Biology Learning Journey

Newman Catholic College

Year 7 – Year 11: Understanding and Applying Scientific Skills

- Variables
- Drawing graphs and analysing graphical data
- Writing methods
- Analysis of secondary data
- Assessing impact of scientific concepts
- Modelling scientific concepts
- Understanding relationships between science and society
- Drawing conclusions
- IDEAL Identify, describe, explain, apply, link
- Applying maths to the scientific concepts
- Risk Assessment
- Describe patters

Year 11

Biology Triple Topics

- Food Security
- Farming techniques
- Sustainable fishing
- **Rate of decomposition**
- Protein synthesis
- History of genetics
- Speciation
- Cloning
- Meiosis
- **Plant hormones and responses**
- Sexual and asexual reproduction
- Problems with the eye
- Structure of the eye
- The Brain
- Plant disease & defences
- **Sterile/Aseptic technique**
- Monoclonal antibodies
- Plant hormones
- The kidney
- Thermoregulation
- DNA structure & mutations
- Trophic level
- Transfer of Biomass
- Sustainable food production

Ecology

- Food chains
- Predator- prey
- **Random Sampling- Quadrats and Transects**
- Communities
- Carbon cycle
- Water cycle
- Adaptations
- Abiotic & Biotic factors
- Land and waste management
- Recycling

Inheritance and Evolution

- Classification
- Genetic cross diagrams
- Antibiotic resistant bacteria
- Fossils
- Inheritance and DNA/genes
- Genetic engineering
- Selective breeding
- Theories of evolution- Darwin
- Variation

BTEC Applied Science

A-level Biology

Exam & Post – 16 Destination

YEAR 10

Homeostasis & Hormones

- Diabetes
- Controlling blood glucose
- Reflex action
- Homeostasis
- IVF
- Contraception
- Menstrual cycle
- Endocrine system
- nervous system
- **Reaction Time**

Bioenergetics

- Photosynthesis
- Limiting factors
- **Rate of photosynthesis**
- Uses of Glucose
- Response to exercise
- Aerobic respiration
- Anaerobic respiration
- Metabolism

Infection & Response

- Discovery & development of drugs
- Antibiotics & Painkillers
- Vaccinations
- Defence systems
- Fungal and protist diseases
- Viral diseases
- Bacterial disease
- Pathogens
- Communicable Disease
- Non communicable disease

Cell biology and Transport

- **Microscopy & magnification**
- Plant and animal cells
- Specialised cells
- Diffusion
- **Osmosis**
- Active Transport

Organisation

- Enzymes
- **Effect of pH activity on Amylase**
- Digestive system
- The heart
- Blood vessels
- Plant organ systems
- Transpiration
- Health and disease

GCSE Biology required practical's

YEAR 9

ELC

Combined Year 1

Genetics and Extinction

- Mitosis
- Prokaryotes and Eukaryotes
- Binary fission
- Stem cells
- Genetic modification
- Extinction
- Biodiversity and preservation
- DNA and genes

Microbes

- Organisation hierarchy
- **Food tests**
- Breathing and gas exchange
- Vaccinations
- Viral diseases
- Body defenses
- Bacteria

Respiration and Photosynthesis

- photosynthesis
- Leaves and their structure
- Plant minerals
- Gas exchange
- Breathing
- Aerobic respiration
- anaerobic respiration

Body Systems

- Drugs and smoking
- Bacteria and enzymes in digestion
- Digestive system
- Alcohol
- Nutrients and healthy diet
- Food tests

YEAR 8

Ecosystem

- Food chains and webs
- Ecosystems
- Disruption to food chains and webs
- Competition

Adaptation and Evolution

- Variation
- Continuous and discontinuous variation
- Natural selection
- Inheritance
- Adapting to change
- Theory of evolution

Cells (part 2)

- Prokaryotes and Eukaryotes
- Diffusion and Osmosis
- Electron/light microscopes
- Stem cells

YEAR 7

Reproduction

- Flowers and pollination
- Seed dispersal
- The menstrual cycle
- Fertilisation
- Fertilisation and germination
- Development of a fetus
- Reproductive systems
- Adolescence

Skeletal System

- Movement: joints
- Skeleton
- Movement: Muscles
- Levels of organisation

Cells

- Movement of substances
- Specialised cells
- microscopes
- Unicellular organisms
- Plant and animal cells

Everyone Counts, Everyone Contributes, Everyone Succeeds