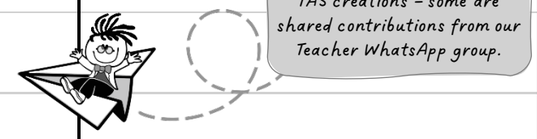
2025 TERM 1 PHYSICAL SCIENCES ATP & LESSON PLANNER THE ANSWER SERIES

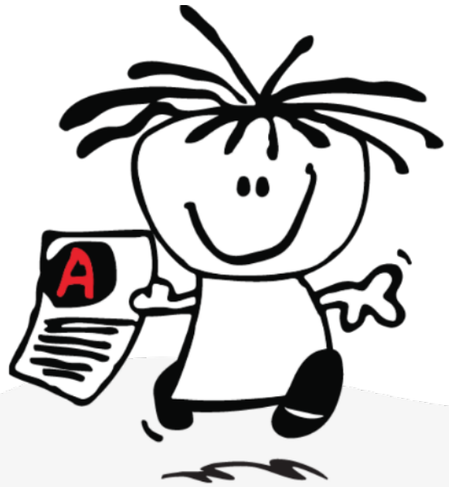
GR 11

Join our WhatsApp group | Physical Sciences Community Page

ACADEMIC WEEKS	CAPS TOPIC	CORE CONTENT & PAGE NUMBERS *Based on TAS Gr 11 PS 3-in-1 Class Text & Study Guide*		SUGGESTED EXERCISES *From TAS Gr 11 PS Class Text & Study Guide*	POSSIBLE PRACTICAL TASKS / CONSOLIDATION	DATE COMPLETED
WEEK 1 *15 – 17 Jan*	**Mechanics** *33 school days* PAPER 1: 68 marks	**Vectors in two dimensions:** Resultant of vectors *(definition)*; Sketch parallel and perpendicular vectors in a Cartesian plane, addition of co-linear vectors *(components of resultant vector)*	p. 1.1 p. 1.1 – 1.2	**p. Q2:** Q13	Practical p.1.4: Determine the resultant of three non-linear force vectors	
		Graphical representation of horizontal and vertical components R_x and R_y *(in a Cartesian plane)*; Graphical representation of a resultant vector R	p. 1.3	**p. Q2:** Q13, Q14	Simulation of representation of vectors in a Cartesian Plane here	
WEEK 2 *20 – 24 Jan*		The magnitude of the resultant vector *(Pythagoras)*; The direction of the resultant vector *(trigonometric ratios)*	p. 1.3	**p. Q2:** Q13 **p. Q2 – Q3:** Q16		
		Resultant of two or more *(maximum 4)* 1-D and 2-D vectors: graphically – *tail-to-head & tail-to-tail (parallelogram) method;* algebraically - *component method, i.e.*	p. 1.4 – p. 1.6	**p. Q1:** Q10 **p. Q2:** Q11, Q12 **p. Q3:** Q17	Simulation on vector addition here	
WEEK 3 *27 – 31 Jan*		Resolve a vector into parallel and perpendicular components; Calculate the resultant *(component method cont.)*	p. 1.5 – p. 1.6	**p. Q1:** Q6, Q8 **p. Q2:** Q14 **p. Q3:** Q17, Q18		
		Newton's laws: Types of forces - contact and non-contact forces, *e.g.* Normal force (N or F_N) *(definition)* Frictional force (*f* or F_f) *(definition)*; $f \propto N$	p. 1.6 – p. 1.7	**p. Q3:** Q16, Q19 – Q21	- Simulation on basic forces and motion here - Use this useful summary of Newton's laws - Simulation – forces exerted on an object here	
WEEK 4 *3 – 7 Feb*		Static frictional force *(f_s) (definition)* Calculate the maximum static frictional force $f_s^{max} = \mu_k N$	p. 1.7 – p. 1.9	**p. Q3:** Q22 **p. Q4:** Q23.1 – Q23.3	Practical: The effect of different surfaces on the maximum static frictional force	
		Kinetic frictional force (f_k) *(definition); calculate kinetic friction* $f_k = \mu_k N$	p. 1.9 – p. 1.10	**p. Q1:** Q3 **p. Q4:** Q26		
		Force and free-body diagrams	p. 1.10 – p. 1.13	**p. Q1:** Q9 **p. Q3:** Q19 – Q21, Q23.4		
		Forces on an inclined plane: Parallel (II) and perpendicular (⊥) components *(of weight (F_g))*	p. 1.10 – p. 1.13	**p. Q1:** Q9 **p. Q3:** Q22	Simulation of forces on an inclined plane here	
		Newton's first law of motion: Resultant/net force of forces in equilibrium *(concept of inertia; $Fnet = 0N$)* Applications of Newton 1: Importance of safety belts	p. 1.14 – p. 1.15	**p. Q4:** Q24, Q25.1		
WEEK 5 *10 – 14 Feb*		Newton's second law of motion: $F_{net} = ma$ Resultant/net force of forces not in equilibrium; Applications of Newton II *(along a horizontal, vertical and inclined plane)*	p. 1.16 – p. 1.20	**p. Q1:** Q1, Q5 **p.Q4 – Q6:** Q25 – Q33	- Formal Practical p. 1.16: Newton's second law of motion - Experiment examples Newton's 2nd law: PART 1; P1 MEMO and PART 2; P2 MEMO - Simulation – problems 2 body systems here	
WEEK 6 *17 – 21 Feb*		Problems with two-body systems (connected with a light inelastic rope) *(combinations of 2 objects in the same or different planes, with or without friction)*	p. 1.20 – p. 1.21	**p. Q6 – Q7:** Q35 – Q38		
WEEK 7 *24 – 28 Feb*		Newton's third law of motion: Applications of Newton III; Identify Newton III pairs	p. 1.21 – p. 1.23	**p. Q6 – Q7:** Q34 – Q38		
		Newton's law of Universal Gravitation: Calculation of gravitational force; Weight	p. 1.23 – p. 1.25	**p. Q1:** Q2, Q7 **p. Q7:** Q39 – Q40	Verification of gravitational acceleration p. 1.26	
		Gravitational acceleration (g)	p. 1.26 – p. 1.27	**p. Q7:** Q39 – Q40		
		Difference between weight and mass *(weight on different planets: w = mg)*; Weightlessness	p. 1.28	**p. Q6:** Q34		

WEEK 8 *3 – 7 March*	**Electricity, and Magnetism** *14 school days* PAPER 1: 50 marks	**Electrostatics:** Coulomb's law – Force between charges: $F = \frac{kQ_1Q_2}{r^2}$	p. 5.1 – p. 5.2		Watch this video on charging of insulators through the transfer of electrons	
		Separate forces and resultant force on a single charge; *solve problems (restricted to 3 charges in 1-D; 3 charges in 2-D at right angles; a charge on which an electrostatic force and other forces act in 2-D)*	p. 5.2 – p. 5.7	**p. Q28 – Q29:** Q12 – Q16, Q18.1, Q19.1 – Q19.2	Simulations on Coulomb's law here and here	
		Electric field around charges	p. 5.8			
WEEK 9 *10 – 14 March*		Electric field lines *(patterns)* around 2 unlike or 2 like point charges	p. 5.8	**p. Q27:** Q1 **p. Q29:** Q13.4, Q17.2		
		Electric field strength at a point in an electric field: $E = \frac{F}{Q}$ Force experienced by a charge in an electric field: $F = QE$	p. 5.9	**p. Q29 – Q30:** Q18 – Q21		
WEEK 10 *17 – 20 March*		Electric field strength at a distance r from a point charge: $E = k\frac{Q}{r^2}$	p. 5.9 – p. 5.10	**p. Q29 – Q30:** Q18 – Q21		
		Net electric field (restrict to 3 charges in a straight line)	p. 5.10 – p. 5.11	**p. Q30:** Q19.3, Q20		
WEEK 11 *24 – 28 March*	Time for consolidation and revision (*9 school days*)			**Formal Assessments: Term Test (min 100 marks) & Experiment (min 50 marks)**		





2025 TERM 2 PHYSICAL SCIENCES ATP & LESSON PLANNER THE ANSWER SERIES

GR 11

Join our WhatsApp group | Physical Sciences Community Page

ACADEMIC WEEKS	CAPS TOPIC	CORE CONTENT & PAGE NUMBERS *Based on TAS Gr 11 PS 3-in-1 Class Text Study Guide*		SUGGESTED EXERCISES *From TAS Gr 11 PS Class Text & Study Guide*	POSSIBLE PRACTICAL TASKS / CONSOLIDATION	DATE COMPLETED
WEEK 1 *8 – 11 Apr*		**Control Test** – Discussion and Corrections of March Control Test				
WEEK 2 *14 – 17 Apr*	**Electricity & Magnetism** *18 school days* PAPER 1: 50 marks	**Electromagnetism:** Magnetic field around a current carrying conductor: A straight current-carrying wire; A circular conductor; A current-carrying solenoid *(magnetic field lines; direction of magnetic field - RH rule)*	p. 5.11 – 5.14	**p. Q30:** Q23 – Q27	Watch this video on the magnetic field around a current carrying conductor	
		Environmental impact of overhead electrical cables	p. 5.14			
WEEK 3 *22 – 25 Apr*		The induction of an electric current; Magnetic flux; Calculate induced emf and current ($\varepsilon = -N\frac{\Delta\phi}{\Delta t}$; *Faraday's law*)	p. 5.14 – 5.17	**p. Q30:** Q23 – Q27	Watch this video on electromagnetic induction	
WEEK 4 *29 Apr – 1 May* ***(Holidays)***		Faraday's Law *(state)*: Direction of induced current and magnetic field. *(Lenz's law, Right hand rule)*	p. 5.17 – 5.19	**p. Q30:** Q23 – Q27		
		Electric circuits: Ohm's law: relationship between R, V and I at constant T ($R = \frac{V}{I}$); Ohmic & non-ohmic conductors; Problem solving	p. 5.20 – 5.26	**p. Q31, Q32:** Q28 – Q35	- Simulation to build different circuits with series/parallel resistors here - Practical (Informal Assessment) p. 5.21: Ohm's Law	
WEEK 5 *5 – 9 May*		**Power and Energy**: Definition; Equation for electrical power ($P = VI$); combine with Ohm's law ($V = IR$); Problem solving	p. 5.26 – 5.28	**p. Q32, Q33:** Q36 – Q38		
		Gr 12 Physical Sciences 3-in-1 Internal resistance ($\varepsilon = I(R + r)$); Problem solving Gr 12	p. 230 – 233	Gr 12 Physical Sciences 3-in-1 **p. 235 – 236:** Q1 – Q5 **p. 254 – 256:** Q12 – 21		
WEEK 6 *12 – 16 May*		Electrical energy transferred/used; kWh; Cost of electricity	p.5.28 – 5.29	**p. Q33:** Q37.5 & Q38.3		
WEEK 7 *19 – 23 May*	**Matter & Materials** *15 school days* PAPER 1: 60 marks	**Atomic combinations**: Chemical bonding: Electron structure & valence electrons; Lewis diagrams *(elements)*; Electrostatic forces and energy *(energy & bond length graph)*; Covalent chemical bonds *(rules in the formation of bonds);* Draw Lewis diagrams *(molecules)*	p.2.1 – 2.7	**p. Q9, Q10:** Q21 – Q23	Simulation on atomic interactions & Potential Energy vs Bond Length here	
		Molecular shape: VSEPR theory *(bond pairs & lone pairs determines symmetry/shape)*	p. 2.7 – 2.9	**p. Q10:** Q25 – Q28 & Q30	Watch this video on a water molecule's shape & solubility of ionic salts in water	
WEEK 8 *26 – 30 May*		Electronegativity of atoms: Polarity of bonds *(polarity of a molecule depends on its shape/symmetry & polarity of bonds)*	p. 2.9 – 2.13	**p. Q10:** Q23, Q24 & Q29	- Simulation on Molecule Polarity here - Simulations on Molecular shapes here and here	
		Bond length and bond energy; Bond order; Bond strength	p. 2.13 – 2.15	**p. Q9:** Q21.1 & Q21.2		
WEEK 9 *2 – 6 June*		Interatomic and intermolecular forces: Definitions; Types of intermolecular forces *(Van der Waals; Hydrogen bond)*	p. 2.15 – 2.19	**p. Q12, Q13:** Q31 – Q35		
WEEK 10 *9 – 13 June*		Intermolecular forces and physical properties *(i.e. boiling point, melting point, vapour pressure, solubility; Strength of forces relative to mass/size of molecule)*	p. 2.19 – 2.26	**p. Q10, Q12, Q13:** Q27, Q31 – Q35	Watch this video on hydrogen bonds	
WEEK 11 & 12 *17 – 27 June*	Time for consolidation and revision (*9 school days*)			**Formal Assessments: June Exam (min 100 marks)**		

NOTE

Not all shared resources are TAS creations – some are shared contributions from our Teacher WhatsApp group.

NOTE

Schools will be closed during the week of 28 April to 2 May 2025, due to public holidays on the Monday and Thursday. The content scheduled for week 4, must therefore be divided between week 3 and week 5.

The content of week 10 can also be moved to week 9 to leave more time for revision and the June exam.