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| **Year** | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| **Blue** | **Reproduction and puberty**  Female reproduction  Male reproduction  Puberty  Fertilisation and contraception  foetus development  smoking and pregnancy  plant reproduction  fertilisation and seed dispersal | **Waves**  Longitudinal and transverse waves.  Light and sound waves  Practical skills – Investigating the angle of incidence and the angle of reflection - Drawing conclusions from experimental results. | **Living things and their interactions**  MRS GREN – Criteria of living things.  Food chains and food webs  Skills – Constructing biological pyramids from given data  Competition and adaptation of plants and animals. | **The building blocks of life**  Cells, organs and organ systems  Bones, the skeleton and its function  Joints  STEM – Engineering design considerations of making a quality prosthetic limb. | **Conduction, Convection and Radiation**  Conduction, convection, and radiation.  Practical Skills – Investigating conduction and insulation, absorption, and emission of thermal radiation.  Skills – Plotting graphs | **Organs and Organ Systems**  The respiratory, digestive, and circulatory systems.  Anaerobic and aerobic respiration  The immune system  Practical Skills –experimental variables and evaluating methods |
| **Green** | **Reproduction and puberty**  Female reproduction  Male reproduction  Puberty  Fertilisation and contraception  foetus development  smoking and pregnancy  plant reproduction  fertilisation and seed dispersal | **Healthy Diet, Healthy Body**  Components of a healthy diet and the consequences an unhealthy diet.  Diet related diseases  GM foods  Alcohol and cannabis | **Plants and the Carbon Cycle**  Photosynthesis and the carbon cycle.  Leaf structure  Deforestation.  Practical skills – Follow a procedure to test a leaf for starch, risk assessment. | **Forces and Spaces**  Forces and their effects  Gravity and space travel  Our Solar System and the universe.  Key stages in space exploration – The scientific process | **Physical, Chemical and Energy Changes**  Chemical or physical change  Solids, liquids, and gases and changing state.  Energy changes.  Practical Skills – Investigating the changing state of water, collecting accurate data and plotting graphs. | **Marie Curie and her contribution to science**  Marie Curie and the barriers she had to overcome.  The structure of the atom.  Radiation and its uses  Cancer |
| **Y10 GCSE**  **Biology** | **Cell Biology**  Eukaryotes and prokaryotes  Animal and plant cells  Cell specialisation  Cell differentiation  Microscopy  Chromosomes  Mitosis and the cell cycle  Stem cells  Transport in cells  Osmosis  Active transport  Require practical - Culturing microorganisms.  Required practice – Light microscope investigation. | **Organisation**  Principles of organisation  The human digestive system  The heart and blood vessels  Blood  Plant tissues  Plant organ systems  Required practical – Testing for carbohydrates, lipids and proteins.  Required practical – effect of pH on the rate of reaction of amylase enzymes. | **Homeostasis and Response**  Structure and function  The brain  The eye  Control of body temperature  Human endocrine system  Control of blood concentration.  Maintaining water and nitrogen balance in the body.  Hormones in human reproduction  Contraception  Control and coordination (plant hormones)  Practical skills - Planning and carrying out an investigation into the effect of a factor on human reaction time. | **Reproduction**  Asexual and sexual reproduction  Meiosis  Advantages and disadvantages of sexual and asexual reproduction  DNA and the genome  DNA structure  Genetic inheritance  Inherited disorders  Sex determination | **Communicable and non-communicable diseases.**  Coronary heart disease  Health issues  The effect of lifestyles on some non-communicable diseases  Cancer  Communicable diseases  Viral diseases  Bacterial diseases  Fungal diseases  Protist diseases  Discovery and development of drugs | **Bioenergetics**  Photosynthesis reaction  Use of glucose from photosynthesis  Anaerobic and aerobic respiration  Response to exercise  Metabolism  Required practical - Rate of photosynthesis (Investigating the effect of light intensity on the using an aquatic organism.)  Required practical - Investigate the effect of light or gravity on the growth of newly germinated seedlings. |
| **Y11 GCSE**  **Biology** | **Ecosystems**  Communities  Abiotic factors  Biotic factors  Adaptations  Levels of organisations  How materials are cycled  Decomposition  Required practical -Measure the population size of a common species in a habitat.  Required practical - Investigate the effect of temperature on the rate of decay of fresh milk by measuring pH change. | **Biodiversity**  Biodiversity  Waste management  Land use  Deforestation  Global Warming  Maintaining biodiversity  Trophic levels  Pyramids of biomass  Transfer of biomass  Factors affecting food security.  Farming techniques  Sustainable fisheries  Role of biotechnology | **Defending Against Pathogens**  Human defence systems  Vaccinations  Antibiotics and painkillers  Discovery and development of drugs  Detection and identification of plants diseases.  Plant defence responses  Practical Skills - investigating the effect of antiseptics on bacterial growth. | **Variation and Evolution**  Variation  Evolution  Selective breeding  Genetic engineering  Cloning  Theory of evolution  Speciation  The understanding of genetics  Evidence for evolution  Fossil  Extinction  Resistant bacteria  Classification of living organisms | **Revision and Exam prep** | **GCSE Exams** |

**Half Termly Career Focus**

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|  | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| **Blue** | Ultrasound technician | Laboratory technician  Cell biologist | Wind turbine technician | Petroleum engineer  Epidemiologist | Pharmacologist | Nuclear reactor operator  Radiographer |
| **Green** | Nurse | Bioengineer | Forensic scientist | Prosthetist | Engineer(s) | Researcher |
| **Y10** | Microbiologist | Forensic scientist | Restoration Ecologist | Geneticist | Nurse | Fitness consultant |
| **Y11** | Zoologist | Farmer | Doctor | Animal Breeder |  |  |