

Month	# of Days	Core Standard	Strand	Content	Skills	Activities	Assessments
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Aug.	8			Atoms, molecules and ions		Experiment: Atom and Molecule	
		AT2 C.1	Atomic Theory	● 2.1 Particulate nature of matter	visualisation and modelling	Lab Activity: Gumdrops Atom Activity	Design a 3D model of the particles of matter
		AT2 C.1	Atomic Theory	● 2.2 Atoms and molecules	understanding vocabulary, atomic structure		https://www.howtosmile.org/resource/smile-000-000-000-496
		AT2 C.1	Atomic Theory	● 2.3 Sizes of Atoms and molecules	comparison using numbers/relationships between length of molecule and strength of bonding	● Students draw their current concept of atom, display in the class and discuss and list common concepts	*Explain the arrangements and movements of particles of the three physical states.
		P5 C3	Periodicity	● 2.4 Symbols for elements	Using of chemical symbols		*Explain how temperature / heat affect movements of the particles of matter
		P5 C.1	Periodicity	● 2.5 Formulae	Identifying common formulae and their meanings	● Finding the element activity. Students will be given the no of protons, neutrons and electrons then they identify the element in the periodic table or v.v.	
		P5 C.1	Periodicity	● 2.6 Molecules of Elements	Recalling chemical symbols	https://phet.colorado.edu/sims/html/build-an-atom/latest/build-an-atom_en.html	*Design a poster / 3D model of chosen elements and discuss how their chemical symbols were

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		AT2 C.1	Atomic Theory	<ul style="list-style-type: none"> 2.7 An atom - a nucleus and an electron cloud 	Using diagrams and numbers for size and mass		
		AT2 C.1	Atomic Theory	<ul style="list-style-type: none"> 2.8 Some simple atoms 	Utilizing the periodic table		Exercises 1-7; 9-11
				<ul style="list-style-type: none"> 2.9 Atomic number and mass number 	Comparison and contrast using a table / identification of an element	Exercises: 1-11	
Sept.	8	AT2 C.5	Atomic Theory	<ul style="list-style-type: none"> 2.10 Energy levels and electrons 	classifying variation of energy levels for atomic orbitals of some elements	<ul style="list-style-type: none"> Electron configuration class activity, refer to link for a sample 	*Design a 3D model for chosen atoms and discuss its electron configurations, their bonding capabilities and how bonding takes place
		AT2 C.5	Atomic Theory	<ul style="list-style-type: none"> 2.11 Electron configurations 	application of the aufbau process in filling electrons in atomic orbitals	http://www.bondwithjames.com/2015/10/electron-configuration.html	
		AT2 C.5	Atomic Theory	<ul style="list-style-type: none"> 2.12 Stable electron configurations/ 	Utilizing schematic explanation/ octet rule		https://sciencing.com/make-model-nitrogen-atom-7801563.html
		P4 C2	periodic	<ul style="list-style-type: none"> 2.13 The Periodic Table 	Interpreting relationship	<ul style="list-style-type: none"> video showing to further explain ionic and covalent bonding 	https://sciencing.com/make-3d-model-carbon-atom-7243382.html
		AT3 C.3	Atomic Theory	<ul style="list-style-type: none"> 2.14 Achieving noble gas configurations 	Understanding of bonding/ Understanding octet rule		https://www.youtube.com/watch?v=fhfaPWTF4FA
		B8 C.1	Bonding	<ul style="list-style-type: none"> 2.15 Formation of ions 	using the periodic table to predict the charge	Chemical bond activities	

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		B8 C.3	Bonding	●2.16 Ionic bonding and the periodic table	Interpreting relationship for classification/transfer of electrons between atoms in the periodic table	https://study.com/academy/lesson/chemical-bonding-activities-games.html	*Explain the concept of achieving noble gas configurations, naming noble gases and explaining their respective properties through presentations
		B8 C.3	Bonding	● 2.17 Covalent bonding	Explaining by examples using diagram		
						Experiment: Ionic and Covalent Bonds	
Oct.	8	B9 C.2	Bonding	●2.18 Covalency and the periodic table	Explaining using examples	●Lewis dot structure activity	Midterm test
		B9 C.1	Bonding	● 2.19 Electron- dot structures for ions	examining the rules and practice	https://study.com/academy/lesson/lewis-dot-structure-activities-games.html	
		B9 C.1	Bonding	● 2.20 Drawing electron - dot structures	Interpreting a drawing/ application using octet rule and draw		*Chemical bond worksheets
		B9 C.1	Bonding	● 2.21 Ionic equations with electron-dot structures	utilizing electron configuration and valence electrons		http://sciencespot.net/Media/BondingBasicsReview.pdf
		B9 C.2	Bonding	● 2.22 Properties of covalent molecular and ionic substances	identify element pairs which are likely to form ionic or covalent compounds		Exercises 24-28; 29-30; 32; Test yourself 35-46
		B9 C.3	Bonding	● 2.23 Covalent network solids	Interpreting drawings and picture		
		B9 C.3	Bonding	● 2.24 Metallic bonding	Explaining using diagrams		
					● 2.25 Solids summarised	Using a key for distinguishing	
			Chemical reactions, names and formulae			Experiment: Chemical Change (Baking soda and	

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Nov.	8	P6 C.4	Periodicity	<ul style="list-style-type: none"> ● 3.1 Physical and chemical changes 	Contrasting using table and pictures/ compare their observations and distinguish using inquiry skills	vinegar reaction)	*Students to create practical activities happening in real life that showcase physical and chemical changes through designed experiments, poster making, presentations
		S14 C.1	Stoichiometry	<ul style="list-style-type: none"> ● 3.2 Decomposition reactions 	understand the characteristics of decomposition reaction and perform the reaction in lab	<ul style="list-style-type: none"> ● video showing actual experiment on decomposing reactions 	
				<ul style="list-style-type: none"> ● 3.3 Direct combination reactions 	Explaining using examples	<ul style="list-style-type: none"> ● video showing actual experiment on combination reactions 	https://www.teacherspayteachers.com/FreeDownload/Physical-vs-Chemical-Change-FREE-cut-paste-activity-932183
			periodicity	<ul style="list-style-type: none"> ● 3.4 Explanation for energy changes 	Explaining using relationships		
				<ul style="list-style-type: none"> ● 3.5 Everyday applications 	Using examples for explanation	Chemical reactions activities	*Experiments
				<ul style="list-style-type: none"> ● 3.6 Equations for chemical reactions 	describe and writing and balance chemical equations	<ul style="list-style-type: none"> ● Go React! ● Jeopardy 	*Exercises 1-3; 5-10
		P5 C.1	periodicity	<ul style="list-style-type: none"> ● 3.7 Formulae and names for compounds 	Applying and examine rules for naming and practice writing them	https://study.com/academy/lesson/chemical-reaction-games-activities.html	https://www.pinterest.com/pin/533043305867334509/
		P5 C.1	periodicity	<ul style="list-style-type: none"> ● 3.8 Formulae for ionic compounds 	writing formula from its name and balance the charges on the ions		

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Dec.	4	P5 C.2	periodicity	<ul style="list-style-type: none"> 3.9 Naming simple ionic compounds 	writing name from the formula	Experiment: Forming & Naming Ionic Bonds	Final Test
		P5 C.2	periodicity	<ul style="list-style-type: none"> 3.10 Ions that are not monatomic 	Using a table and numbers for writing formulae/ practice formula and names of binary ionic compounds	<u>Naming ionic compound activities</u>	
		P5 C.1	periodicity	<ul style="list-style-type: none"> 3.11 Formulae for covalent compounds 	Using table and numbers for writing formulae/ determination from name	<ul style="list-style-type: none"> A compound by any other name Naming mnemonics/rhymes 	*Exercises 11-19; club presentations
		P5 C.2	periodicity	<ul style="list-style-type: none"> 3.12 Naming covalent binary compounds 	Using rules for naming compounds/ determination from chemical formula	https://study.com/academy/lesson/naming-ionic-compounds-games-activities.html	Test your self: 1-20, Revision for chapter 3 test, Revision for final exam
Jan.	8			The periodic table		Experiment: Identifying Elements & Properties	
		P4 C.1	Periodicity	<ul style="list-style-type: none"> 6.1 Historical Development of the Periodic Table 	discussing Historical review of the PT using the table		<u>*Group report on trends and graph analysis in the periodic table</u>
		P4 C.2	Periodicity	<ul style="list-style-type: none"> 6.2 Periodic variation in some physical properties 	Interpreting relationships/ similarities and differences in the properties of elements in the same group	Graph making and analysis on the trends in the periodic table	*Present a graph on the ionization energy against atomic number for the first twenty elements
		AT3 C.3	Atomic Theory	<ul style="list-style-type: none"> 6.3 Ionisation energy 	define and trends in period and groups, Interpret periodic trends: atomic radius, ionic radius, ionization energy, electron affinities, and		*Present a graph on the atomic radius against atomic number for the first twenty

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					electronegativities.		elements
				<ul style="list-style-type: none"> ● 6.4 Valency and position in the periodic table ● 6.5 Further trends 	Using a table / Deduction of electron configuration		Presentation on Further Trends
					Using graphs and table		Use the Periodic Table to find the names of: a three metals in common use around you b two non-metals that you breathe in.
				<ul style="list-style-type: none"> ● 6.6 Summary of trends 	Schematic representation		
Feb.	4	P6 C.1	Periodicity	The Chemical Earth <ul style="list-style-type: none"> ● 1.1 Mixtures and pure Substances 	Comparing and contrasting/ observing and interpreting data/ understanding different techniques	Grouping activity: List down some elements, mixtures and compounds jumbled and ask the students to make a table to classify them.	Posters / chart making of classification of matter: students to choose their own samples of elements and compounds / mixtures and pure substances then explain to the class
				<ul style="list-style-type: none"> ● 1.2 Elements and Compounds 	Interpreting an illustration/Define and identify them; Definition of compound , reading a diagram		
				<ul style="list-style-type: none"> ● 1.6 Separation of solids of different sizes 	Comparison of different methods	Experiment: Separation of solids & liquids	Exercises 1-7
							Midterm test

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Mar.	8	P6 C.3	Periodicity	● 1.7 Separating solids and liquids	Interpreting an illustration/ lab skills		poster making of the different separation method
		P6 C.3	Periodicity	● 1.8 Separating dissolved solids in liquids	Understanding using a Diagram	● To separate the components of a naturally occurring mixture	
				● 1.9 Distillation	Visualising a picture	Experiment: Separation of salt and sand such as sand, metals, salt and water / Follow up on this lesson is a group research work on the application of distillation in real life situation (such as water distillation, beverage or wine distillation, perfume from steam distillation and petroleum fractional distillation)	
				● 1.10 Separating liquids	Interpreting a diagram	Experiment: Separating liquids; Exercise: 8-10	
		P6 C.3	Periodicity	● 1.11 Separating Immiscible liquids	Comparing using diagrams/ lab skills	● Exercises: 11 -20 ● Experiments ● Exercises: 21-22 ● Exercises: 23 -25 ● Club Presentations	
		P6 C.3	Periodicity	● 1.12 Separation Based on solubility experiments/ activities	understanding of saturation and precipitation	Experiment: Fractional Distillation	
				● 1.13 Separating gases	Using a table		*Exercises 8-13; 15-18

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Apr.	4			<ul style="list-style-type: none"> ● 1.14 Summary of methods of separation 	Interpreting an illustration	<ul style="list-style-type: none"> ● Research: students will research on different gas mixtures and ways on how they can be separated 	*Submit research work on gas mixtures and separation
				<ul style="list-style-type: none"> ● 1.15 Properties used to identify pure substances ● 1.16 Colour 	Identification using properties of substances Comparison and contrasting		
				<ul style="list-style-type: none"> ● 1.17 Physical State at room temperature 	three states of matter, observation of changes of state due to changes in temperature	Understanding using observations Ex. Melting ice	*Exercises 21-22
				<ul style="list-style-type: none"> ● 1.18 Melting and Boiling points 	Reading numbers in a table	Experiment: Melting and boiling point	*Experiment
May	6	P6 C.3	Periodicity	<ul style="list-style-type: none"> ● 1.21 Elements occurring on Earth as free elements 	Understanding using percentage		*Club presentations
				<ul style="list-style-type: none"> ● 1.22 Why most elements on Earth occur as compounds 	Understanding comparison		*Metal/Non-metal ppt presentations on their history, background, uses etc
		P6 C.3	Periodicity	<ul style="list-style-type: none"> ● 1.23 Metals and Non-metals 	Contrasting photos		
				<ul style="list-style-type: none"> ● 1.24 Physical Properties and uses of elements 	Understanding using relationships/ element properties	<ul style="list-style-type: none"> ● Choosing elements for real life purposes based on their properties 	