Combined Science - Year 11					
ADVENT 1	**ADVENT 2**	**REVIEW OF LEARNING DIRT & Summative**	**LENT 1**	**LENT 2**	**REVIEW OF LEARNING DIRT & Summative**
Forces We Investigate forces and their interactions including resultant forces, weight and elasticity. We investigate hooks law – the extension of a spring. **Rates and Extent of Chemical Change** We learn which factors affect reaction rates and explain them in terms of collision theory and their effect on dynamic equilibrium. We identify catalysts in reactions and explain their effect on rate. We can draw and interpret graphs and data linked to the rate of a chemical reaction, understanding the link to industrial reactions and the need for compromise. **Homeostasis and Response** We learn the structure and function of the nervous and endocrine system.	**Forces** We learn about forces and their interactions, forces in motion and Newton's Laws of Motion, including stopping, thinking and braking distance. **Organic Chemistry** The chemistry of carbon compounds is so important that it forms a separate branch of chemistry. We learn that a great variety of carbon compounds is possible because carbon atoms can form chains and rings linked by C -C bonds. **Inheritance, Variation and Evolution** We will discover how the number of chromosomes is halved during meiosis and then combined with new genes from the sexual partner to produce unique offspring.	This includes 'Do It Now' Memory Retrieval & No Opt. Out Questions. **Assessments** EoU Forces EoU Rates and Extend Chemical Change EoU Homeostasis and Response EoU Organic Chemistry EoU Inheritance, Variation and Evolution November Mocks: Biology, Chemistry, Physics Paper 1	**Waves** We compare waves in air, fluids and solids. We describe the properties of electromagnetic waves. We investigate how the amount of infrared radiation absorbed or radiated by a surface depends on the nature of that surface. **Chemical Analysis** Using the reactivity series to predict products of molten and aqueous ionic electrolytes. Understand and describe redox reactions during the process of electrolysis. Link electrolysis to metal extraction. **Chemistry of the Atmosphere** We learn about key events in the early and current earth's atmosphere. We explain the causes and effects of climate change and the limitations of models. **Inheritance, Variation and Evolution** We explain the role of DNA and how genes are passed onto the next generation. We describe how organisms vary and what causes these variations.	**Unit Intent** **Magnetism and Electromagnetism** We learn about permanent and induced magnetism and how a magnet moving in a coil can produce electric current and also that when current flows around a magnet it can produce movement. **Using Resources** We explore the relationship between the earth's natural resources and chemistry. **Ecology** We explore how humans are threatening biodiversity as well as the natural systems that support it.	This includes 'Do It Now' Memory Retrieval & No Opt. Out Questions. **Assessments** EoU Waves EoU Chemical Analysis EoU Atmosphere EoU Ecology EoU Magnetism EoU Resources EoU Space February Mocks: Biology, Chemistry, Physics Paper 2

Catholic Social Teaching

Biology

Homeostasis and Response

Human Dignity: e.g. receiving fertility treatments.

Human Dignity: Each one of us is unique and beautiful and created in God's image. People with living with genetic disorders deserve dignity.

Inheritance, Variation and Evolution:

Solidarity: Importance of solidarity across cultures and races.

Ecology

Creation and the Environment: Consider how are actions are accelerating climate change e.g. deforestation, sustainable food production, reducing our carbon footprint by shopping local and reducing food miles, supporting local farmers.

Common Good / Dignity in Work and Participation: the need for responsible participation in preserving our planet for future generations.

Stewardship: responsibility as stewards of the environment and the need for sustainable practices.

Chemistry

Organic Chemistry

Human Dignity: Contribution to improving human health and well-being

Peace: The limited reserves of fossil fuels can lead to conflict between countries.

Using Resources:

Human Dignity: Importance of responsible resource management

Option for the Poor: People in developing countries are affected more by the extraction of raw materials and disposal of waste from developed countries.

Physics

Forces and Motion

Common Good: Importance of community infrastructure and collaborative efforts for societal advancement

Careers

Biology

Homeostasis and Response

Neurosurgeon, Optician, Dietician, Anaesthesiologist, Nephrologist

Inheritance, Variation and Evolution

Genetic counsellor, Immunologist, Palaeontologist

Ecology

Ecologist, Marine Biologist, Conservationist, Sustainability Officer, Zoology

Chemistry

Rate and Extent of Chemical Change

Pollution Prevention Control Officer, Chemical Engineer, Technician, Materials Scientist

Organic Chemistry

Petroleum engineer, Offshore drilling worker

Chemical Analysis

Environmental Officer Forensics, Glass Artist, Skincare Scientist

Chemistry of the Atmosphere

Environmental Officer, Vehicle Maintenance, Energy Analyst, Geologist

Using Resources

Environmental Chemist, Waste management.

Physics

Forces

Engineer

Magnetism and Electromagnetism

Rail Technician, Sound Engineer, Radiologist, Auto Engineer, Electrical Engineer, Plasma Physicist

Waves

Audiologist, Acoustic Engineer, Seismologist, Optometrist, Sound Engineer, Lighting Designer, Sonographer, Meteorologist