Anthony Gell School

Chemistry Learning Journey

Beyond AGS

Or just continue to develop an interest in chemistry and develop life-long learning.

Chemistry related careers...

- Chemical engineer
- Researcher
- Science writer
- Forensic science
- Analytical chemist
- Wastewater operator
- Doctor
- Technician
- Synthetic chemist
- Pharmacologist
- Nutritionist
- Quality control
- Hazardous waste chemist

Continuing to study a chemistry related course...

- Chemical engineering
- Biochemistry
- Medicine
- Organic chemistry
- Inorganic chemistry
- Physical chemistry
- Analytical chemistry
- Material science
- Environmental chemistry
- Nuclear chemistry
- Polymer chemistry

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- Reactions of ions in solutions
- Transition metals
- Period 3
- Acids and bases
- Electrochemistry
- Equilibrium constant/ Kp
- Rate equation
- Thermo-dynamics

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- Atomic structure
- Bonding
- Kinetics
- Redox equations
- Group 2 and group 7
- Amount of substance
- Energetics
- Chemical equilibria
- Periodicity
- **Organic chemistry**
  - Alkanes and halogenoalkanes
  - Alkenes
  - Alcohols
  - Organic analysis

Separate science topics...

- **Atmospheric science**
  - Evolution of the atmosphere
  - Pollutants
  - Climate change
- **Reversible reactions and equilibria**
  - Reversible reactions
  - Haber process Equilibrium
- Percentage yield and atom economy
- **Hydrocarbons**
  - Alkane
  - alkenes
- **Fuels**
  - Hydrocarbons
  - Fractional distillation
  - Cracking and fuels
  - Combustion
  - Pollutants
- **Transition metals**
  - Corrosion
  - Electroplating
  - Alloys
  - Use of metals and alloys
- **Moles (Higher only)**
  - Mole unit
  - Using moles
  - Mass calculations using moles
  - Limiting reactants
- Concentration and titration calculations, using moles
- **Alcohols and carboxylic acids**
  - Ethanol production
  - Combustion
  - Carboxylic acids
- **Acid and alkali**
  - Looking at acids
  - Bases and salts
  - Making salts
  - Solubility of salts
- Molar gas volume calculations.
- **Equilibrium**
  - Fertilisers
  - Rate of attainment
- **Obtaining and using metals**
  - Reactivity
  - Ores
  - Oxidation and reduction
  - LCA
- **Polymers**
  - Addition
  - Condensation
  - Uses and issues
- **Ion testing**
  - Flame test
  - Photometry
  - Chemical tests
- **Cells**
  - Chemical cells
  - Fuel cells
- **Matter**
  - Bulk properties
  - Surface properties
  - Nanoparticles

The first three topics are complete by separate chemistry students in Year 10.

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- **Groups in the periodic table**
  - Group 0
  - Group 1
  - Group 7
  - Displacement
- **Types of substance**
  - Metallic
  - Covalent
  - Ionic
- **Rates of reaction**
  - Measuring
  - Factors affectin
  - graphs
- **Concentration**
  - Solutions
  - Calculations

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- **Periodic table**
  - History
  - Structure
  - Linking to atoms
- **Separating mixtures**
  - Pure/ impure
  - Boiling point
  - Techniques
- **Atomic structure**
  - History
  - Sub-atomic particles
  - Electron structure
- **Ionic bonding**
  - Ionic structure
  - Ion charges
  - Ionic bonding
  - Properties
  - Formula
- **Masses and formula**
  - Formula mass
  - % of element in compounds
  - Molecular and empirical
- **Electrolytic processes**
  - Molten electrolysis
  - Aqueous electrolysis
  - Purification of copper
- **Covalent bonding**
  - Covalent bonding
  - Molecular substances
- **Conservation of mass**
  - Reacting mass calculations
- **Heat energy changes**
  - Exothermic
  - Endothermic
  - Graphs
  - Bond energies

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- **States of matter**
  - Solid, liquid and gas
  - Changes of state
  - Predicting states

GCSE

- **C15: Rock cycle**
  - Sedimentary rocks
  - Fossils
  - Metamorphic rocks
  - Rock cycle
- **C14: Periodic table**
  - Trends in properties
  - Atoms and nucleus
  - Comparing models
- **C13: Weathering an erosion**
  - Weathering
  - Erosion
- **C12: Acid and bases**
  - Indicators
  - PH scale
  - Bases/ alkalis
  - Neutralisation
  - Salts and products

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- **C6: Chemical changes**
  - Making compounds
  - Physical/ chemical
  - Observations
  - Thermal decompositio
- **C5: Comparing solubility**
  - Saturation
  - Solubility
  - Solvents
- **C4: Polymers**
  - Making polymers
  - Tensile strength
  - Alternatives Evaluating
- **C3: Elements and compounds**
  - Atoms/ molecules
  - Properties
  - Element/ compounds
  - Symbols/ formula
- **C2: Substance and mixtures**
  - Solid, liquid gas
  - Particle model
  - Change of state
  - Pure and mixture
  - Separating mixtures
- **C1: Materials**
  - Properties
  - Composite materials
  - Testing materials
  - Classifying
- **C7: Earth's resources**
  - Minerals
  - Earth's structure
  - Plate tectonics
  - Igneous rock
- **C8: Understanding chemical reactions**
  - Equations
  - Conservation of mass
  - Displacement
  - Combustion
- **C9: Air pollution**
  - Air composition
  - Air pollution
  - Spreading pollutants
- **C10: Evaporation**
  - Different liquids
  - Location
  - Particles
- **C11: Energy in reactions**
  - Exothermic
  - Endothermic
  - Explaining

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Primary School

- Rocks, soil and their properties
- Fossils
- Solid, liquid and gas classification
- Changing state of materials
- Melting and boiling point
- Water cycle
- Material properties and classifying
- Solutions
- Separating mixtures – from solution, filtering and evaporating.
- Explain the use of certain materials
- Reversible changes: dissolving, mixing and changes of state.
- Changes that make new materials; including burning and acid with bicarbonate of soda.