Science - Physics Year 10

Content - Big ideas

CP01 Motion
Big Question: How do you measure the speed of a car?
Learning Outcome: What is the difference between vector and scalar quantities? How to calculate speed and acceleration. How to represent journeys on distance/time and velocity/time graphs. How to use graphs to calculate speed, acceleration and distance travelled.

CP02 Forces & Motion
Big Question: How much would you weigh on The Moon?
Learning Outcome: What are Newton's Laws of Motion? How to calculate the weight of an object from its mass. What factors affect the stopping distance of a vehicle? What are the dangers of large decelerations?

CP03 Conservation of Energy
Big Question: Does a book sitting on a shelf have energy?
Learning Outcome: How is energy stored and transferred? How to represent energy transfers using diagrams. How to calculate efficiency. How to reduce transfers of wasted energy. How to calculate the amount of gravitational potential energy or kinetic energy stored in objects.

CP07 Energy Forces Doing Work & CP08 Forces & their Effects
Big Question: Who is the most powerful person in the room?
Learning Outcome: How can the energy in a system be changed? How to calculate power and work done. How do objects interact with each other, through force fields and contact forces?

CP12 Particle Model & CP13 Forces & Matter
Big Question: Why are some substances light and stretchy, and others aren't?
Learning Outcome: How to explain different densities of substances and how to calculate density. What is specific heat capacity and specific latent heat and how to calculate them. How does changing the temperature of a gas affect its pressure? What are the Kelvin and Celsius temperature scales? What is elastic and inelastic distortion? What is the relationship between force and extension?

Prior learning

- P1.1 – Forces
- P2.2 – Energy
- P2.3 – Motion & Pressure

Global/IOM/Subject Links

Global & IOM links:
- Road safety, Engineering & Mechanics

Subject:
- Motion → D&T and MATHS
- Work & Power → D&T
- Density & Heat → FOOD TECHNOLOGY

Subject specific skills development

Edexcel CORE Practical Skills:
- Use of appropriate apparatus to make and record a range of measurements accurately, including length, area, mass time, volume and temperature. Use of such measurements to determine densities of solid and liquid objects.
- Use of appropriate apparatus to measure and observe the effects of forces including the extension of springs.
- Use of appropriate apparatus and techniques for measuring motion, including determination of speed and rate of change of speed.
- Safe use of appropriate apparatus in a range of contexts to measure energy changes/transfers and associated values such as work done.