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SBA GUIDELINES
Practical work:
- **Learners should do TWO experiments (ONE Chemistry, ONE Physics) for SBA.**
- **Term 1: Newton's 2nd law of motion.**
- **Term 3: Boyle's law.**

2021 National Recovery ATP: Grade 11 Term 1: PHYSICAL SCIENCES

TERM 1 (45 days)	**Week 1** 27 - 29 Jan (3 days)	**Week 2** 1 - 5 Feb (5 days)	**Week 3** 8 – 12 Feb (5 days)	**Week 4** 15 - 19 Feb (5 days)	**Week 5** 22 - 26 Feb (5 days)	**Week 6** 1 - 5 March (5 days)	**Week 7** 8 - 12 March (5 days)	**Week 8** 15 - 19 March (5 days)	**Week 9** 22 - 26 March (4 days)	**Week 10** 29 - 31 March (3 days)
CAPS Topics	**MECHANICS: Vectors in two dimensions (2 hrs)**	**MECHANICS: Vectors in two dimensions (4 hrs)**	**MECHANICS: Vectors in two dimensions (2 hrs)** **MECHANICS: Newton's laws (2 hrs)**	**MECHANICS: Newton's laws (4 hrs)**	**MECHANICS: Newton's laws (4 hrs)**	**MECHANICS: Newton's laws (4 hrs)**	**MECHANICS: Newton's laws (4 hrs)**	**MATTER & MATERIAL: Atomic combinations (4 hrs)**	**MATTER & MATERIAL: Atomic combinations (3 hrs)**	**CONTROL TEST (2 hrs)**
Topics /Concepts, Skills and Values	• Define a resultant. • Determine the resultant of vectors (maximum four) on a Cartesian plane, using the component method. • Sketch the vertical vector (R_y) and the horizontal vector (R_x) on a Cartesian plane.	• Calculate the magnitude of the resultant using the theorem of Pythagoras. • Determine the direction of the resultant using simple trigonometric ratios. • Determine the resultant (R) of two vectors graphically using either the tail-to-head or tail-to-tail method (parallelogram method) as well as by calculation (component method) for a maximum of four vectors in both 1-dimension and 2-dimensions. • Explain the meaning of a closed vector diagram.	**Vectors in two dimensions** • Resolve a vector R into its horizontal (R_x) and vertical (R_y) components using $R_x = R\cos\theta$ and $R_y = R\sin\theta$ where θ is the angle between r and the x axis. **Newton's laws** • Define normal force, N. • Define frictional force, f. • Know that a frictional force: ○ Is proportional to the normal force ○ Is independent of the area of the surfaces that are in contact with each other.	• Define the static frictional force, f_s. • Solve problems using $f_s^{max} = \mu_s N$ • Define the kinetic frictional force, f_k. • Solve problems using $f_k = \mu_k N$ • Draw force diagrams. • Draw free-body diagrams. Resolve a two-dimensional force, e.g. the weight of an object on an inclined plane, into its parallel ($F_{//}$) and perpendicular ($F_\perp$) components. • Determine the resultant/net force of two or more forces. • State Newton's first law of motion. • Define inertia and state that the mass of an object is a quantitative measure of its inertia. • Discuss why it is important to wear seatbelts using Newton's first law of motion.	• State Newton's second law of motion. In symbols: $F_{net} = ma$ • Draw force diagrams and free-body diagrams for objects that are in equilibrium or accelerating. • Apply Newton's second law of motion to a variety of equilibrium and non-equilibrium problems including: ○ A single object: - Moving in a horizontal plane with or without friction - Moving on an inclined plane with or without friction - Moving in the vertical plane (lifts, rockets, etc.)	• Apply Newton's second law of motion to a variety of equilibrium and non-equilibrium problems including: ○ Two-body systems (joined by a light inextensible string): - Both on a flat horizontal plane with or without friction - One in a horizontal plane with or without friction, and a second hanging vertically from a string over a frictionless pulley - Both on an inclined plane with or without friction - Both hanging vertically from a string over a frictionless pulley	• State Newton's third law of motion. • Identify Newton III force pairs (action-reaction pairs) and list the properties of the force pairs (action-reaction pairs). • State Newton's law of universal gravitation. • Solve problems using $F = G\frac{m_1 m_2}{d^2}$. • Calculate acceleration due to gravity on Earth using $g = \frac{GM}{r_E^2}$, and on another planet using $g = \frac{GM_P}{r_P^2}$, where M_P is the mass of the planet and r_P is the radius of the planet. • Explain the difference between the terms weight and mass. • Calculate weight using the w =mg. • Calculate the weight of an object on other planets with different values of gravitational acceleration. • Explain the term weightlessness	• Define a chemical bond. • Draw Lewis dot diagrams of elements. • Determine the number of valence electrons in an atom. • Explain, in terms of electrostatic forces and in terms of energy, why: ○ Two H atoms form an H_2 molecule ○ He does not form He_2 • Interpret the graph of potential energy versus the distance between nuclei for two approaching hydrogen atoms. • Define: a covalent bond, a molecule • Draw Lewis diagrams for simple molecules, e.g. H_2, F_2, H_2O, NH_3, CH_4, HF, OF_2, HOCℓ and molecules with multiple bonds, e.g. N_2, O_2 and HCN. • Discuss molecular shapes of H_2 (linear) H_2O (angular), NH_3 (pyramidal), CO_2 (linear), CH_4 (tetrahedral). • Describe rules for bond formation. • Define a bonding pair and a lone pair. • Describe the formation of the dative covalent bond.	• Define electro-negativity. • Describe, with an example, a non-polar covalent bond. • Describe, with an example, a polar covalent bond. • Show polarity of bonds using partial charges, e.g. $H^{\delta+}Cl^{\delta-}$. • Compare the polarity of chemical bonds using a table of electronegativities. • Explain that the character of a bond varies from non-polar covalent ($\Delta EN = 0$) to polar covalent ($0 < \Delta EN <= 1,7$) to ionic ($\Delta EN > 1,7$). • Use difference in electronegativity and molecular shape to explain that polar bonds do not always lead to polar molecules. • Define bond energy and bond length. • Explain the relationship between bond energy and bond length. • Explain the relationship between the strength of a chemical bond and bond length, size of bonded atoms and number of bonds.	**ONE PAPER (100 marks)** • Vectors in two dimensions • Newton's laws • Atomic combinations

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TERM 1 (45 days)		**Week 1** 27 - 29 Jan (3 days)	**Week 2** 1 - 5 Feb (5 days)	**Week 3** 8 – 12 Feb (5 days)	**Week 4** 15 - 19 Feb (5 days)	**Week 5** 22 - 26 Feb (5 days)	**Week 6** 1 - 5 March (5 days)	**Week 7** 8 - 12 March (5 days)	**Week 8** 15 - 19 March (5 days)	**Week 9** 22 - 26 March (4 days)	**Week 10** 29 - 31 March (3 days)
CAPS Topics		**MECHANICS: Vectors in two dimensions (2 hrs)**	**MECHANICS: Vectors in two dimensions (4 hrs)**	**MECHANICS: Vectors in two dimensions (2 hrs)** **MECHANICS: Newton's laws (2 hrs)**	**MECHANICS: Newton's laws (4 hrs)**	**MECHANICS: Newton's laws (4 hrs)**	**MECHANICS: Newton's laws (4 hrs)**	**MECHANICS: Newton's laws (4 hrs)**	**MATTER & MATERIAL: Atomic combinations (4 hrs)**	**MATTER & MATERIAL: Atomic combinations (3 hrs)**	**CONTROL TEST (2 hrs)**
Requisite pre-knowledge		• Vectors and scalars • Representation of vectors	• Vectors and scalars • Force and unit of force	• Vectors and scalars	• Equations of motion • Force and free-body diagrams • Frictional forces	• Equations of motion • Force and free-body diagrams • Frictional forces	• Equations of motion • Force and free-body diagrams • Gravitational acceleration	• Chemical bonding • Electron configuration • Writing of formulae	• Chemical bonding • Writing of formulae • Valency • Periodic Table	• Chemical bonding • Molecules • Periodic Table	N/A
Resources (other than textbook) **to enhance learning**		• Apparatus for experiment below • Study guides • Previous question papers • Mindset & YouTube videos	• Study guides • Previous question papers • Mindset & YouTube videos • Simulations	• Apparatus for Study guides • Previous question papers • Mindset & YouTube videos • PhET simulations	• Apparatus for experiment below • Study guides • Previous question papers • Mindset & YouTube videos • PhET simulations	• Study guides • Previous question papers • Mindset & YouTube videos • PhET simulations	• Study guides • Previous question papers • Mindset & YouTube videos • PhET simulations	• Study guides • Previous question papers • Mindset & YouTube videos • PhET simulations	• Study guides • Previous question papers • Mindset & YouTube videos • Simulations	• Study guides • Previous question papers • Mindset & YouTube videos • Simulations	N/A
Assessment	**Informal Assessment:** Remediation	• Practical: Determine the resultant of three non-linear force vectors • Homework	• Homework • Informal test	• Homework	• Practical: The effect of different surfaces on the maximum static frictional force • Homework	• Homework	• Homework	• Homework • Informal test	• Homework	• Homework • Informal test	N/A
	SBA (Formal)	None	None	None	None	Formal practical: Newton's second law of motion	None	None	None	None	Control test

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2021 National Recovery ATP: Grade 11 – Term 2: PHYSICAL SCIENCES

TERM 2 (51 days)	**Week 1 13 – 16 April** (4 days)	**Week 2 19 – 23 April** (5 days)	**Week 3 28 – 30 April** (3 days)	**Week 4 3 – 7 May** (5 days)	**Week 5 10 -14 May** (5 days)	**Week 6 17 - 21 May** (5 days)	**Week 7 24 - 28 May** (5 days)	**Week 8 31 May – 4 June** (5 days)	**Week 9 7 – 11 June** (5 days)	**Week 10 14 – 18 June** (4 days)	**Week 11 21 – 25 June** (5 days)
CAPS Topics	**MARCH CONTROL TEST: Discussion (3 hrs)**	**MATTER & MATERIAL: Intermolecular forces (4 hrs)**	**MATTER & MATERIAL: Intermolecular forces (2 hrs)**	**CHEMICAL CHANGE: Quantitative aspects of chemical change (4 hrs)**	**CHEMICAL CHANGE: Quantitative aspects of chemical change (4 hrs)**	**CHEMICAL CHANGE: Quantitative aspects of chemical change (4 hrs)**	**CHEMICAL CHANGE: Quantitative aspects of chemical change (4 hrs)**	**ELECTRICITY & MAGNETISM: Electrostatics (4 hrs)**	**ELECTRICITY & MAGNETISM: Electrostatics (4 hrs)**	**ELECTRICITY & MAGNETISM: Electrostatics (3 hrs)**	**Control Test (2 hrs)**
Topics / Concepts, Skills and Values	• Discussion and corrections of March Control Test	• Describe the difference between intermolecular forces and interatomic forces (intramolecular forces) using a diagram of a group of small molecules & in words. • Name and explain the different inter-molecular forces (Van der Waals forces): ○ Mutually induced dipole forces or London forces: - ○ Dipole-dipole forces ○ Dipole-induced dipole forces: ○ Hydrogen bonding: ○ Ion-dipole forces: Forces between ions and polar molecules	• State the relationship between intermolecular forces and molecular mass. • Explain the effect of intermolecular forces on boiling point, melting point, vapour pressure & solubility.	• Describe the mole as the SI unit for amount of substance. • Define one mole. • Describe Avogadro's number, N_A, as the number of particles (atoms, molecules, formula-units) present in one mole. • Define molar mass. • Calculate the molar mass of a substance given its formula. • State Avogadro's Law. • Know the molar gas volume, V_M, at STP is 22,4 $dm^3 \cdot mol^{-1}$. • Do calculations using $n = \frac{m}{M}$, $n = \frac{V}{V_M}$, $n = \frac{\text{number of particles}}{N_A}$	• Interpret balanced equations in terms of volume relationships for gases. • Define concentration. • Calculate concentration, in $mol \cdot dm^{-3}$, using $c = \frac{n}{V}$. • Determine percentage composition of a compound. • Determine the empirical formula and molecular formula of compounds. • Do stoichiometric calculations including limiting reagents.	• Determine the percentage yield of a chemical reaction. • Determine the percentage $CaCO_3$ in an impure sample of sea shells (purity or percentage composition).	• Stoichiometric calculations with explosions as reactions e.g. $2NH_4NO_3 \rightarrow 2N_2(g) + 4H_2O(g) + O_2(g)$ $2C_8H_{18} + 25O_2 \rightarrow 16CO_2 + 18H_2O$ • Stoichiometric calculations using reaction in airbags (sodium azide): $2NaN_3(s) \rightarrow 2Na(s) + 3N_2(g)$	• State Coulomb's law. • Solve problems using $F = \frac{kQ_1Q_2}{r^2}$ for charges in one dimension (1D) – restrict to three charges. • Solve problems using $F = \frac{kQ_1Q_2}{r^2}$ for charges in two dimensions (2D) – for three charges in a right-angled formation (limit to charges at the 'vertices of a right-angled triangle').	• Describe an electric field as a region in space in which an electric charge experiences a force. • Draw electric field patterns for the following configurations: ○ A single point charge ○ Two point charges (one negative, one positive OR both positive OR both negative) ○ A charged sphere (Restrict to charges identical in magnitude.) • Define the electric field at a point. ($E = \frac{F}{Q}$). • Solve problems using the equation $E = \frac{F}{Q}$.	• Calculate the electric field at a point due to a number of point charges, using the equation $E = \frac{kQ}{r^2}$ to determine the contribution to the field due to each charge. Restrict to three charges in a straight line.	**ONE PAPER 100 marks** • Intermolecular forces • Quantitative aspects of chemical change • Electrostatics
Requisite pre-knowledge	• Atoms and molecules	• Molecules • Kinetic molecular theory and phases of matter	• Molecules • Kinetic molecular theory and phases of matter	• Mole concept • Molar mass, molar volume • Concentration • Writing of formulae	• Mole concept • Molar mass, molar volume • Concentration • Writing of formulae and balanced equations	• Mole concept • Molar mass, molar volume • Concentration • Writing of formulae and balanced equations	• Mole concept • Molar mass, molar volume • Concentration • Writing of formulae and balanced equations	• Positive & negative charges • Electrostatic forces • Vectors and scalars	• Positive & negative charges • Electrostatic forces • Vectors and scalars	• Positive & negative charges • Electric field • Vectors and scalars	N/A
Resources (other than textbook) **to enhance learning**	• March question paper •	• Molecular models • Study guides • Previous question papers • Mindset & YouTube videos • PhET simulations	• Study guides • Previous question papers • Mindset & YouTube videos • Simulations	• Study guides • Previous question papers • Mindset & YouTube videos	• Study guides • Previous question papers • Mindset & YouTube videos	• Study guides • Previous question papers • Mindset & YouTube videos	• Study guides • Previous question papers • Mindset & YouTube videos	• Study guides • Previous question papers • Mindset & YouTube videos • PhET simulations	• Study guides • Previous question papers • Mindset & YouTube videos • PhET simulations	• Study guides • Previous question papers • Mindset & YouTube videos • PhET simulations	N/A

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TERM 2 (51 days)		Week 1 13 – 16 April (4 days)	Week 2 19 – 23 April (5 days)	Week 3 28 – 30 April (3 days)	Week 4 3 – 7 May (5 days)	Week 5 10 -14 May (5 days)	Week 6 17 - 21 May (5 days)	Week 7 24 - 28 May (5 days)	Week 8 31 May – 4 June (5 days)	Week 9 7 – 11 June (5 days)	Week 10 14 – 18 June (4 days)	Week 11 21 – 25 June (5 days)
Assessment	**Informal Assessment:** Remediation	• Corrections • Homework	• Homework	• Homework • Informal test	• Homework	• Practical: Preparation of a standard solution • Homework	• Homework	• Homework • Informal test	• Homework	Homework	Homework Informal test	N/A
	SBA (Formal)	None	None	None	None	None	None	None	None	None	None	Control Test

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2021 National Recovery ATP: Grade 11 – Term 3: PHYSICAL SCIENCES

TERM 3 (52 days)	**Week 1 13 – 16 July (4 days)**	**Week 2 19 – 23 July** (5 days)	**Week 3 26 – 30 July** (5 days)	**Week 4 2 – 6 Aug** (5 days)	**Week 5 10 – 13 Aug** (4 days)	**Week 6 16 – 20 Aug** (5 days)	**Week 7 23 – 27 Aug** (5 days)	**Week 8 30 Aug – 3 Sept** (5 days)	**Week 9 6 - 10 Sept** (5 days)	**Week 10 13 - 17 Sept** (5 days)	**Week 11 20 - 23 Sept** (4 days)
CAPS Topics	**JUNE CONTROL TEST: Discussion (3 hrs)**	**ELECTRICITY & MAGNETISM: Electromagnetism (4 hrs)**	**ELECTRICITY & MAGNETISM: Electromagnetism (4 hrs)**	**ELECTRICITY & MAGNETISM: Electric circuits (4 hrs)**	**ELECTRICITY & MAGNETISM: Electric circuits (3 hrs)**	**ELECTRICITY & MAGNETISM: Electric circuits (4 hrs)**	**MATTER AND MATERIAL: Ideal gases and thermal properties (4 hrs)**	**MATTER AND MATERIAL: Ideal gases and thermal properties (4 hrs)**	**CHEMICAL CHANGE: Energy and chemical change (4 hrs)**	**CHEMICAL CHANGE: Types of reaction (4 hrs)**	**CONTROL TEST (2 hrs)**
Topics /Concepts, Skills and Values	Discussion and corrections of the June control Test.	• Magnetic field near a current carrying wire • Use the Right Hand Rule to determine the direction of the magnetic field associated with: (i) A straight current carrying wire (ii) A current carrying loop (single) of wire (iii) A solenoid • Draw the magnetic field lines around: (i) A straight current carrying wire (ii) A current carrying loop (single) of wire (iii) Solenoid • Discuss qualitatively the environmental impact of overhead electrical cables.	• State Faraday's Law. • Use words and pictures to describe what happens when a bar magnet is pushed into or pulled out of a solenoid connected to a galvanometer. • Use the Right Hand Rule to determine the direction of the induced current in a solenoid when the north or south pole of a magnet is inserted or pulled out.	• State Ohm's law in words. • Interpret data/graphs on the relationship between current, potential difference and resistance at constant temperature. • State the difference between ohmic and non-ohmic conductors and give an example of each. • Solve problems using $R = \frac{V}{I}$ for circuits containing resistors that are connected in series and/or in parallel (maximum four resistors).	• Define power. • Solve problems using $P = \frac{W}{\Delta t}$. • Recall that $W = VQ$ and by substituting $Q = I\Delta t$ and $V = IR$, the following are obtained: $W = VI\Delta t$, $W = I^2R\Delta t$ $W=\frac{V^2\Delta t}{R}$ • Deduce, by substituting $P = \frac{W}{\Delta t}$. into above equations, the following equations: $P = VI$, $P = I^2R$ and $P = \frac{V^2}{R}$ • Solve problems using $P = VI$, $P = I^2R$ and $P = \frac{V^2}{R}$. • Solve circuit problems involving the concepts of power and electrical energy.	• Deduce that the kilowatt-hour (kWh) refers to the use of 1 kilowatt of electricity for 1 hour. • Know that 1 kWh is an amount of electrical energy known as one unit of electricity. • Calculate the cost of electricity usage given the power specifications of the appliances used, the duration and the cost of 1 kWh.	• Describe the motion of individual molecules i.e. - collisions with each other and the walls of the container - molecules in a sample of gas move at different speeds • Explain the idea of 'average speeds' in the context of molecules of a gas. • Describe an ideal gas in terms of the motion of molecules. • Explain how a real gas differs from an ideal gas. • State the conditions under which a real gas approaches ideal gas behaviour.	• Describe the relationship between volume and pressure for a fixed amount of gas at constant temperature (Boyle's law): ○ Practically ○ By interpreting table of results ○ Using graphs ○ Using symbols ('∝') and the words 'inversely proportional' ○ Writing a relevant equation • Explain the temperature of a gas in terms of the average kinetic energy of the molecules of the gas • Explain the pressure exerted by a gas in terms of the collision of the molecules with the walls of the container	• Define heat of reaction (ΔH). • Define an exothermic reaction. • Define and endothermic reaction. • Classify, with reason, reactions as exothermic or endothermic. • State the sign of ΔH for exothermic and endothermic reactions. • Define activation energy. • Define an activated complex. • Draw or interpret fully labelled sketch graphs (potential energy versus course of reaction graphs) of catalysed and uncatalysed endothermic and exothermic reactions.	• Write names and formulae of common acids: hydrochloric acid, nitric acid, sulphuric acid and ethanoic acid (acetic acid). • Write names and formulae of common bases: ammonia, sodium carbonate (washing soda), sodium hydrogen carbonate, sodium hydroxide (caustic soda) and potassium hydroxide • Define acids and bases according to the Arrhenius & Bronsted-Lowrey theories. • Identify conjugate acid-base pairs for given compounds. • Describe the term amphiprotic or ampholyte. • Write equations to show how an amphiprotic substance can act as acid or base. Write reaction equations for the dissolution of acids and bases in water. • Write the overall equations for the reactions of acids with metal hydroxides, metal oxides and metal carbonates.	**ONE PAPER (100 marks)** • Electromagnetism • Electric circuits • Ideal gases and thermal properties • Energy and chemical change
Requisite pre-knowledge	N/A	• Positive & negative charges	• Magnetic field • Current, potential difference	• Magnetic fields around current-carrying conductors	• Current, potential difference,	• Current, potential difference,	• Molecules • Kinetic molecular theory	• Molecules • Kinetic molecular theory and phases of matter	• Exothermic and endothermic reactions	• Writing of formulae and balanced equations	N/A

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TERM 3 (52 days)		Week 1 13 – 16 July (4 days)	Week 2 19 – 23 July (5 days)	Week 3 26 – 30 July (5 days)	Week 4 2 – 6 Aug (5 days)	Week 5 10 – 13 Aug (4 days)	Week 6 16 – 20 Aug (5 days)	Week 7 23 – 27 Aug (5 days)	Week 8 30 Aug – 3 Sept (5 days)	Week 9 6 - 10 Sept (5 days)	Week 10 13 - 17 Sept (5 days)	Week 11 20 - 23 Sept (4 days)
CAPS Topics		**JUNE CONTROL TEST: Discussion** (3 hrs)	**ELECTRICITY & MAGNETISM: Electromagnetism** (4 hrs)	**ELECTRICITY & MAGNETISM: Electromagnetism** (4 hrs)	**ELECTRICITY & MAGNETISM: Electric circuits** (4 hrs)	**ELECTRICITY & MAGNETISM: Electric circuits** (3 hrs)	**ELECTRICITY & MAGNETISM: Electric circuits** (4 hrs)	**MATTER AND MATERIAL: Ideal gases and thermal properties** (4 hrs)	**MATTER AND MATERIAL: Ideal gases and thermal properties** (4 hrs)	**CHEMICAL CHANGE: Energy and chemical change** (4 hrs)	**CHEMICAL CHANGE: Types of reaction** (4 hrs)	**CONTROL TEST** (2 hrs)
			• Electrostatic force • Electric field • Vectors and scalars		• Current, potential difference, resistance	resistance, power • Electric circuits	resistance, power • Electric circuits	and phases of matter		• Exo- and endothermic reactions • Writing formulae		
Resources (other than textbook) **to enhance learning**		• June control test question paper	• Study guides • Previous question papers • Mindset & YouTube videos • PhET simulations	• Apparatus for experiment listed below • Study guides • Previous question papers • Mindset & YouTube videos • PhET simulations	• Apparatus for experiment listed below • Study guides • Previous question papers • Mindset & YouTube videos • pHET simulations	• Study guides • Previous question papers • Mindset & YouTube videos • PhET simulations	• Study guides • Previous question papers • Mindset & YouTube videos • PhET simulations	• Study guides • Previous question papers • Mindset & YouTube videos • Simulations	• Apparatus: Boyle's law • Study guides • Previous question papers • Mindset & YouTube videos • phet simulations	• Study guides • Previous question papers; • Mindset & YouTube videos • Simulations	• Study guides • Previous question papers; • Mindset & YouTube videos • Simulations	N/A
Assessment	**Informal Assessment:** Remediation	• Homework • Corrections	• Homework • Informal test	• Practical: magnetic fields around current-carrying conductors • Homework	• Practical: Induced current in a coil by moving a magnet in and out of the coil (demo) • Homework • Informal test	• Homework	• Homework • Practical: Ohm's law	• Homework	• Homework • Informal test	• Homework	• Homework	N/A
	SBA (Formal)	None	None	None	None	None	None	None	Formal practical: Boyle's law	None	None	Control test

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2021 National Recovery ATP: Grade 11 – Term 4: PHYSICAL SCIENCES

TERM 4 (47 days)	Week 1 5 – 8 Oct (4 days)	Week 2 11 – 15 Oct (5 days)	Week 3 18 – 22 Oct (5 days)	Week4 25 – 29 Oct (5 days)	Week 5 1 – 5 Nov (5 days)	Week 6 8 – 12 Nov (5 days)	Week 7 15 – 19 Nov (5 days)	Week 8 -10 22 Nov – 8 Dec (13 days)
CAPS Topics	**SEPTEMBER CONTROL TEST: Discussion (2 hrs)** **CHEMICAL CHANGE: Types of reaction (1 hr)**	**CHEMICAL CHANGE: Types of reaction (4 hrs)**	**CHEMICAL CHANGE: Types of reaction (4 hrs)**	**CONSOLIDATION AND REVISION (4 hrs)**	**CONSOLIDATION AND REVISION (4 hrs)**	**CONSOLIDATION AND REVISION (4 hrs)**	**CONSOLIDATION AND REVISION (4 hrs)**	**FINAL EXAMINATION** **P1: 2 hrs** **P2: 2 hrs**
Topics /Concepts, Skills and Values	• Discussion and corrections of control test **Acid-base reactions** • Describe an acid-base indicator as a weak acid, or a weak base, which colour changes as the H^+ ion or the OH^- ion concentration in a solution changes. • Know the colours of litmus, methyl orange, phenolphthalein and bromothymol blue in acids and in bases.	**Acid-base reactions** • Identify the acid and the base needed to prepare a given salt and write an equation for the reaction. • Write down neutralisation reactions of common laboratory acids and bases. **Redox reactions** • Explain the meaning of oxidation number. • Assign oxidation numbers to atoms in various ions and molecules, e.g. H_2O, CH_4, CO_2, H_2O_2, and HOCℓ by using oxidation number guidelines or rules.	**Redox reactions** • Describe a redox (oxidation-reduction) reaction as involving an electron transfer. • Describe a redox (oxidation-reduction) reaction as always involving changes in oxidation numbers. • Identify a redox reaction and apply the correct terminology to describe all the processes i.e. oxidation, reduction, reducing agent, oxidising agent • Balance redox reactions by using half-reactions from the Table of Standard Reduction Potentials	• All topics	All topics	All topics	All topics	**Physics Paper 1 (100 marks)** • Vectors in two dimensions • Newton's laws • Electrostatics • Electromagnetism • Electric circuits **Chemistry Paper 2 (100 marks)** • Atomic combinations • Intermolecular forces • Ideal gases and thermal properties • Quantitative aspects of chemical change • Energy and chemical change • Types of reaction
Requisite pre-knowledge	Acid and base properties	Writing of formulae and balanced equations	Writing of formulae and balanced equations	N/A	N/A	N/A	N/A	N/A
Resources (other than textbook) **to enhance learning**	• September control test question paper • Acid-base indicators	• Apparatus for practical below. • Study guides • Previous question papers; • Mindset & YouTube videos • Simulations	• Table of Standard Reduction potentials • Study guides • Previous question papers; • Mindset & YouTube videos • Simulations	• Study guides • Previous question papers; • Mindset & YouTube videos • Simulations	• Study guides • Previous question papers; • Mindset & YouTube videos • Simulations	• Study guides • Previous question papers; • Mindset & YouTube videos • PhET simulations	• Study guides • Previous question papers; • Mindset & YouTube videos • PhET simulations	N/A
Assessment **Informal Assessment:** Remediation	• Homework	• Practical: Acid-base titration • Homework	• Homework • Informal test	• Homework • Informal test	• Informal test • Homework	• Informal test • Homework	• Informal test • Homework	N/A
Assessment **SBA (Formal)**	None	None	None	None	None	None	None	Final Examination