

Chemistry Unit 1 Information and Assessment Advice

Student Work Requirements:

- Students will satisfactorily complete this Unit and be given an S if they:
- Complete the relevant coursework/homework on time.
- Maintain the required practical log book. This will be an exercise book in which all practical experiments and demonstrations are to be recorded.
- Can demonstrate an understanding of the Chemistry work. This will require a minimum mark of 30% in all assessment tasks including tests.

Assessment Task:

In the semester 1 Report students will be graded (UG to A+) on the following Tasks

- 1 Practical Work and Log Book (This will also involve responding to practical work questions in tests).
- 2 Carbon Chemistry Research Task (This is to be completed in class during term 1).
- 3 Topic Tests
- 4 Exam (90 minutes in June)

Year 11 - UNIT 1 TIMELINE

*Review questions throughout each chapter are most helpful as checkpoint questions. I have only listed end of Chapter Review questions here.

Week	Concepts	Text Ch	*Minimum set questions from textbook – Chapter review questions	Possible practical work – 3½ – 5 hours (pracs, demos and exercises in TRAB Y11 or 12) including Worksheets from Student Workbook (SW)	SAC Dates and details
Semester 1: Unit 1: How can the diversity of materials be explained?					
Area of Study 1: How can knowledge of elements explain the properties of matter?					
1	Nanoparticles and nanomaterials Elements and the periodic table <ul style="list-style-type: none"> • Elements • Periodic table • Compounds 	1	2,3, 5	<i>You tube</i> clips for interest and clarification Prac: Particle theory of matter in SW SW Worksheets 1, 2	
2	<ul style="list-style-type: none"> • Nuclear atom • Electronic configuration 	1	6, 7, 8, 9, 10, 12, 14 – 20.	Prac: Flame colours of selected metals Prac: Oxidation states of transition metals SW Worksheets 3	
3	<ul style="list-style-type: none"> • The modern periodic table • Periodic properties • Trends in properties 	2	1-4, 5-8, 10-12	Prac: Period 3 elements in SW Exercise: The periodic table Exercise: Periodic variation in properties of the elements Exercise: An investigation of ionisation energies SW Worksheets 4, 5	

4	Metals <ul style="list-style-type: none"> • Properties and the model • Experimental determination of the relative reactivity of metals with water, acids and oxygen • the extraction of a selected metal • experimental modification of a selected metal • properties and uses of metallic nanomaterials 	3	1, 3, 6-9, 11-17, 19-23 26, 27, 30, 31,33, 34, 36	Prac: Modelling metallic lattices Prac: Growing metal crystals Prac: Modifying the properties of metals Prac: Reactivity of metals with water, acids and oxygen SW Worksheets 6, 7, 8	
5	Ionic compounds <ul style="list-style-type: none"> • properties and model • Electron transfer diagrams • Chemical formulas • Uses • Experimental determination of the factors affecting crystal formation of ionic compounds 	4	1, 2, 5 – 12, 14 – 16, 18 - 20	Prac: Investigating sodium chloride Prac: investigating ionic compounds Prac: Crystal formation of ionic compounds Prac: Growing crystals of ionic compounds SW Worksheets 9, 10,	
6	Quantifying atoms and compounds <ul style="list-style-type: none"> • Masses of particles • Relative isotopic and atomic masses using mass spectrometry • The mole 	5	1 – 22,	Prac: Mole simulation and applications SW Worksheets 11, 12	
7	<ul style="list-style-type: none"> • Practice mole concept calculations and complete all questions form chapters in text book 	5		SW Worksheet 13	
8	<ul style="list-style-type: none"> • Molar mass • Empirical and molecular formulas • percentage composition 	5	24, 26 – 28,31 – 33, 35-37	Prac: Chemical composition of a compound	Possible SAC: Report of a practical activity: Chemical composition of a compound
Area of Study 1 Review questions 1-35 as revision of the whole area of study					
Area of Study 2: How can the versatility of non-metal be explained?					
9	Materials from molecules <ul style="list-style-type: none"> • Covalent model • Shapes of molecules • Polarity of molecules 	6	5 – 12, 14, 15	Prac: Making molecular models SW Worksheets 14, 15	
Term 1 holidays – adjust timetable as needed					
10	<ul style="list-style-type: none"> • Properties of molecular substances • Weak bonding between molecules Carbon lattices and carbon nanomaterials <ul style="list-style-type: none"> • Diamond and graphite • Graphene and fullerenes 	7	1-19	Prac: Comparing the physical properties of different covalent lattices SW Worksheets 16, 18 Prac: Buckyballs, nanotubes and other allotropes of carbon SW Worksheet 19	
		8	2, 4-9		

11	Organic compounds <ul style="list-style-type: none"> Crude oil Hydrocarbons Homologous series Functional groups Naming of organic compounds 	9	3-6, 8, 9, 11, 12,	Prac: Investigating hydrocarbons Exercise: Analysis of the physical properties of the first eight hydrocarbons Exercise: Modelling and naming alkanes Prac: Modelling functional groups (Year 12 as well) SW Worksheet 20, 21	
12	<ul style="list-style-type: none"> Empirical and molecular formula calculations Chemical and physical properties of hydrocarbons, alcohols, carboxylic acids and simple esters 	9	14-17, 18-20, 23, 24, 25, 27	Prac: Preparing artificial fragrances and flavours (Year 12 as well) SW Worksheets 17, Prac: Reactions and properties of some organic compounds (maybe Year 12)	
13	Polymers <ul style="list-style-type: none"> Formation of addition polymers Differences between thermoplastic and thermosetting Designed polymers Advantages and disadvantages of the use of polymers 	10	1-11, 13, 15, 18, 22	Prac: Modelling polymers Prac: Making ghost buster slime Prac: Making an Elastomer Prac: Making a condensation polymer, the amide, nylon SW worksheet 22, 23,	
Area of Study 2 Review questions 1-35 as revision of the whole area of study					
Area of Study 3: Research investigation					
14	Research investigation <i>(could be moved according to your program)</i>	11	1, 3, 4, 7, 8,	4-6 hours research based on one of the options in the Study Design SW Worksheets Skills practice worksheets	Present as digital scientific poster (practise for Year 12)
15	Revision			SW Worksheet 24	
16	Exams				
17	Exams: Test: MC and extended answer covering all topics in Unit 1				
Semester 2: Unit 2: What makes water such a unique chemical?					
Area of Study 1: How do substances interact with water?					
Semester 1 Week 18 Semester 2 Week 1	Properties of water <ul style="list-style-type: none"> Trends in MP and BP of Group 16 hydrides Specific heat capacity and latent heat of water 	12	2-6, 7, 8, 11, 12, 13-18, 20	Investigation: Properties of water (Maybe useful in the Practical investigation) SW Worksheets 25, 26, 27	
Semester 1 Week 19 Semester 2 Week 2	Water as a solvent <ul style="list-style-type: none"> The solution process Precipitation reactions Ionic equations Importance of solvent properties in biological, domestic or industrial contexts 	13	1-4, 6-8, 10, 11, 12, 13, 16, 17, 18, 21, 23-25	Prac: Effect of polarity on solubility Prac: Stalagmite from a supersaturated solution Prac: Precipitation reactions Prac: Purification of polluted water SW Worksheets 28, 29, 30	
Term 2 holidays – adjust timetable as needed					