	Year 10 Physics					
	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
BIG Q Content *(max 5)* Please log into Seneca to support your child to understand this learning	***How is energy stored and transferred?*** Define different energy stores. Describe different methods of energy transfer. Calculate gravitational potential energy, kinetic energy and elastic potential energy. Understand the law of conservation of energy. Determine the specific heat capacity of different materials.	***How is energy generated and used in the home?*** Describe the main methods of electricity production. Understand the terms renewable and non-renewable. Explain the advantages and disadvantages of different methods of energy production. Calculate efficiency. Evaluate which methods of electricity production should be used.	***How does an electric current behave in different circuits?*** Define current, potential difference and resistance. Identify circuit symbols. Describe current and potential difference in series and parallel circuits. Determine how resistance can vary for different components. Calculate current, potential difference and resistance.	***How is electricity used domestically?*** Understand the difference between alternating and direct current. Describe how electricity is transferred from power stations to consumers. Explain how transformers can make transferring electricity more efficient. Calculate the power used by an electrical component. Understand the wiring and safety features of a three-pin plug.	***How do particles behave?*** Explain the difference in particle arrangement and structure for solids, liquids and gases. Calculate the energy required to change the state of substance. Describe the factors that can affect gas pressure. Determine the specific latent heat of vapourisation and fusion of different substances. Determine the density of materials.	***What is nuclear radiation and how can it be used safely?*** Describe the structure and properties of alpha, beta and gamma radiation Determine whether a radioactive source is emitting alpha, beta or gamma radiation. Complete decay equations describing the change in nuclear structure due to radioactive decay. Calculate the half-life of a radioactive sample. Describe the evidence to support the nuclear model of the atom.
Vocabulary *(max 10)* Please use your child's knowledge notes to help them learn these words	Kinetic Energy Gravitational potential energy Elastic Potential Energy Transfer Specific Heat Capacity Conservation of Energy Joule Watt	Renewable Non-renewable Geothermal Nuclear Solar Fossil Fuel Global Warming Efficiency Useful energy Wasted Energy	Current Potential Difference Resistance Ammeter Voltmeter Parallel Circuit Series Circuit Charge Electron Coulomb	Alternating Current Direct Current Step-up Transformer Step-down Transformer National Grid Live Wire Neutral Wire Earth Wire Fuse	Solid Liquid Gas Specific Latent Heat Density Melting Boiling Condensing Evapourating Internal Energy	Alpha Particle Beta Particle Gamma Ray Ionisation Penetration Half-Life Isotope Mass Number Atomic Number Nuclear Decay
Catholic Link	Care for God's Creation: Renewable energy helps protect the environment. Solar energy. reduces fossil fuel use and greenhouse gas emissions.	Call to Family, Community and Participation: Communities rely on electrical power every day.	Solidarity: Countries cooperate to improve electricity generation and reduce pollution.	Option for the Poor and Vulnerable: Access to electricity is important for vulnerable communities.	Option for the Poor and Vulnerable: Efficient energy systems can help vulnerable communities. Better insulation reduces heating costs.	The Dignity of Work and Workers: Workers should have safe conditions when handling radioactive materials.
Careers Link	Energy – Renewable energy engineer, nuclear engineer	Energy – Materials scientist, thermal engineer	Electricity - Electrical engineer, electrician	Electricity - Powerlines operator, Robotics engineer	Particle model - Forensic scientist, pharmacist, chemist	Atomic structure - nuclear physicist, radiographer

Ways to enrich the Y10 Physics curriculum at home: https://www.iop.org/explore-physics/at-home

- Do an Energy Audit on your home. Are there any items that waste energy such as lights left on or appliances on standby? Who leaves their phone charging over night? Recommend ways to reduce your energy use and your bills.
- Complete an Insulation challenge – test different materials (bubble wrap, paper, foil) to see which keeps a mug of hot water warm for longest.
- Observe a puddle of water or washing drying outside. Check every hour to track evaporation. Research how solar energy gives liquid particles the speed to escape into gas.