



Subject		Chemistry		
Title/Topic		Format	Length	Date
Paper 1 – Physical chemistry, the periodic table and transition metals		Written & MCQ	2 hours 15 minutes	Wednesday 4 January 9.15am – 11.30am
Paper 2 – Organic chemistry and analysis		Written & MCQ	2 hours 15 minutes	Wednesday 11 January 9.15am – 11.30am

My Advent assessment will test my knowledge on...

Paper 1: Physical chemistry, the periodic table and transition metals

- Analysing dynamic equilibria
- Balancing redox equations
- Calculate relative atomic mass from abundance data
- Calculating an enthalpy change from experimental data
- Calculating average bond enthalpies
- Calculating K for a dynamic equilibrium when given initial moles
- Calculating pH of weak acids
- Calculating ratios of components in a buffer
- Calculating the pH of a strong base
- Combining half-cell equations
- Deduce the numbers of subatomic particles in isotopes of an element
- Defining transition elements
- Definitions for standard enthalpy changes
- Determining rate equations from the initial rates method
- Determining the feasibility of a reaction using enthalpy and entropy data
- Drawing complex ions
- Electron configuration of ions
- Explaining trends in ionisation energies
- Identifying oxidation and reduction
- Identifying the reactants and products during the reactions of transition metal complexes such as iron and cobalt
- Quantitative chemistry to include; Percentage by mass calculations, concentration, mole fractions, percentage yield, gas volumes, empirical formulas
- Using Boltzmann distributions to effect how changing conditions affect rates of reaction
- Using K_a and pK_a
- Using the ideal gas equation
- Working with reaction orders
- Writing electron configurations



- Writing K_a expressions for weak acids
- Writing rate equations

Paper 2: Organic chemistry and analysis

- Calculate and comment on the enthalpy change of combustion of an organic compound
- Calculate percentage yields for organic syntheses
- Comparing the boiling points of organic compounds
- Deduce radical substitution reaction mechanisms for organic molecules with halogens
- Defining electrophile and nucleophile
- Describe tests for alkenes
- Describe the technique required to continuously heat a reaction mixture
- Describing compounds as aliphatic, alicyclic and aromatic
- Describing the bonds between carbon atoms in organic molecules
- Draw mechanisms for the electrophilic substitution reactions of benzene
- Explain the effect of activating groups on a benzene ring
- Identify repeat units of an addition polymer
- Identifying E/Z stereoisomers
- Interpreting IR and mass spec data to identify compounds
- Interpreting skeletal, display and structural formulas.
- Outline how to obtain different oxidation products from alcohols
- Outline how to purify an organic liquid produced during a reaction
- Outline the evidence that led to the delocalised model of benzene
- Predicting intermediates in organic syntheses
- Predicting the products of dehydration reactions
- Recall the reactions of alkenes
- Use the ideal gas equation to deduce the molecular formula of a compound
- Using the terms saturated and unsaturated



What should I do to revise and prepare for this assessment?

To prepare for this assessment:

1. Start early and have a plan! Make sure you know what you will be revising and when. Chemistry is a big topic and you'll probably want to revise your other subjects too.
2. Ensure notes have been collated and summarised. You need to do this in a way that makes you process the information. Just reading or writing the notes out again will not work! Ideas you could try are:
 - Make flash cards (you will need to keep using these too!)
 - Mind maps
 - Look/cover/check of key definitions and equations
 - Create 'summary sheets' for chapters/topics of no more than 2 sides of A4
3. Attempt summary and end of chapter questions for topics as you revise them. Answers to summary questions are in the textbook and end of chapter questions on the student drive.
4. Try past paper questions, lots of past paper questions are available from the OCR website. For paper 1 you will need H432/01 and for paper 2 you will mostly need H/032 (with some benzene!)
5. Ask your teacher. If you are unsure, stuck or need help ask in plenty of time. The fifteen minutes before the exam is probably too late to get something clarified.

What useful websites/resources could I use to help me prepare?

Websites

<https://www.docbrown.info/>

<https://www.physicsandmathstutor.com/chemistry-revision/a-level-ocr-a/>

Your revision guide – use the revision guide suggested to you by your teacher.

e.g. OCR chemistry : https://www.amazon.co.uk/OCR-Level-Chemistry-Revision-Guide/dp/0198351992/ref=sr_1_8?dchild=1&keywords=ocr+chemistry+a+revision+guide&qid=1634050174&sr=8-8