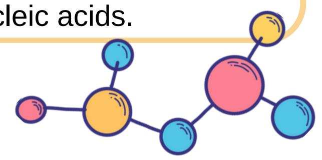
JOURNEY DIAGRAM - A LEVEL SCIENCE- BIOLOGY - SIXTH FORM

St John Bosco College

Year 12

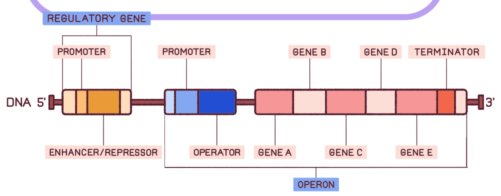
Autumn 1 | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2**

Autumn 1
- Topic 1. Biological molecules.
- Nucleic acids.



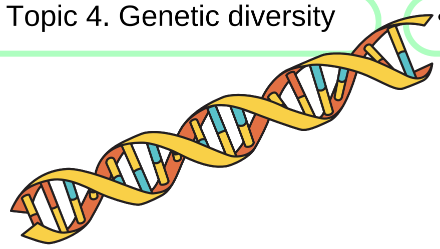
Autumn 2
- Topic 2. Cell structure
- Transport across cell membranes.
- Cell recognition and the immune system.

Spring 1
- Topic 3. Organisms exchange substances with their environments.



Spring 2
- Topic 3. Mass transport continues.
- Topic 4. Genetic information, variation and relationships between organisms

Summer 1
- Topic 4. Genetic diversity



Summer 2
- Topic 4. Biodiversity

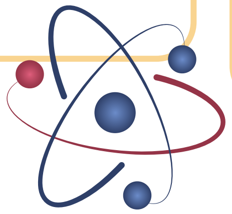
JOURNEY DIAGRAM - A-LEVEL SCIENCE- CHEMISTRY - SIXTH FORM

St John Bosco College

Year 12

Autumn 1 | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2**

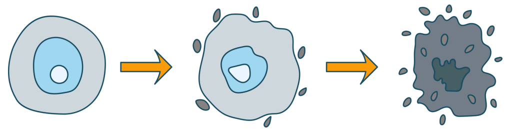
Autumn 1
- Teacher A
- Topic 1. Atomic structure
- Topic 3. Bonding
- Teacher B
- Topic 2. Amount of substance



Autumn 2
- Teacher A
- Topic. 3 Bonding cont.
- Topic 11. Introduction to Organic Chemistry
- Teacher B
- Topic 4. Energetics
- Topic 5. Kinetics

Spring 1
- Teacher A
- Topic 11. Introduction to Organic Chemistry cont.
- Topic 12. Alkanes
- Topic 13. Halogenoalkanes
- Teacher B
- Topic 5. Kinetics cont.
- Topic 6. Equilibria
- Topic 7. Oxidation, reduction, and redox reactions

Spring 2
- Teacher A
- Topic 14. Alkenes
- Topic 15. Alcohols
- Teacher B
- Topic 7. Oxidation, reduction, and redox reactions cont.



Summer 1
- Teacher A
- Topic 15. Alcohols cont.
- Topic 16. Organic analysis
- Topic 10. The Halogens
- Teacher B
- Topic 8. Periodicity
- Topic 9. Group 2- the Alkaline Earth metals

Summer 2
- Teacher A + Teacher B
- Revision
- Catch-up- required practicals

St John Bosco College

JOURNEY DIAGRAM - A LEVEL SCIENCE- PHYSICS - SIXTH FORM

Year 12

Autumn 1

- Subatomic particles – proton, neutron, electron; charge and mass
- Nuclide notation, isotopes, specific charge
- Fundamental forces and exchange particles (photon, W^+/W^-)
- Classification of particles – hadrons, leptons, baryon/lepton number, conservation laws

Autumn 2

- Photon model of light, E=hfE = hfE=hf, energy levels
- Photoelectric effect – work function, threshold frequency, hf=ϕ+½mv2hf = \phi + ½mv^2hf=ϕ+½mv2
- Line spectra and atomic transitions, hf=E1−E2hf = E_1 - E_2hf=E1 −E2
- de Broglie equation λ=h/mv\lambda = h/mvλ=h/mv, wave-particle duality, diffraction

Spring 1

- Electric current, charge, Q=ItQ = ItQ=It; potential difference, V=W/QV = W/QV=W/Q
- Ohm's law, resistance, I–V characteristics (ohmic/non-ohmic devices)
- Series and parallel circuits; Kirchhoff's laws
- Emf, internal resistance, ε=I(R+r)\varepsilon = I(R + r)ε=I(R+r), terminal p.d.

Spring 2

- Use and interpretation of circuit diagrams and symbols
- Required practical: emf and internal resistance
- Required practical: resistivity of a wire using micrometer, ammeter, voltmeter
- Errors and uncertainty: absolute, percentage, combining uncertainties, error bars

Summer 1

- Scalars, vectors, speed, velocity, acceleration
- Newton's laws of motion and resultant forces
- Work, energy, power, and conservation of energy
- Stress, strain, Young modulus, material behaviour

Summer 2

- Wave properties – frequency, wavelength, speed, phase difference
- Superposition, interference, standing waves
- Particle physics revision – quarks, particle interactions, Feynman diagrams
- Application and review of key concepts across topics (integrated problem solving)