**MACHEMGUY VIDEO INDEX**

MODULE 1 - DEVELOPMENT OF PRACTICAL SKILLS IN CHEMISTRY

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| 1.1 - PRACTICAL SKILLS ASSESSED IN A WRITTEN EXAMINATION |
| PAG 1 | [Moles determination](https://www.youtube.com/watch?v=4eTbOod4tcY&list=PLi6oabjl6coyhc0ZLn_OBU01DMjU6u0Jl) |
| PAG 2 | [Acid-base titration](https://www.youtube.com/watch?v=uNWi9IfHUg8&list=PLi6oabjl6coyhc0ZLn_OBU01DMjU6u0Jl&index=2) |
| PAG 3 | [Enthalpy determination](https://www.youtube.com/watch?v=9d-_Micv1ho&list=PLi6oabjl6coyhc0ZLn_OBU01DMjU6u0Jl&index=3) |
| PAG 4 | [Qualitative analysis of ions](https://www.youtube.com/watch?v=h_txyV-PClI&index=4&list=PLi6oabjl6coyhc0ZLn_OBU01DMjU6u0Jl) |
| PAG 5 | [Synthesis of an organic liquid](https://www.youtube.com/watch?v=Ro48moEjskQ&t=16s)  |
| PAG 6 | [Synthesis of an organic solid](https://www.youtube.com/watch?v=YzXj_gx7xrI) |
| PAG 7 | [Qualitative analysis of organic functional groups](https://www.youtube.com/watch?v=3E8ISqIMd9o)  |
| PAG 8 | [Electrochemical cells](https://www.youtube.com/watch?v=xIvdnYoE58A) |
| PAG 9 | [Rates of reaction - continuous monitoring](https://www.youtube.com/watch?v=0X_ptI2P7b8&index=13&list=PLi6oabjl6coyhc0ZLn_OBU01DMjU6u0Jl)  |
| PAG 10 | [Rates of reaction - initial rates](https://www.youtube.com/watch?v=ZiQrBIjYBJk) |
| PAG 11 | [pH measurement](https://www.youtube.com/watch?v=G8S16KODt3Y) |

MODULE 2 - FOUNDATIONS IN CHEMISTRY

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| 2.1 - ATOMS AND REACTIONS |
|  | Syllabus Code | Video Link |
| Atomic structure & isotopes | 2.1.1 | [Atomic Structure](https://www.youtube.com/watch?v=n2Nvmyr6DW8&index=6&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| [Nuclear symbols](https://www.youtube.com/edit?o=U&video_id=6YaQMBVvvPw) |
| [Relative Atomic & Isotopic Mass](https://www.youtube.com/watch?v=_ViY23cvPkc&index=7&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| [Relative Molecular & Formula Mass](https://www.youtube.com/watch?v=7V7UikDWZ6I&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ&index=8) |
| [Determination of Relative Atomic Mass by Mass Spectrometry](https://www.youtube.com/watch?v=7LLUH_I5Yes&index=9&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| [Calculating the Abundance of Isotopes from Mass Spec](https://www.youtube.com/watch?v=dNQ1KrD78VI&index=10&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ)  |
| Compounds, formulae and equations | 2.1.2 | [Positive Ions](https://www.youtube.com/watch?v=sQmwOgNKIqE&index=3&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ)  |
| [Negative Ions](https://www.youtube.com/watch?v=zjL47gM6R8o&index=4&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| [Working out the formulae of ionic compounds](https://www.youtube.com/watch?v=Bi0iRS5NX0o&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ&index=5)  |
| [Balancing chemical equations](https://www.youtube.com/watch?v=TGFkvy8vubw&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ&index=11) |
| [Writing chemical equations from supplied information](https://www.youtube.com/watch?v=G_h5W_3NsEg&index=12&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| [Ionic equations](https://www.youtube.com/watch?v=UDCEXv8GjbA&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ&index=13) |
| Amount of substance | 2.1.3 | [The mole](https://www.youtube.com/watch?v=YP6Ewyc41zA&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ&index=15) |
| [Moles and Avogadro’s number](https://www.youtube.com/watch?v=6KR4KXMHcYM&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ&index=16) |
| [Empirical and molecular formula](https://www.youtube.com/watch?v=crk43-yJIww&index=17&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| [Empirical formula - when to round and when to multiply out](https://youtu.be/szWc-oRi6Ns) |
| [Hydrated salts and water of crystallisation](https://www.youtube.com/watch?v=hmdbKHq28HI&index=21&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| [Moles and gases](https://www.youtube.com/watch?v=j06HB39V1YM&index=18&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| [Reacting amount calculations: volumes of gases](https://www.youtube.com/watch?v=9NG6DUBC8sM&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ&index=19) |
| [The ideal gas equation 1](https://www.youtube.com/watch?v=2W51hKhWdPU&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ&index=22) |
| [The ideal gas equation 2](https://www.youtube.com/watch?v=FnuBqsmBXXc&index=23&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| [Reacting amount calculations: masses](https://www.youtube.com/watch?v=mA9GF_ued1k&index=20&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| [Moles and solutions](https://www.youtube.com/watch?v=r61dnnGqFYI&index=27&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| [More moles and solutions](https://www.youtube.com/watch?v=sCRgyhNLITE&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ&index=28) |
| [Reacting amount calculations: solutions](https://www.youtube.com/watch?v=YBbgHIJPyYY&index=29&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| [Reacting amount calculations: using all the formula triangles](https://www.youtube.com/watch?v=wxXQCgmTmmA&index=30&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| [Percentage yield & limiting reagent](https://www.youtube.com/watch?v=iamXnr_UGlA&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ&index=34) |
| [Excess & limiting reagent made easy!](https://youtu.be/B0YgetoYRlw) |
| [Atom economy](https://www.youtube.com/watch?v=SYBJLPaA1lw&index=35&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| Acids | 2.1.4 | [Introduction to acids and bases](https://www.youtube.com/watch?v=9mejNkguVhE&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ&index=24) |
| [Visualising strong and weak acids](https://www.youtube.com/watch?v=B-P7NJeIfLU&index=25&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| [Reactions of acids and bases](https://www.youtube.com/watch?v=Z-xzIFDE3Ho&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ&index=26) |
| [Making a standard solution](https://www.youtube.com/watch?v=QeIFPzs_xOs&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ&index=31) |
| [Stock solutions and dilution](https://www.youtube.com/watch?v=rsK--m_Lr4k) |
| [How to do an acid-base titration 1](https://www.youtube.com/watch?v=jnG9Ut--yUA&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ&index=32) |
| [How to do and acid-base titration 2](https://www.youtube.com/watch?v=UAkibS8DOqY&index=33&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| Redox | 2.1.5 | [Oxidation number 1](https://www.youtube.com/watch?v=Ny5TGn9BV2Y&index=36&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| [Oxidation number 2](https://www.youtube.com/watch?v=c2EgIZLNvmA&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ&index=37) |
| [Redox reactions (looking at electrons)](https://www.youtube.com/watch?v=CM1xCJunWpA&index=38&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ) |
| [Redox reactions (looking at oxidation number)](https://www.youtube.com/watch?v=NLqeBVylUgg&list=PLi6oabjl6coxfxWBiNdLhaHh9hfXzhQdQ&index=39) |

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| 2.2 - ELECTRONS, BONDING AND STRUCTURE |
|  | Syllabus Code | Video Link |
| Electron structure | 2.2.1 | [Electronic configuration 1](https://www.youtube.com/watch?v=rL3fbzELVGo&list=PLi6oabjl6cozCyVbPK3WS7guIutf2Tt2T) |
| [Electronic configuration 2](https://www.youtube.com/watch?v=xkKoDCRc7JU&list=PLi6oabjl6cozCyVbPK3WS7guIutf2Tt2T&index=2) |
| [I heart electron config](https://www.youtube.com/watch?v=Vb6kAxwSWgU&index=3&list=PLi6oabjl6cozCyVbPK3WS7guIutf2Tt2T) |
| [Playmobil electronic configuration](https://www.youtube.com/watch?v=rSGfTyqLbzs&list=PLi6oabjl6cozCyVbPK3WS7guIutf2Tt2T&index=4) |
| Bonding and structure | 2.2.2 | [Ionic bonding](https://www.youtube.com/watch?v=GdjXHY7CZ0g) |
| [Properties of ionic compounds](https://www.youtube.com/watch?v=i5SQILNdZgE&index=10&list=PLi6oabjl6cozCyVbPK3WS7guIutf2Tt2T) |
| [Covalent bonding](https://www.youtube.com/watch?v=9SkLBlLhBXs&list=PLi6oabjl6cozCyVbPK3WS7guIutf2Tt2T&index=7) |
| [Coordinate/Dative covalent bonding](https://www.youtube.com/watch?v=1rhp0XnJRh4&index=9&list=PLi6oabjl6cozCyVbPK3WS7guIutf2Tt2T) |
| [Shapes of molecules introduction](https://www.youtube.com/watch?v=wSKYoTy_AJ4&list=PLi6oabjl6cozCyVbPK3WS7guIutf2Tt2T&index=11) |
| [Shapes of molecules: 3&4 electron pairs in the valence shell](https://www.youtube.com/watch?v=_hfMUi0h400&index=12&list=PLi6oabjl6cozCyVbPK3WS7guIutf2Tt2T) |
| [Shapes of molecules: 5&6 electron pairs in the valence shell](https://www.youtube.com/watch?v=11I4aU5eW-s&list=PLi6oabjl6cozCyVbPK3WS7guIutf2Tt2T&index=13) |
| [Shapes of molecules: The effect of lone pairs in the valence shell](https://www.youtube.com/watch?v=gO6_aANtxhE&list=PLi6oabjl6cozCyVbPK3WS7guIutf2Tt2T&index=14) |
| [Electronegativity and polarity](https://www.youtube.com/watch?v=D-Xyf-tVX6U&list=PLi6oabjl6cozCyVbPK3WS7guIutf2Tt2T&index=15) |
| [Identifying polar and non-polar molecules](https://www.youtube.com/watch?v=5dMLnPrYAH8&index=16&list=PLi6oabjl6cozCyVbPK3WS7guIutf2Tt2T) |
| [Intermolecular forces introduction](https://www.youtube.com/watch?v=NS3gr7zzbss&index=17&list=PLi6oabjl6cozCyVbPK3WS7guIutf2Tt2T) |
| [Types of intermolecular forces](https://www.youtube.com/watch?v=58N9jEoRFfM&index=18&list=PLi6oabjl6cozCyVbPK3WS7guIutf2Tt2T) |
| [Anomalous properties of water](https://www.youtube.com/watch?v=GybKI5PDIww&index=19&list=PLi6oabjl6cozCyVbPK3WS7guIutf2Tt2T) |
| [Explaining melting point in terms of structure and bonding](https://www.youtube.com/watch?v=IzMXzLTxg7c) |

MODULE 3 - PERIODIC TABLE AND ENERGY

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| 3.1 - THE PERIODIC TABLE |
|  | Syllabus Code | Video Link |
| Periodicity | 3.1.1 | [Ionisation energy](https://www.youtube.com/watch?v=ntex3wPueyk&index=1&list=PLi6oabjl6cox58UGRofHwF4C_Tb7906FK) |
| [Explaining successive ionisation energies](https://www.youtube.com/watch?v=RDsCWqckESA&index=2&list=PLi6oabjl6cox58UGRofHwF4C_Tb7906FK) |
| [Periodicity](https://www.youtube.com/watch?v=w121xB75toc&list=PLi6oabjl6cox58UGRofHwF4C_Tb7906FK&index=3) |
| [Periodic patterns in first ionisation energies 1](https://www.youtube.com/watch?v=QaJY3hpDGjw&list=PLi6oabjl6cox58UGRofHwF4C_Tb7906FK&index=4) |
| [Periodic patterns in first ionisation energies 2](https://www.youtube.com/watch?v=rM1CVh5nYLQ&list=PLi6oabjl6cox58UGRofHwF4C_Tb7906FK&index=5) |
| [Periodic patterns in melting points across period 3](https://www.youtube.com/watch?v=Mcl-W37hC_I&index=6&list=PLi6oabjl6cox58UGRofHwF4C_Tb7906FK) |
| Group 2 | 3.1.2 | [Group 2 - Redox reactions of group 2 elements](https://www.youtube.com/watch?v=amFpqZUvsnY&list=PLi6oabjl6cox58UGRofHwF4C_Tb7906FK&index=7) |
| [Group 2 - Reactions of group 2 compounds](https://www.youtube.com/watch?v=BbhO70aS7zw&list=PLi6oabjl6cox58UGRofHwF4C_Tb7906FK&index=8) |
| The halogens | 3.1.3 | [The halogens](https://www.youtube.com/watch?v=WQWC4adcnBA&index=9&list=PLi6oabjl6cox58UGRofHwF4C_Tb7906FK) |
| [Oxidising power of the halogens](https://www.youtube.com/watch?v=iRlA-HB1B84&list=PLi6oabjl6cox58UGRofHwF4C_Tb7906FK&index=10) |
| [Displacement reactions of the halogens 1](https://www.youtube.com/watch?v=y-YKSgfbenM&list=PLi6oabjl6cox58UGRofHwF4C_Tb7906FK&index=11) |
| [Displacement reactions of the halogens 2](https://www.youtube.com/watch?v=yH-HVxFoZzw&list=PLi6oabjl6cox58UGRofHwF4C_Tb7906FK&index=12) |
| [Testing for aqueous halide ions](https://www.youtube.com/watch?v=dM3KilsnPY4&index=13&list=PLi6oabjl6cox58UGRofHwF4C_Tb7906FK) |
| Qualitative analysis | 3.1.4 | [Testing for aqueous halide ions](https://www.youtube.com/watch?v=dM3KilsnPY4&index=13&list=PLi6oabjl6cox58UGRofHwF4C_Tb7906FK) |
| [Testing for the ammonium ion](https://www.youtube.com/watch?v=bfwuMvqVepI&index=14&list=PLi6oabjl6cox58UGRofHwF4C_Tb7906FK) |
| [Testing for the carbonate ion](https://www.youtube.com/watch?v=eUr-uojBvY0&index=15&list=PLi6oabjl6cox58UGRofHwF4C_Tb7906FK) |
| [Testing for the sulfate ion](https://www.youtube.com/watch?v=Av1pgI6tuUM&index=16&list=PLi6oabjl6cox58UGRofHwF4C_Tb7906FK) |

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| 3.2 - PHYSICAL CHEMISTRY |
|  | Syllabus Code | Video Links |
| Enthalpy changes | 3.2.1 | [Enthalpy introduction](https://www.youtube.com/watch?v=BgViVCF5utQ&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ&index=1) |
| [Standard enthalpy changes](https://www.youtube.com/watch?v=bNaO68cpe3E&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ&index=2) |
| [Calculating enthalpy change of reaction by calorimetry](https://www.youtube.com/watch?v=dEfX-nbUMJs&index=3&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ) |
| [Calculating enthalpy change of combustion by calorimetry](https://www.youtube.com/watch?v=tkwKjUcvYzI&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ&index=4) |
| [Calculating enthalpy changes from bond enthalpies](https://www.youtube.com/watch?v=SdX2pq996DM&index=6&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ) |
| [Calculating a bond enthalpy from the enthalpy change](https://www.youtube.com/watch?v=Nvo9G2PJIHU&feature=youtu.be)  |
| [Enthalpy change of neutralisation](https://www.youtube.com/watch?v=rB4_LEyMVnE&index=5&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ) |
| [Hess’ law introduction](https://www.youtube.com/watch?v=xIsyfHtja9M&index=7&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ) |
| [Hess’ law cycles involving enthalpy changes of formation](https://www.youtube.com/watch?v=x80BgrVgy7g&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ&index=8) |
| [Hess’ law cycles involving enthalpy changes of combustion](https://www.youtube.com/watch?v=uaeMVD46MH0&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ&index=9) |
| Reaction rates | 3.2.2 | [Rates of reaction introduction](https://www.youtube.com/watch?v=6MhKGWq-jWo&index=10&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ) |
| [Rates of reaction collision theory](https://www.youtube.com/watch?v=lksCJMZ2vwI&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ&index=11) |
| [Rates of reaction - Boltzmann distribution curves](https://www.youtube.com/watch?v=BB1Uj08hAqY&index=12&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ) |
| [Colorimetry](https://www.youtube.com/watch?v=HoPvgn-Wxns)  |
| Chemical equilibrium | 3.2.3 | [Chemical equilibrium introduction](https://www.youtube.com/watch?v=MZhZj-NfLUQ&index=13&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ) |
| [Chemical equilibrium - Le Chatelier’s principle](https://www.youtube.com/watch?v=jnu7wYhosbw&index=14&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ)  |
| [Effect of changing concentration on equilibrium position](https://www.youtube.com/watch?v=s_rIl71Z1ZM&index=15&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ) |
| [Effect of changing temperature on equilibrium position](https://www.youtube.com/watch?v=j8GsecLrDTw&index=16&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ) |
| [Chemical Equilibrium and Industry - The Haber Process](https://www.youtube.com/watch?v=QUfylmE7jYg&index=17&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ)  |
| [The equilibrium constant Kc](https://www.youtube.com/watch?v=o2ByXq-N7KQ&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ&index=18) |
| [Two Kc calculations](https://www.youtube.com/watch?v=CfMUOtIv450&index=19&list=PLi6oabjl6coxM_3ii37KafwHvizQwOzbZ) |

MODULE 4 - CORE ORGANIC CHEMISTRY

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| 4.1 - BASIC CONCEPTS AND HYDROCARBONS |
|  | Syllabus Code | Video Links |
| Basic concepts of organic chemistry | 4.1.1 | [The key organic terms](https://www.youtube.com/watch?v=h2roTte3VRs&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8) |
| [Key organic terms (with examples)](https://www.youtube.com/watch?v=pnMR-ckdUTQ&t=68s) |
| [Organic functional groups and homologous series](https://www.youtube.com/watch?v=tDBoVIv0EG0&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8&index=2) |
| [Organic formulae](https://www.youtube.com/watch?v=mD2lg85i7Y0&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8&index=3) |
| [Naming alkanes](https://www.youtube.com/watch?v=40wnvuG8uQg&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8&index=4) |
| [Naming alkenes](https://www.youtube.com/watch?v=a4eVQUZBixs&index=5&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8) |
| [Naming alcohols](https://www.youtube.com/watch?v=rvbnHgQrvcA&index=6&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8) |
| [Naming halogenoalkanes](https://www.youtube.com/watch?v=eh-AgZaUCVY&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8&index=7) |
| [Naming aldehydes](https://www.youtube.com/watch?v=v4TDZLPitCA&index=8&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8) |
| [Naming ketones](https://www.youtube.com/watch?v=7BoIaKjEFZY&index=9&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8) |
| [Naming carboxylic acids](https://www.youtube.com/watch?v=EyrYj4jRjRs&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8&index=10) |
| [Naming cycloalkanes](https://www.youtube.com/watch?v=kdkmrToka6k&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8&index=11) |
| [Naming cycloalkenes](https://www.youtube.com/watch?v=-OhLDdXNBXg&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8&index=12) |
| Alkanes4.1.2 | [Alkanes - The essentials](https://www.youtube.com/watch?v=XGbt2GRreGY&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8&index=13) |
| [Sigma bonds in 15 seconds](https://www.youtube.com/watch?v=QT_1NmFPFJY&index=15&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8) |
| [Radical substitution mechanism](https://www.youtube.com/watch?v=7k9UwilnhGw&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8&index=16) |
| [Radical substitution - looking at the electrons](https://www.youtube.com/watch?v=Bt_MzKPfaHM&t=11s)  |
| Alkenes | 4.1.3 | [Bonding in alkenes](https://www.youtube.com/watch?v=hLmgC57MIMg&index=18&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8) |
| [Pi bonds in 15 seconds](https://www.youtube.com/watch?v=9SDVtjEgTJY&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8&index=22) |
| [Stereoisomerism](https://www.youtube.com/watch?v=leFP31-Yr7U&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8&index=20) |
| [Explaining the lack of rotation in the C=C bond](https://www.youtube.com/watch?v=nxVO2cz4OCM&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8&index=19) |
| [My E/Z Key](https://www.youtube.com/watch?v=F8GdsMHE3gY&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8&index=21) |
| [Reactions of alkenes introduction](https://www.youtube.com/watch?v=8zPV_dYrvf4&index=23&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8) |
| [Reactions of alkenes with hydrogen](https://www.youtube.com/watch?v=WTDQHZmcA8A&index=24&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8) |
| [Reaction of alkenes with halogens](https://www.youtube.com/watch?v=pIINJTAIOKc&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8&index=25)  |
| [Reaction of alkenes with hydrogen halides](https://www.youtube.com/watch?v=cVZ8uiBGRAU&index=26&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8)  |
| [Reaction of alkenes with steam](https://www.youtube.com/watch?v=hr1RuxiJkdw&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8&index=27)  |
| [Electrophilic addition mechanism 1](https://www.youtube.com/watch?v=FZ7TXNImYMU&index=28&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8) |
| [Electrophilic addition mechanism 2](https://www.youtube.com/watch?v=BpkwtPhJyxM&index=29&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8) |
| [Markovnikoff’s rule](https://www.youtube.com/watch?v=dqVfztA7Q3g&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8&index=30) |
| [Addition polymers from alkenes](https://www.youtube.com/watch?v=N28y-aGJ0zI&list=PLi6oabjl6cowarFQze-AppId-WA6iw5k8&index=31) |

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| 4.2 - ALCOHOLS, HALOALKANES AND ANALYSIS |
|  | Syllabus Code | Video Links |
| Alcohols | 4.2.1 | [Alcohols introduction](https://www.youtube.com/watch?v=t_Go5Rv7FWA&list=PLi6oabjl6cowGEkY8OBJkI35QDK29OWGK&index=5) |
| [Oxidation reactions of alcohols](https://www.youtube.com/watch?v=s-W5tR9fwrc&index=6&list=PLi6oabjl6cowGEkY8OBJkI35QDK29OWGK) |
| [Oxidation of alcohols reflux vs distillation](https://www.youtube.com/watch?v=L4SJ-ERAEXo&index=7&list=PLi6oabjl6cowGEkY8OBJkI35QDK29OWGK)  |
| [Dehydration of alcohols](https://www.youtube.com/watch?v=6blGTgFQ49Q&list=PLi6oabjl6cowGEkY8OBJkI35QDK29OWGK&index=8) |
| Haloalkanes | 4.2.2 | [Hydrolysis of haloalkanes](https://www.youtube.com/watch?v=ujJutNEs2Ww&list=PLi6oabjl6cowGEkY8OBJkI35QDK29OWGK&index=10) |
| [Relative rates of hydrolysis of haloalkanes](https://www.youtube.com/watch?v=gVCoVIaSQwc&list=PLi6oabjl6cowGEkY8OBJkI35QDK29OWGK&index=11) |
| [Organohalogens and the ozone layer](https://www.youtube.com/watch?v=k61xuVa0Hb0&index=12&list=PLi6oabjl6cowGEkY8OBJkI35QDK29OWGK) |
| Organic synthesis | 4.2.3 | [Synthetic routes 1](https://www.youtube.com/watch?v=qhqpZ4SX98s&t=348s) |
| [Synthetic routes 2](https://www.youtube.com/watch?v=DKQg8zunRaM&t=42s) |
| [Synthetic routes 3](https://www.youtube.com/watch?v=hHiUxylxlrY) |
| [Revise organic reaction mechanisms](https://www.youtube.com/watch?v=QArMxmd82zs) |
| [Test yourself AS organic reactions](https://www.youtube.com/watch?v=W5KwAeagQ04&index=22&list=PLi6oabjl6cowGEkY8OBJkI35QDK29OWGK) |
| [Quickfit apparatus](https://www.youtube.com/watch?v=rn-rFjsbSe0) |
| Analytical techniques | 4.2.4 | [An introduction to infrared spectroscopy](https://www.youtube.com/watch?v=gIn1mxZvL1w&t=370s) |
| [Getting started with interpreting IR spectra](https://www.youtube.com/watch?v=rE-m5kv-YEs&t=55s) |
| [Interpreting infrared spectra](https://www.youtube.com/watch?v=xdIn_1BWqjY&t=88s) |
| [Mass spectrometry of organic compounds](https://www.youtube.com/watch?v=QLlLZLW47cE&list=PLi6oabjl6cowGEkY8OBJkI35QDK29OWGK&index=15) |
| [Interpreting mass spectra](https://www.youtube.com/watch?v=8WpZRbhRgbw&t=88s) |

MODULE 5: PHYSICAL CHEMISTRY AND TRANSITION ELEMENTS

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| 5.1 - RATES, EQUILIBRIUM AND pH |
|  | Syllabus Code | Video Links |
| How fast? | 5.1.1 | [Rate and order of reaction](https://www.youtube.com/watch?v=RN_f1qp83bM&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [Order and half-life](https://www.youtube.com/watch?v=lDKxnNU6Y0Q&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p&index=2) |
| [Rate equations](https://www.youtube.com/watch?v=QLRejvdJkus&index=3&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [Initial rates 1](https://www.youtube.com/watch?v=ElOLXRXeNLw&index=4&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [Initial rates 2](https://www.youtube.com/watch?v=p6NrCbZOdJo&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p&index=5) |
| [Ten initial rates questions](https://youtu.be/U0o9Qrd7TZQ) |
| [Rate determining steps and reaction mechanism 1](https://www.youtube.com/watch?v=oPFZR0Ut4Gk&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p&index=6) |
| [Rate determining steps and reaction mechanism 2](https://www.youtube.com/watch?v=KZDRofmuctQ&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p&index=7) |
| [The Arrhenius equation](https://www.youtube.com/watch?v=BUfXEYpq3Ds&index=8&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [Arrhenius Calculations](https://www.youtube.com/watch?v=vW--uF9VzjQ) |
| [Arrhenius Plots](https://www.youtube.com/watch?v=AwFbIdz1aK4) |
| How far? | 5.1.2 | [The equilibrium constant Kc](https://www.youtube.com/watch?v=o2ByXq-N7KQ&index=9&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [Kc calculations 1](https://www.youtube.com/watch?v=IxG9p5l2ioA&index=10&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [Kc calculations 2](https://www.youtube.com/watch?v=HSwJumjidvA&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p&index=11) |
| [Kc for heterogeneous equilibria](https://www.youtube.com/watch?v=bnqyqKWmz6E&index=34&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [Explain in terms of Kc](https://www.youtube.com/watch?v=DIVXFbgpgUQ&index=12&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [The equilibrium constant Kp](https://www.youtube.com/watch?v=jjHCl9Neu0o&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p&index=13) |
| [Kp calculations involving total pressure](https://www.youtube.com/watch?v=0uY4gFt9vDg&index=14&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [Kp calculations involving mole fractions](https://www.youtube.com/watch?v=yiph-EQm05I&index=15&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [Exam paper Kp calculation](https://www.youtube.com/watch?v=HAZIcxg3G30) |
| Acids, bases and buffers | 5.1.3 | [Acids and bases introduction](https://www.youtube.com/watch?v=Pcrb5ztoezw&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p&index=16) |
| [The acid dissociation constant Ka](https://www.youtube.com/watch?v=9RleGhfRSbM&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p&index=17) |
| [Calculating the pH of strong acids](https://www.youtube.com/watch?v=eYO5GErXQN4&index=18&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [Calculating the pH of weak acids](https://www.youtube.com/watch?v=ZlMokznLvuk&index=19&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [Weak acid approximations](https://www.youtube.com/watch?v=EtUqS0h0wPc&index=36&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [The ionic product of water Kw](https://www.youtube.com/watch?v=_tCfeqnWdoM&index=20&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [Calculating the pH of strong bases](https://www.youtube.com/watch?v=5ZY4d2nLQDs&index=21&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [Introduction to buffer solutions](https://www.youtube.com/watch?v=PD0ycVlGtTQ&index=22&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [Buffer calculations 1](https://www.youtube.com/watch?v=xDRyGAQTRgQ&index=23&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [Buffer calculations 2](https://www.youtube.com/watch?v=tsS_T2Cph28&index=24&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [pH curves strong acid-strong base](https://www.youtube.com/watch?v=FPkI3f4lpJ0&index=25&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p&spfreload=10)  |
| [pH curves strong acid-weak base](https://www.youtube.com/watch?v=tVHf4ZQgoCc&index=26&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [pH curves weak acid-strong base](https://www.youtube.com/watch?v=cKQBW7Suoi4&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p&index=27) |
| [pH curves weak acid-weak base](https://www.youtube.com/watch?v=mU3UkjDlEa4&index=28&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p) |
| [Choosing the right indicator](https://www.youtube.com/watch?v=ETPki0uLS4U&list=PLi6oabjl6cowDU_yKFyz0xjspssaq5p2p&index=29) |
| [All the K’s](https://www.youtube.com/watch?v=3f_2uHWKYtM)  |

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| 5.2 - ENERGY |
|  | Syllabus Code | Video Links |
| Lattice enthalpy  | 5.2.1 | [Lattice enthalpy 1](https://www.youtube.com/watch?v=scfHiKHSu0E&index=1&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT) |
| [Lattice enthalpy 2](https://www.youtube.com/watch?v=_iQazz_uaHI&index=2&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT) |
| [Lattice enthalpy 3](https://www.youtube.com/watch?v=BPKRPD91Ic8&index=3&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT) |
| [Lattice enthalpy for Al2O3](https://www.youtube.com/watch?v=Cl3pideIBd8&index=4&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT) |
| [Enthalpy of Solution 1](https://www.youtube.com/watch?v=ASiySWEoMhI&index=5&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT)  |
| [Enthalpy of Solution 2](https://www.youtube.com/watch?v=4UsB7dWT-XQ&index=6&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT)  |
| [Enthalpy of Solution 3](https://www.youtube.com/watch?v=7OvHF7YOa9w&index=7&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT)  |
| Enthalpy and entropy | 5.2.2 | [Entropy 1](https://www.youtube.com/watch?v=I8Xd5MN5cMg&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT&index=8) |
| [Entropy 2](https://www.youtube.com/watch?v=8V4KCJCl9ac&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT&index=9) |
| [Calculating the minimum temperature a reaction takes place spontaneously](https://www.youtube.com/watch?v=1si2skwotXA&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT&index=10)  |
| [Awkward Gibbs equation question](https://www.youtube.com/watch?v=GNfcQj5n2-8&t=2s) |
| Redox and electrode potentials | 5.2.3 | [Writing half equations](https://www.youtube.com/watch?v=SceZoVa7hDc&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT&index=11) |
| [Combining half equations](https://www.youtube.com/watch?v=cEucp_9zOIQ&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT&index=12) |
| [Redox titrations 1](https://www.youtube.com/watch?v=Mv0o1sfItM8&index=13&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT) |
| [Redox titrations 2](https://www.youtube.com/watch?v=wLgMnaGH1Yc&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT&index=14) |
| [Thiosulphate titrations 1](https://www.youtube.com/watch?v=tubN2lLs1s4&index=15&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT)  |
| [Thiosulphate titrations 2](https://www.youtube.com/watch?v=ddHzpKdfF0c&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT&index=16) |
| [Electrode potentials 1](https://www.youtube.com/watch?v=Y7WRsaFJM8I&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT&index=17) |
| [Electrode potentials 2](https://www.youtube.com/watch?v=0VaokbBsYFQ&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT&index=18) |
| [Fuel cells introduction](https://www.youtube.com/watch?v=xDBNJpcoGrk&index=19&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT) |
| [Advantages and disadvantages of fuel cell vehicles](https://www.youtube.com/watch?v=8oL45kfadss&list=PLi6oabjl6coxbrrG7w2tD7l5lTjlq8atT&index=20)  |

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| 5.3 - TRANSITION ELEMENTS |
|  | Syllabus Code | Video Links |
| Transition elements5.3.1 | [Transition Elements 1](https://www.youtube.com/watch?v=0xmOdqKzB1Q&list=PLi6oabjl6coxmdJCSAEjg4IE3ocM911Ag&index=1) [(Introduction)](https://www.youtube.com/watch?v=0xmOdqKzB1Q&list=PLi6oabjl6coxmdJCSAEjg4IE3ocM911Ag&index=1) |
| [Transition Elements 2](https://www.youtube.com/watch?v=m8OTnORw6og&list=PLi6oabjl6coxmdJCSAEjg4IE3ocM911Ag&index=2) [(4 general properties)](https://www.youtube.com/watch?v=m8OTnORw6og&list=PLi6oabjl6coxmdJCSAEjg4IE3ocM911Ag&index=2) |
| [Transition Elements 3](https://www.youtube.com/watch?v=VKsKxqGjkOU&list=PLi6oabjl6coxmdJCSAEjg4IE3ocM911Ag&index=3) [(Precipitation reactions)](https://www.youtube.com/watch?v=VKsKxqGjkOU&list=PLi6oabjl6coxmdJCSAEjg4IE3ocM911Ag&index=3) |
| [Transition Elements 4](https://www.youtube.com/watch?v=WqANuNfCc90&list=PLi6oabjl6coxmdJCSAEjg4IE3ocM911Ag&index=4)[(Complexes)](https://www.youtube.com/watch?v=WqANuNfCc90&list=PLi6oabjl6coxmdJCSAEjg4IE3ocM911Ag&index=4) |
| [Transition Elements 5](https://www.youtube.com/watch?v=jcBiPOOimlo&index=5&list=PLi6oabjl6coxmdJCSAEjg4IE3ocM911Ag) [(Isomerism in complex ions)](https://www.youtube.com/watch?v=jcBiPOOimlo&index=5&list=PLi6oabjl6coxmdJCSAEjg4IE3ocM911Ag) |
| [Transition Elements 6](https://www.youtube.com/watch?v=LAnOtBr4VKU&index=6&list=PLi6oabjl6coxmdJCSAEjg4IE3ocM911Ag)[(Ligand substitution reactions)](https://www.youtube.com/watch?v=LAnOtBr4VKU&index=6&list=PLi6oabjl6coxmdJCSAEjg4IE3ocM911Ag) |
| [Transition Element Colours by Metal](https://www.youtube.com/watch?v=HHpuxn0GZjc&t=14s)  |
| [Transition Element Colours by Colour](https://www.youtube.com/watch?v=XPl4M3akG_I) |
| [Test yourself TM reactions](https://www.youtube.com/watch?v=pqLezVUvHZ0) |
| Qualitative analysis | 5.3.2 | [Inorganic Qualitative Analysis](https://www.youtube.com/watch?v=g5h3ZF0ATs0) |

MODULE 6: ORGANIC CHEMISTRY AND ANALYSIS

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| 6.1 - AROMATIC COMPOUNDS, CARBONYLS AND ACIDS |
|  | Syllabus Code | Video Links |
| Aromatic Compounds | 6.1.1 | [Structure and bonding in benzene](https://www.youtube.com/watch?v=g6eLwkYne0g&list=PLi6oabjl6coxYqpjAGd55GYguyTlNjsHp) |
| [Evidence for benzene’s structure and bonding](https://www.youtube.com/watch?v=lMsS5RsGmW0) |
| [Reactions of benzene](https://www.youtube.com/watch?v=Ph73widRSpw&list=PLi6oabjl6coxYqpjAGd55GYguyTlNjsHp&index=2) |
| [Friedel-Crafts Reactions](https://www.youtube.com/watch?v=K6SNxePSlKE) |
| [Comparing the reactivities of benzene and alkenes](https://www.youtube.com/watch?v=Sp_D_F7f47Q&list=PLi6oabjl6coxYqpjAGd55GYguyTlNjsHp&index=3) |
| [Phenols 1](https://www.youtube.com/watch?v=A290BLg-eao&index=4&list=PLi6oabjl6coxYqpjAGd55GYguyTlNjsHp) |
| [Phenols 2](https://www.youtube.com/watch?v=Mr4Gn2OtJpo&list=PLi6oabjl6coxYqpjAGd55GYguyTlNjsHp&index=5) |
| [Aromatic directing groups](https://www.youtube.com/watch?v=OsQa4o-29I4&list=PLi6oabjl6coxYqpjAGd55GYguyTlNjsHp&index=6) |
| Carbonyl Compounds | 6.1.2 | [An introduction to carbonyl compounds](https://www.youtube.com/watch?v=oui5g4ycd6M&list=PLi6oabjl6coxYqpjAGd55GYguyTlNjsHp&index=7) |
| [Oxidation and reduction reactions of carbonyl compounds](https://www.youtube.com/watch?v=2K_rn3YQglY&list=PLi6oabjl6coxYqpjAGd55GYguyTlNjsHp&index=8) |
| [Nucleophilic addition mechanism for the reduction of carbonyls](https://www.youtube.com/watch?v=sxjuBj6vrsU&list=PLi6oabjl6coxYqpjAGd55GYguyTlNjsHp&index=9) |
| [Testing for carbonyl compounds](https://www.youtube.com/watch?v=vvvwgOxWpsY&list=PLi6oabjl6coxYqpjAGd55GYguyTlNjsHp&index=11) |
| Carboxylic acids and esters | 6.1.3 | [An introduction to carboxylic acids](https://www.youtube.com/watch?v=d9X5T5NXkbA&list=PLi6oabjl6coxYqpjAGd55GYguyTlNjsHp&index=12) |
| [Reactions of carboxylic acids](https://www.youtube.com/watch?v=dEIEZ6TYdi0&list=PLi6oabjl6coxYqpjAGd55GYguyTlNjsHp&index=13) |
| [Esters](https://www.youtube.com/watch?v=LUmBK_Cu9RA&index=14&list=PLi6oabjl6coxYqpjAGd55GYguyTlNjsHp) |
| [Esterification](https://www.youtube.com/watch?v=H51yz8s5lkY&list=PLi6oabjl6coxYqpjAGd55GYguyTlNjsHp&index=15) |
| [Hydrolysis of esters](https://www.youtube.com/watch?v=iMHRf83TZTo&list=PLi6oabjl6coxYqpjAGd55GYguyTlNjsHp&index=16) |
| [Acyl(acid) chlorides introduction](https://www.youtube.com/watch?v=Sur_cc86rXc&index=17&list=PLi6oabjl6coxYqpjAGd55GYguyTlNjsHp) |
| [Reactions of acyl chlorides](https://www.youtube.com/watch?v=sOpFD1rHtZ4&list=PLi6oabjl6coxYqpjAGd55GYguyTlNjsHp&index=18) |

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| 6.2 - NITROGEN COMPOUNDS, POLYMERS AND SYNTHESIS |
|  | Syllabus Code | Video Links |
| Amines | 6.2.1 | [Amines](https://www.youtube.com/watch?v=FO8Ddgci3Ys&t=7s) |
| Amino acids, amides and chirality  | 6.2.2 | [Amides](https://www.youtube.com/watch?v=K5HGwCHNjRk&index=2&list=PLi6oabjl6cozVuSNKWqp764waxLLW2Ibd) |
| [Amino acids introduction](https://www.youtube.com/watch?v=IVUcazxo4FQ&list=PLi6oabjl6cozVuSNKWqp764waxLLW2Ibd&index=3) |
| [Reactions of amino acids](https://www.youtube.com/watch?v=--jNIrCMoic&index=4&list=PLi6oabjl6cozVuSNKWqp764waxLLW2Ibd) |
| [Introduction to optical isomerism](https://www.youtube.com/watch?v=AEtU1f3Lf3k&list=PLi6oabjl6cozVuSNKWqp764waxLLW2Ibd&index=5) |
| [Drawing the optical isomers for molecules with 2 chiral centres](https://www.youtube.com/watch?v=VAOaVZ5vaho&index=6&list=PLi6oabjl6cozVuSNKWqp764waxLLW2Ibd)  |
| [How we distinguish between optical isomers](https://www.youtube.com/watch?v=C1Nx9sscBEQ&index=8&list=PLi6oabjl6cozVuSNKWqp764waxLLW2Ibd) |
| Polyesters and polyamides | 6.2.3 | [Introduction to condensation polymerisation](https://www.youtube.com/watch?v=od3S2eWMSmE&index=10&list=PLi6oabjl6cozVuSNKWqp764waxLLW2Ibd) |
|  | [Polyesters](https://www.youtube.com/watch?v=AD1p3_dNlOc&list=PLi6oabjl6cozVuSNKWqp764waxLLW2Ibd&index=11) |
|  | [Polyamides](https://www.youtube.com/watch?v=VUlOKBjBUAA&index=12&list=PLi6oabjl6cozVuSNKWqp764waxLLW2Ibd) |
|  | [Hydrolysis of polyesters](https://www.youtube.com/watch?v=DOhyJM8pGjk&list=PLi6oabjl6cozVuSNKWqp764waxLLW2Ibd&index=13) |
|  | [Hydrolysis of polyamides](https://www.youtube.com/watch?v=kHt8ZJ556O8&index=14&list=PLi6oabjl6cozVuSNKWqp764waxLLW2Ibd) |
| Carbon-carbon bond formation | 6.2.4 | [C-C bond synthesis](https://www.youtube.com/watch?v=actaFJlXsU0&list=PLi6oabjl6cozVuSNKWqp764waxLLW2Ibd&index=15) |

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| 6.3 - ANALYSIS |
|  | Syllabus Code | Video Links |
| Chromatography and qualitative analysis | 6.3.1 | [Chromatography introduction](https://www.youtube.com/watch?v=NSnBbdc2tTI&list=PLi6oabjl6cowA_p-BD31-xcmndPv2Qlph) |
| [Thin layer chromatography](https://www.youtube.com/watch?v=mBz6U67g14Q&list=PLi6oabjl6cowA_p-BD31-xcmndPv2Qlph&index=2) |
| [Gas chromatography](https://www.youtube.com/watch?v=3AQ55RPVE_A&list=PLi6oabjl6cowA_p-BD31-xcmndPv2Qlph&index=3) |
| Qualitative analysis video to follow |
| Spectroscopy | 6.3.2 | [An introduction to NMR](https://www.youtube.com/watch?v=EVyN5pZbzDA&index=4&list=PLi6oabjl6cowA_p-BD31-xcmndPv2Qlph) |
| [Carbon-13 NMR introduction](https://www.youtube.com/watch?v=IaHSYjDhGCM&index=5&list=PLi6oabjl6cowA_p-BD31-xcmndPv2Qlph) |
| [Carbon-13 NMR two worked examples](https://www.youtube.com/watch?v=YlcH9aK9ZVw&list=PLi6oabjl6cowA_p-BD31-xcmndPv2Qlph&index=6) |
| [Proton NMR 1 - Basic spectra](https://www.youtube.com/watch?v=xZRA1Qh_QtM&index=7&list=PLi6oabjl6cowA_p-BD31-xcmndPv2Qlph) |
| [Proton NMR 2 - Integration values](https://www.youtube.com/watch?v=yN-mPlLyf4I&list=PLi6oabjl6cowA_p-BD31-xcmndPv2Qlph&index=8) |
| [Proton NMR 3 - Peak splitting](https://www.youtube.com/watch?v=9btbezNOI68&index=9&list=PLi6oabjl6cowA_p-BD31-xcmndPv2Qlph) |
| [Proton NMR 4 - More peak splitting](https://www.youtube.com/watch?v=CtJc-NHX17s&list=PLi6oabjl6cowA_p-BD31-xcmndPv2Qlph&index=10) |
| [Proton NMR 5 - Dealing with -OH and -NH protons](https://www.youtube.com/watch?v=IHgshjnun-8&list=PLi6oabjl6cowA_p-BD31-xcmndPv2Qlph&index=11) |
| [Interpreting IR spectra](https://www.youtube.com/watch?v=xdIn_1BWqjY&list=PLi6oabjl6cowA_p-BD31-xcmndPv2Qlph&index=13) |
| [Mass spectrometry of organic compounds](https://www.youtube.com/watch?v=QLlLZLW47cE&index=14&list=PLi6oabjl6cowA_p-BD31-xcmndPv2Qlph) |
| [Combined techniques 1](https://www.youtube.com/watch?v=iQd2OvIDZWw&list=PLi6oabjl6cozd0SPEgBmv6EwEo8cSr-KE&index=1) |
| [Combined techniques 2](https://www.youtube.com/watch?v=AX4e4_XkxJE&index=2&list=PLi6oabjl6cozd0SPEgBmv6EwEo8cSr-KE) |
| [Combined techniques 3](https://www.youtube.com/watch?v=RYzemiSVlWg&list=PLi6oabjl6cozd0SPEgBmv6EwEo8cSr-KE&index=3) |
| [Combined techniques 4](https://www.youtube.com/watch?v=UuEfvamQrP4&list=PLi6oabjl6cozd0SPEgBmv6EwEo8cSr-KE&index=4) |

Quick revision videos

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| Module 1: Practical skills (See also PAG section) |
| [Inorganic qualitative analysis (WITH PHOTOS)](https://www.youtube.com/watch?v=d6yjsZXRnKg&t=29s) |
| [Organic synthesis (practical skills)](https://www.youtube.com/watch?v=pEvt5ndTfMg&t=84s&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=34) |

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| Module 2: Foundations in chemistry |
| [Atomic structure](https://www.youtube.com/watch?v=c4Evj1ZngJ0&t=13s) |
| [Ions and ionic formulae](https://youtu.be/u36QeMvF0vs) |
| [Ionic equations](https://youtu.be/o__BJWSs6U4) |
| [Relative molecular mass and relative formula mass](https://youtu.be/WtiJ28sXc9Q) |
| [Relative mass](https://www.youtube.com/watch?v=BcR5dPtu6j0&feature=youtu.be) |
| [The mole](https://www.youtube.com/watch?v=mT23GaAlbcU&feature=youtu.be) |
| [Amount of substance (Reacting mass)](https://www.youtube.com/watch?v=v9AW42dh5SA) |
| [Titration calculations](https://www.youtube.com/watch?v=_Q-fysStdlI&t=23s)  |
| [Further titration calculations](https://www.youtube.com/watch?v=m8oEtQquLIA&feature=youtu.be)  |
| [Excess and limiting reagents](https://www.youtube.com/watch?v=vJmhVfcYT20&t=1s) |
| [Ideal gas equation](https://www.youtube.com/watch?v=FUXL89VrxKg&t=98s)  |
| [Acids & bases](https://www.youtube.com/watch?v=RuGVSwXZR1g&feature=youtu.be) |
| [Hydrated salts](https://www.youtube.com/watch?v=rQx4TBx7q2s&feature=youtu.be) |
| [Redox](https://www.youtube.com/watch?v=3aJvMHP0qtI&t=13s)  |
| [Electron configuration](https://www.youtube.com/watch?v=ZpapQPcgw7w&feature=youtu.be)  |
| [Ionic bonding](https://youtu.be/6TcBR7v8wJk) |
| [Covalent bonding](https://youtu.be/C4j7mfRcAZw) |
| [Shapes of molecules](https://www.youtube.com/watch?v=sjFH_q3Wgy0&index=1&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl)  |
| [Shapes of molecules (2)](https://youtu.be/XnSlpoePkqs) |
| [Shapes of molecules (3)](https://youtu.be/uiEFh4_XD0Y) |
| [Shapes of molecules (4)](https://youtu.be/5rGV5Q8HiLM) |
| [Polar and non-polar molecules](https://www.youtube.com/watch?v=fjMH9S3HqxI&t=48s) |
| [Intermolecular forces](https://www.youtube.com/watch?v=JYeKIRq4Syw&t=20s) |

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| Module 3: Periodic table and energy |
| [Periodicity - Ionisation energy trends](https://www.youtube.com/watch?v=ALIKo_NVkkU&t=123s) |
| [Periodic trends in bonding and structure](https://youtu.be/RT4wwgILaPw) |
| [Explaining melting point in terms of bonding and structure (1)](https://youtu.be/5OgFcbLPb5M) |
| [Explaining melting point in terms of bonding and structure (2)](https://youtu.be/9oq0eKXN-Os) |
| [Group 2](https://www.youtube.com/watch?v=pSXlS-43k-w&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=4) |
| [Enthalpy change calculations](https://www.youtube.com/watch?v=eRix6mTQ0Qw&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=3)  |
| [Enthalpy changes from bond enthalpies](https://www.youtube.com/watch?v=XJ8Y6GVVUVo&t=32s) |
| [Hess’ Law cycles (formation)](https://www.youtube.com/watch?v=9fQCpBNkPyc&t=37s) |
| [Hess’ Law cycles (combustion)](https://www.youtube.com/watch?v=4p_WEaWpFO0) |
| [Vector approach to Hess’ Law using enthalpy changes of combustion](https://www.youtube.com/watch?v=2lVV2mo_p-U&t=21s)  |
| [Vector approach to Hess’ Law using enthalpy changes of formation](https://www.youtube.com/watch?v=pA46nnVjVBI&t=10s)  |
| [Enthalpy change of neutralisation](https://studio.youtube.com/video/VmvhhZYAXN4/edit)  |
| [AS Reaction rates](https://www.youtube.com/watch?v=nxPy9dn77D8&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=9) |
| [AS Equilibria](https://www.youtube.com/watch?v=MK0vQZovvk0&index=6&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl) |

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| Module 4: Core organic chemistry |
| [Alkanes](https://www.youtube.com/watch?v=n9MCZJMrkc8&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=8) |
| [Radical substitution mechanism (past exam question)](https://www.youtube.com/watch?v=K3cnfGC_kNU) |
| [Alkenes (bonding & shape)](https://www.youtube.com/watch?v=7EEmkopvEV4) |
| [Alkenes (reactions)](https://www.youtube.com/watch?v=QjYO1Qk4nuk) |
| [Electrophilic addition mechanism](https://www.youtube.com/watch?v=tdSyBghZX7Y) |
| [Alkenes (Markownikoff’s rule)](https://www.youtube.com/watch?v=g7eIz79jGoU) |
| [E/Z Isomerism](https://www.youtube.com/watch?v=o0vI4YgmWXY&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=11) |
| [Cis-trans isomerism](https://www.youtube.com/watch?v=gjY4HIH_4V4&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=12) |
| [Addition polymerisation](https://youtu.be/2J7M8Cvyurk) |
| [Alcohols (Classification & physical properties)](https://youtu.be/nTVF3Axbvw8) |
| [Alcohols (Reactions)](https://youtu.be/TcKSLpBe9z4) |
| [Haloalkanes](https://www.youtube.com/watch?v=bzYOYsYBWis&t=195s) |
| [Purification of an organic liquid](https://www.youtube.com/watch?v=TNfjoaeVcWw&feature=youtu.be) |
| [Mass spectrometry](https://www.youtube.com/watch?v=VmgR1rosQ4g&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=19) |
| [Infrared spectroscopy](https://www.youtube.com/watch?v=IXTsIFhOMr8&index=18&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl) |
| [AS organic conversions](https://www.youtube.com/watch?v=Pq5iHR4Iea8&index=5&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl)  |
| [AS organic pathways map](https://www.youtube.com/watch?v=woUiqJRMq1E&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=47) |
| [AS organic mechanisms](https://www.youtube.com/watch?v=xkyRYFgZKdA&t=17s) |

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| Module 5: Physical chemistry and transition elements |
| [Initial rates](https://www.youtube.com/watch?v=qjTkv7WJLLI&index=41&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl) |
| [Rates graphs](https://www.youtube.com/watch?v=zLCgdJtsIRo&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=43) |
| [Rate determining steps and reaction mechanisms](https://www.youtube.com/watch?v=RG3cMfGjFXY&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=42) |
| [Clock reactions](https://www.youtube.com/watch?v=qZ5eZowoDhc&feature=youtu.be) |
| [Arrhenius equation](https://www.youtube.com/watch?v=QFYxnEmVm_A&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=53&t=0s) |
| [The equilibrium constant Kc](https://www.youtube.com/watch?v=UMr__kkbzJI&index=46&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl) |
| [The equilibrium constant Kp](https://www.youtube.com/watch?v=M6rG2_QuH0Y&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=36) |
| [Explaining equilibrium shift in terms of equilibrium constants](https://www.youtube.com/watch?v=R-YTSi14-98&t=13s) |
| [Bronsted-Lowry acids and bases](https://www.youtube.com/watch?v=j1cOSqaikcw) |
| [Strong acids](https://www.youtube.com/watch?v=33ejsH2Ro_E&t=10s)  |
| [Weak acids](https://www.youtube.com/watch?v=bg2tuAsCzfw&feature=youtu.be) |
| [Acids, bases and buffers formulae](https://www.youtube.com/watch?v=x-gwncB4Zrs&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=2) |
| [Weak acids calculations](https://youtu.be/a3liAn2cbsQ) |
| [Ionic product of water, Kw](https://www.youtube.com/watch?v=gQ4RCYypC3A&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=50) |
| [Buffer solutions](https://www.youtube.com/watch?v=8IZSH2IW5Rc&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=10)  |
| [Buffer solution calculations](https://www.youtube.com/watch?v=KPUT0ltIp2M) |
| [pH titration curves](https://www.youtube.com/watch?v=hgn3TkfR4bQ&t=58s) |
| [pH titration curve calculations](https://www.youtube.com/watch?v=Ggmdt0hOz-I) |
| [Calculating pH of mixture of a strong acid and strong alkali](https://www.youtube.com/watch?v=U0oxuVb4_WY&t=7s) |
| [Calculating pH of mixture of a weak acid and strong alkali](https://www.youtube.com/watch?v=XjSxTmErm_o&t=15s) |
| [Born-Haber cycles](https://www.youtube.com/watch?v=M9x0rYmX_fg&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=7) |
| [Enthalpy change of solution](https://www.youtube.com/watch?v=t9sgI7fZWEE&t=4s&index=14&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl)  |
| [Entropy & free energy](https://www.youtube.com/watch?v=Fk8Eb6SGbAY&t=3s)  |
| [Awkward Gibbs equation question](https://www.youtube.com/watch?v=GNfcQj5n2-8&t=2s) |
| [Redox titrations](https://www.youtube.com/watch?v=_cDUcCqHU_U&t=5s) |
| [Sodium thiosulfate titrations](https://www.youtube.com/watch?v=RQRLzanf40M&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=14) |
| [Redox titration question walkthrough (inc practical skills)](https://www.youtube.com/watch?v=LLm8iPBgHds) |
| [Redox titration question walkthrough (OCR A 2018 Paper 1)](https://www.youtube.com/watch?v=LHipTWHLXBA&t=50s) |
| [Using redox titrations to establish the mole ratio](https://www.youtube.com/watch?v=6FilT-jHNOg) |
| [Oxidation number](https://www.youtube.com/watch?v=LmoZBa2HHqE&t=14s) |
| [Balancing awkward redox equations](https://www.youtube.com/watch?v=fe-Y8sfcjt0) |
| [Half-equations](https://www.youtube.com/watch?v=DU1S_oHSWGc&index=26&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl) |
| [Electrode potentials & electrochemical cells](https://www.youtube.com/watch?v=cS_SY4m45-w&index=21&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl) |
| [Fuel-cells](https://www.youtube.com/watch?v=1HM3Ex3hT7c&index=25&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl) |
| [Non-hydrogen fuel-cells](https://www.youtube.com/watch?v=ptaK3Zrqyp0&t=44s) |
| [Storage cells (batteries)](https://www.youtube.com/watch?v=zVEwFI03voU) |
| [Transition element (properties)](https://www.youtube.com/watch?v=1ZTSGeSUkMY&feature=youtu.be) |
| [Transition elements (complex ions)](https://www.youtube.com/watch?v=iC3ozM2gwlg&index=29&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl) |
| [Transition elements (reactions)](https://www.youtube.com/watch?v=HrA6ZJLePtA)  |
| [Writing equations from supplied information](https://www.youtube.com/watch?v=MJtRlV6zmA8)  |
| [Inorganic qualitative analysis](https://www.youtube.com/watch?v=IlJ_OjR-WhE&index=27&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl) |

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| Module 6: Organic chemistry and analysis |
| [Structure & bonding in benzene](https://www.youtube.com/watch?v=p-lbnpdJRR0&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=16) |
| [Electrophilic substitution](https://www.youtube.com/watch?v=NFLt4ZXr3UY&index=15&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl) |
| [Alkylation & acylation of benzene](https://www.youtube.com/watch?v=33D7IYfuEq8&feature=youtu.be) |
| [Comparing the reactivities of benzene and alkenes](https://www.youtube.com/watch?v=M7x31lL1s74&t=2s) |
| [Phenols](https://www.youtube.com/watch?v=8dNvifrg8Ig) |
| [Comparing the reactivities of benzene and phenol](https://www.youtube.com/watch?v=40rWgzl7SSc&t=30s) |
| [Aromatic directing groups](https://www.youtube.com/watch?v=98uJSOhGLxY&t=146s) |
| [Carbonyl compounds](https://www.youtube.com/watch?v=-XGFTRcrqNU&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=33) |
| [Carboxylic acids](https://www.youtube.com/watch?v=YRA2uur2_Js&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=34) |
| [Esters](https://www.youtube.com/watch?v=LAKo_odYCac&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=35) |
| [Acid anhydrides](https://www.youtube.com/watch?v=rp9c0Uc1vT8) |
| [Acyl chlorides](https://www.youtube.com/watch?v=_FuHT9siSMY&index=36&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl) |
| [Amines](https://www.youtube.com/watch?v=kMDI4_0WedU&t=25s) |
| [Amides](https://www.youtube.com/watch?v=pesApXHEHJE) |
| [Amino acids](https://www.youtube.com/watch?v=p7hMKb73OnE&t=37s) |
| [Condensation polymers](https://www.youtube.com/watch?v=qYLyKI0vkpo&t=6s) |
| [Awkward polymerisation questions](https://www.youtube.com/watch?v=37aWvE_c0PA&t=13s) |
| [Hydrolysis of condensation polymers](https://www.youtube.com/watch?v=WVGyC6Q6zzw&list=PLi6oabjl6cozqnvVSNU1FqQEmHBaKguUX&index=38&t=3s) |
| [Nitriles & hydroxynitriles](https://www.youtube.com/watch?v=ZEQXf4hxFso&feature=youtu.be) |
| [Organic reaction pathways (aliphatic)](https://www.youtube.com/watch?v=5mgU4G6fm-Q&index=37&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl) |
| [Organic reaction pathways (benzene)](https://www.youtube.com/watch?v=-meHHhTIUBY&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=39) |
| [Organic reaction pathways (phenol)](https://www.youtube.com/watch?v=aja3-k9pRxk&feature=youtu.be) |
| [Purification of an organic solid](https://www.youtube.com/watch?v=OT6HPdbA9mc&t=10s) |
| [Organic qualitative analysis](https://www.youtube.com/watch?v=hfcMmGIUWy8&t=12s) |
| [Chromatography](https://www.youtube.com/watch?v=kFiAcipDRng&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=20) |
| [Calibration curves](https://www.youtube.com/watch?v=4UqzSZqzXtU&t=16s) |
| [Proton NMR](https://www.youtube.com/watch?v=L-kA7m55DWs&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=17) |
| [Carbon-13 NMR](https://www.youtube.com/watch?v=Wpvw1oW-86E&list=PLi6oabjl6cozF_G9DBLP3_hCsQw92_0cl&index=20) |
| [All six mechanisms](https://www.youtube.com/watch?v=k0WsaWVtoZo&t=18s) |
| [Combustion analysis](https://www.youtube.com/watch?v=xg667V8tC-U&t=97s) |

Quick Test Videos

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| Module 2: Foundations in chemistry |
| [Atomic Structure & Isotopes 1](https://youtu.be/qzxORs-00rs) |
| [Formulae & Equations 1](https://youtu.be/8TIE37ONTLY) |
| [Formula & Equations 2](https://youtu.be/Hkr8AzYX3gM) |
| [Formulae & Equations 3](https://youtu.be/xz1OZpxeE1c) |
| [Relative mass 1](https://youtu.be/mTprBz5W76M) |
| [Calculations 1](https://youtu.be/yP1yrMTSkOg) |
| [Calculations 2](https://youtu.be/rCl659t1EnI) |
| [Calculations 3](https://youtu.be/frYLjmGbDUk) |
| [Calculations 4](https://youtu.be/NIfHQotsCPY)  (Solution calculations) |
| [Calculations 5 (Excess & limiting reagents)](https://youtu.be/rpypZZ_ZJXs) |
| [Acids & Bases 1](https://youtu.be/AOYxsmtCsrE) |
| [Acids & Bases 2 (Water of crystallisation)](https://youtu.be/1STToTBBgxQ) |
| [Electron configuration](https://youtu.be/Y92SCEWXA2c) |
| [Bonding & Structure 1](https://youtu.be/oVy3AbM5Ih0) |
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| Module 5: Physical chemistry and transition elements |
| [Rates 1](https://youtu.be/1M7AgN5wGdM) |
| [Buffers & Neutralisation 1](https://youtu.be/w0GR2iK5L0E) |

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| Module 6: Organic Chemistry & Analysis |
| [Aromatic Chemistry 1](https://youtu.be/zHtL4Cnr0cQ) |
| [Aromatic Chemistry 2](https://youtu.be/BesiSUKaGXA) |

Exam Question Walkthroughs

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| [Structure determination from titration results](https://www.youtube.com/watch?v=A7fy-Qj7Qqg)  |
| [Structure and bonding](https://www.youtube.com/watch?v=tfy3wwrnn4c&t=9s) |
| [Enthalpy Changes](https://www.youtube.com/watch?v=C9kYphI_osE&t=247s) |
| [Halogens and Enthalpy Changes](https://www.youtube.com/watch?v=q7Brpxo6G1U&list=RDCMUCyl4QJXN9zNapzmKAn-fJgQ&index=2) |
| [Equilibrium (Y12)](https://www.youtube.com/watch?v=dLD5ceXuuPQ&list=RDCMUCyl4QJXN9zNapzmKAn-fJgQ&index=3) |
| [Alkene reactions and mechanism](https://youtu.be/XUkuA7r6P64) |
| [Organic reactions](https://youtu.be/6kXeQNU2uPg) |
| [Haloalkanes](https://youtu.be/Q7X3KGLfk04)  |
| [Structure Determination](https://www.youtube.com/watch?v=H_5dyX5_9v8&list=RDCMUCyl4QJXN9zNapzmKAn-fJgQ&index=5) |
| [Organic Synthesis and Reaction Rates](https://youtu.be/s4-vymDN-3I) |
| [Rates (Y13)](https://youtu.be/pJNk6rwSPHQ) |
| [Rates (Y13)](https://youtu.be/wZmrdcjG2ig) |
| [Equilibrium (Y13)](https://youtu.be/tTPXvVcMVA4) |
| [Equilibrium (Y13)](https://youtu.be/EKg8YEhAASE) |
| [Structure determination (Y13)](https://youtu.be/EVtEND7_UyU) |

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| AS/Y12 EXAM PAPER WALKTHROUGHS |
| Paper | Topic(s) | Video Link |
| F321 May14 | Atomic structure, relative atomic mass, shapes of molecules | [F321 May14 Q1](https://www.youtube.com/watch?v=zslId_FoFqE&list=PLi6oabjl6cozAQNmKCEC3VHUrZVapHJSg) |
| F321 May14 | Empirical formula, acids, bases and salts | [F321 May14 Q2](https://www.youtube.com/watch?v=Tsh8pY99mXo&index=2&list=PLi6oabjl6cozAQNmKCEC3VHUrZVapHJSg) |
| F321 May14 | Amount of substance calculations | [F321 May14 Q3](https://www.youtube.com/watch?v=M_ADKV3_chU&list=PLi6oabjl6cozAQNmKCEC3VHUrZVapHJSg&index=3) |
| F321 May14 | Intermolecular forces, structure and bonding properties | [F321 May14 Q4](https://www.youtube.com/watch?v=t1o9OzZQzJg&list=PLi6oabjl6cozAQNmKCEC3VHUrZVapHJSg&index=4) |
| F321 May14 | Periodicity and group 7 chemistry | [F321 May14 Q5](https://www.youtube.com/watch?v=-fdNB-C8qn4&index=5&list=PLi6oabjl6cozAQNmKCEC3VHUrZVapHJSg) |
| F321 May14 | Group 2, water of crystallisation, dot and cross diagram | [F321 May14 Q6](https://www.youtube.com/watch?v=HCqmXxMIDPA&index=6&list=PLi6oabjl6cozAQNmKCEC3VHUrZVapHJSg) |
| F321 May13 | Atomic structure, number of molecules present calculation, ionic bonding  | [F321 May13 Q1](https://www.youtube.com/watch?v=AF7KDzfCDbw&list=PLi6oabjl6cozAQNmKCEC3VHUrZVapHJSg&index=7) |
| F321 May13 | Water of crystallisation calculation, bleach chemistry | [F321 May13 Q2](https://www.youtube.com/watch?v=UlJCOklGWAQ&index=8&list=PLi6oabjl6cozAQNmKCEC3VHUrZVapHJSg) |
| F321 May13 | Oxidation numbers, amount of substance calculations, intermolecular forces, structure and bonding, shapes of molecules | [F321 May13 Q3](https://www.youtube.com/watch?v=kU_l5SV9-dc&list=PLi6oabjl6cozAQNmKCEC3VHUrZVapHJSg&index=9) |
| F321 May13 | Group 2 & 7 | [F321 May13 Q4](https://www.youtube.com/watch?v=781JJwLakgs&index=10&list=PLi6oabjl6cozAQNmKCEC3VHUrZVapHJSg) |
| F321 May13 | Periodicity | [F321 May13 Q5](https://www.youtube.com/watch?v=AcbiTr_qcW0&index=11&list=PLi6oabjl6cozAQNmKCEC3VHUrZVapHJSg) |
| F322 Jun13 | Hydrocarbons | [F322 Jun13 Q1](https://www.youtube.com/watch?v=lMEejzXcp28&list=PLi6oabjl6cozy58rE3oCAr0RAnHbvdwb0) |
| F322 Jun13 | Alcohols | [F322 Jun13 Q2](https://www.youtube.com/watch?v=oRfugxknWQs&index=2&list=PLi6oabjl6cozy58rE3oCAr0RAnHbvdwb0) |
| F322 Jun13 | Alkenes and calorimetry | [F322 Jun13 Q3](https://www.youtube.com/watch?v=e1cCQnV0NoQ&list=PLi6oabjl6cozy58rE3oCAr0RAnHbvdwb0&index=3) |
| F322 Jun13 | 2 x Mechanisms (alkenes and alkanes) | [F322 Jun13 Q4](https://www.youtube.com/watch?v=tMMrqvtzpJM&list=PLi6oabjl6cozy58rE3oCAr0RAnHbvdwb0&index=4) |
| F322 Jun13 | Enthalpy  | [F322 Jun13 Q5](https://www.youtube.com/watch?v=TbyKGDcgIBA&list=PLi6oabjl6cozy58rE3oCAr0RAnHbvdwb0&index=5) |
| F322 Jun13 | Structural determination using mass spec and IR | [F322 Jun13 Q6](https://www.youtube.com/watch?v=tkdgwNQxwHI&list=PLi6oabjl6cozy58rE3oCAr0RAnHbvdwb0&index=6) |
| F322 Jun13 | Haloalkanes | [F322 Jun13 Q7](https://www.youtube.com/watch?v=wkLJsg3WA8E&list=PLi6oabjl6cozy58rE3oCAr0RAnHbvdwb0&index=7) |
| F322 Jun13 | Polymerization, equilibria and rates | [F322 Jun13 Q8](https://www.youtube.com/watch?v=SM0KdWm9j7M&list=PLi6oabjl6cozy58rE3oCAr0RAnHbvdwb0&index=8) |
| F322 Jun14 | Alkanes, radical substitution mechanism, stereoisomerism | [F322 Jun14 Q1](https://www.youtube.com/watch?v=e2-E7k5XxTE&index=1&list=PLi6oabjl6coxZJmEYIXKxFisBzAhjyIYr) |
| F322 Jun14 | Haloalkanes, atom economy, percentage yield | [F322 Jun14 Q2](https://www.youtube.com/watch?v=jkL_x5fXIGc&index=2&list=PLi6oabjl6coxZJmEYIXKxFisBzAhjyIYr) |
| F322 Jun14 | Equilibria, enthalpy change from bond enthalpy | [F322 Jun14 Q3](https://www.youtube.com/watch?v=sdoTT2WAF8c&index=3&list=PLi6oabjl6coxZJmEYIXKxFisBzAhjyIYr) |
| F322 Jun14 | Calorimetry and Hess’ law calculations | [F322 Jun14 Q4](https://www.youtube.com/watch?v=sdoTT2WAF8c&index=3&list=PLi6oabjl6coxZJmEYIXKxFisBzAhjyIYr) |
| F322 Jun14  | Addition polymerisation, carbon capture and storage | [F322 Jun14 Q5](https://www.youtube.com/watch?v=jGX4129O5OA&index=5&list=PLi6oabjl6coxZJmEYIXKxFisBzAhjyIYr) |
| F322 Jun14 | Rates of reaction, Boltzmann curves | [F322 Jun14 Q6](https://www.youtube.com/watch?v=25mBHm6CXFU&list=PLi6oabjl6coxZJmEYIXKxFisBzAhjyIYr&index=6) |
| F322 Jun14 | Reactions of alkenes, oxidation of alcohols | [F322 Jun14 Q7](https://www.youtube.com/watch?v=m1JJa572leQ&index=7&list=PLi6oabjl6coxZJmEYIXKxFisBzAhjyIYr) |
| F322 Jun14 | Identification of an organic compound from mass and spectroscopic data | [F322 Jun14 Q8](https://www.youtube.com/watch?v=EII_cyK090A&index=8&list=PLi6oabjl6coxZJmEYIXKxFisBzAhjyIYr) |

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| A2/Y13 EXAM PAPER WALKTHROUGHS |
| Paper | Topic | Video Link |
| H432/01 -Periodic table, elements and physical chemistry (Specimen Paper)  | Various | [Section A (Multiple Choice)](https://www.youtube.com/watch?v=_pE0BIihsdI&list=PLi6oabjl6coyfoUQg1vdoUu-grp3uTTKz&index=1&t=68s) |
| Gaseous equilibria/Kp | [Section B Q16](https://www.youtube.com/watch?v=4dl_oFdNQ88&index=2&list=PLi6oabjl6coyfoUQg1vdoUu-grp3uTTKz) |
| Rates of reaction  | [Section B Q17](https://www.youtube.com/watch?v=yfFuYaMKoUk&list=PLi6oabjl6coyfoUQg1vdoUu-grp3uTTKz&index=3) |
| Gibbs free energy calculation | [Section B Q18](https://www.youtube.com/watch?v=1ehINmNaBtU&index=4&list=PLi6oabjl6coyfoUQg1vdoUu-grp3uTTKz) |
| Lattice enthalpy/Born-Haber | [Section B Q19](https://www.youtube.com/watch?v=b-w4RGAPm88&list=PLi6oabjl6coyfoUQg1vdoUu-grp3uTTKz&index=5) |
| Acid-base calculations | [Section B Q20](https://www.youtube.com/watch?v=8NLlOhiSBLs&index=6&list=PLi6oabjl6coyfoUQg1vdoUu-grp3uTTKz) |
| Electrode potentials | [Section B Q21](https://www.youtube.com/watch?v=Fe5T2cWu0cU&list=PLi6oabjl6coyfoUQg1vdoUu-grp3uTTKz&index=7) |
| Transition elements | [Section B Q22](https://www.youtube.com/watch?v=BqL5PmHRI44&index=8&list=PLi6oabjl6coyfoUQg1vdoUu-grp3uTTKz) |
| H432/03 - Unified Chemistry (Sample Paper) | Various | [Unified Chem Sample Paper Q1](https://www.youtube.com/watch?v=gEXbxLldOtA) |
| Planning a qualitative analysis experiment to determine ions present in a solution, Kw calculation, empirical formula calculation  | [Unified Chem Sample Paper Q2](https://www.youtube.com/watch?v=hrTAcG1wwLw) |
| Transition elements, weak acid calculation and balancing half equations | [Unified Chem Sample Paper Q3](https://www.youtube.com/watch?v=yRN-6Bbr380&t=3s) |
| Reaction rates | [Unified Chem Sample Paper Q4](https://www.youtube.com/watch?v=s5NqcymMPdw) |
| Reactions of acids, gas volume calculation, reactions of organic functional groups, transition element complexes, acid-base equilibria and structure determination!! | [Unified Chem Sample Paper Q5](https://www.youtube.com/watch?v=NGC3VkjC5b0) |
| Titration calculations to establish a mole ratio followed by making comments on the procedure | [Unified Chem Sample Paper Q6](https://www.youtube.com/watch?v=l0WDaojL4Rc) |

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| BORN-HABER CYCLES/LATTICE ENTHALPY |
| Paper | Video Link |
| F325 Jun13 | [Born-Haber 1](https://www.youtube.com/watch?v=OSndvIis3n8&list=PLi6oabjl6coyyEemNR4dqrwVhcHe1MNd5&index=1&t=12s) |
| F325 Jun 15 | [Born-Haber 2](https://www.youtube.com/watch?v=GNtbIEwFMKI&list=PLi6oabjl6coyyEemNR4dqrwVhcHe1MNd5&index=2) |
| F325 Jun 10 | [Born-Haber 3](https://www.youtube.com/watch?v=7JUsE6KI11g&index=3&list=PLi6oabjl6coyyEemNR4dqrwVhcHe1MNd5) |
| Machemguy’s own question | [Born-Haber cycle and lattice enthalpy calc for Al2O3](https://www.youtube.com/watch?v=Cl3pideIBd8&index=4&list=PLi6oabjl6coyyEemNR4dqrwVhcHe1MNd5) |

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| REDOX TITRATIONS |
| Paper | Video Link |
| F325 Jun13 part 1 | [Redox titration 1](https://www.youtube.com/watch?v=1abOD_xTXIE&index=1&list=PLi6oabjl6cow_qUea5IDhXTCFVl_b15E4&t=14s) |
| F325 Jun 13 part 2 | [Redox titration 2](https://www.youtube.com/watch?v=llNPqnYhScI&index=2&list=PLi6oabjl6cow_qUea5IDhXTCFVl_b15E4) |
| F325 Jun 15 | [Redox titration 3](https://www.youtube.com/watch?v=uL1qqu6v_L8&list=PLi6oabjl6cow_qUea5IDhXTCFVl_b15E4&index=3) |

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| ELECTRODE POTENTIALS |
| Paper | Video Link |
| F325 Jun 13 | [Electrode potentials 1](https://www.youtube.com/watch?v=50-XkXZraaU&index=1&list=PLi6oabjl6cox0a2UFwBzRfGDfhvNFrgmK&t=11s) |
| F325 Jun 15 | [Electrode potentials 2](https://www.youtube.com/watch?v=Svo6WfvVBZo&index=2&list=PLi6oabjl6cox0a2UFwBzRfGDfhvNFrgmK) |

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| ACIDS BASES AND BUFFERS |
| Paper | Video Link |
| F325 Jun 13 | [Acids bases and buffers 1](https://www.youtube.com/watch?v=A9XHQefqmVo&t=20s&index=1&list=PLi6oabjl6cox8Sy0ljrn5t-OJd2kUcvVo) |
| F325 Jun 15 | [Acids bases and buffers 2](https://www.youtube.com/watch?v=JF9-fmZkPDQ&index=2&list=PLi6oabjl6cox8Sy0ljrn5t-OJd2kUcvVo) |
| F325 Jun 11 | [Acids bases and buffers 3 - MAGIC TANG!!](https://www.youtube.com/watch?v=dOChV9dwxRk&index=3&list=PLi6oabjl6cox8Sy0ljrn5t-OJd2kUcvVo) |

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| RATES |
| Paper | Video Link |
| F325 Jun 13 | [Rates 1](https://www.youtube.com/watch?v=F2PAvNeidTo&list=PLi6oabjl6coz0cL3wJVxM3S1kNzk5oCK_&index=1&t=11s) |
| F325 Jun 15 | [Rates 2](https://www.youtube.com/watch?v=EUaYaXcslmk&index=2&list=PLi6oabjl6coz0cL3wJVxM3S1kNzk5oCK_) |
| F325 Jan 11 | [Rates 3](https://www.youtube.com/watch?v=GHURtHCP5A8&list=PLi6oabjl6coz0cL3wJVxM3S1kNzk5oCK_&index=3) |

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| ENTROPY |
| Paper | Video Link |
| F325 Jun 13 | [Entropy 1](https://www.youtube.com/watch?v=ft4evOnV7Yk&t=21s&list=PLi6oabjl6coyRldsD5wOZphWanWtjWddD&index=6) |
| F325 Jun 15 | [Entropy 2](https://www.youtube.com/watch?v=rHeCP3_fRsY&list=PLi6oabjl6coyRldsD5wOZphWanWtjWddD&index=11) |

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| EQUILIBRIA |
| Paper | Video Link |
| F325 Jun 13 | [Equilibria 1](https://www.youtube.com/watch?v=SrGjWSJ2HOk&index=3&list=PLi6oabjl6coyRldsD5wOZphWanWtjWddD) |

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| TRANSITION ELEMENTS |
| Paper | Video Link |
| F325 Jun 13 | [Transition elements 1](https://www.youtube.com/watch?v=aT0UEWNI0l8&t=218s) |
| F325 Jun 15 | [Transition elements 2](https://www.youtube.com/watch?v=nOgsOYcCnBw&list=PLi6oabjl6coyRldsD5wOZphWanWtjWddD&index=9) |

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| ANALYSIS |
| Paper | Video Link |
| F324 Jan 12 | [Combined techniques 1](https://www.youtube.com/watch?v=iQd2OvIDZWw&index=1&list=PLi6oabjl6cozd0SPEgBmv6EwEo8cSr-KE) |
| F324 Jun 14 | [Combined techniques 2](https://www.youtube.com/watch?v=AX4e4_XkxJE&index=2&list=PLi6oabjl6cozd0SPEgBmv6EwEo8cSr-KE) |
| F324 Jun 13 | [Combined techniques 3](https://www.youtube.com/watch?v=RYzemiSVlWg&index=3&list=PLi6oabjl6cozd0SPEgBmv6EwEo8cSr-KE) |
| F324 Jun 15 | [Combined techniques 4](https://www.youtube.com/watch?v=UuEfvamQrP4&list=PLi6oabjl6cozd0SPEgBmv6EwEo8cSr-KE&index=4) |
| MaChemGuy’s own question | [Identification of organic unknowns](https://www.youtube.com/watch?v=mXJlGmXDBwI) |