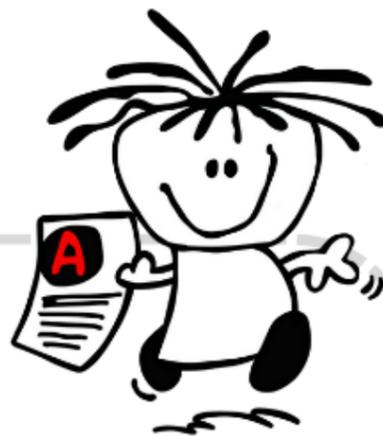# The ANSWER SERIES
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GRADE 10

Physical Sciences

2026

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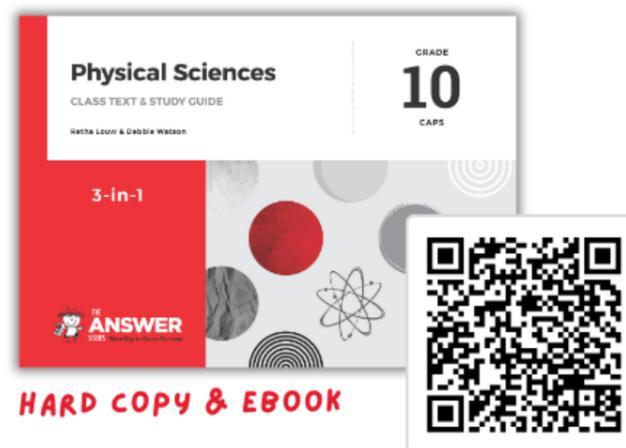Keep track of your curricular progress here ↓

ACADEMIC WEEKS	CAPS TOPIC	CORE CONTENT & PAGE NUMBERS *Based on TAS Gr 10 PS 3-in-1 Class Text & Study Guide*		SUGGESTED EXERCISES *From TAS Gr 10 PS Class Text & Study Guide*	POSSIBLE PRACTICAL TASKS / CONSOLIDATION	DATE CONTENT WAS COMPLETED
WEEK 1 *14 – 16 Jan*	**WAVES, SOUND & LIGHT** *30 school days* PAPER 1: 40 marks	**Transverse pulses in a string or spring**: A pulse; A transverse pulse; Amplitude Superposition, Interference: constructive and destructive	p. 2.1 – 2.2 p. 2.3 – 2.4	**p. Q6:** Q1.1 & Q1.4; **p. Q7:** Q7	- Slinky spring, ripple tank: Demonstration of transverse pulses & waves; superposition - Simulation on superposition of waves here	
		Transverse waves in a spring: Wave terms; representation of a wave; Wave concepts: in phase or out of phase	p. 2.4 – 2.5	**p. Q6:** Q1.2, Q1.3 & Q1.5	Watch this video on transverse waves	
WEEK 2 *19 – 23 Jan*		**Transverse waves:** Relationship between frequency (*f*) and period (T); frequency (*f*), wavelength (λ) and wave speed (*v*) Calculations with Universal Wave Equation	p. 2.5 – 2.6	**p. Q6:** Q1.6, Q2 & Q3; **p.Q7:** Q4 – Q6	Simulation on transverse waves here	
		Longitudinal waves in a spring: Compressions and rarefactions; Wave terms: amplitude (A) and wavelength (λ)	p. 2.6 – 2.7	**p. Q7:** Q8	- Slinky spring: Demonstration of longitudinal waves - Simulation on longitudinal waves here	
WEEK 3 *26 – 30 Jan*		**Longitudinal waves:** Wave terms: frequency (*f*) and period (T); Wave speed (*v*). *Apply wave equation in calculations.*	p. 2.7 – 2.8	**p. Q7:** Q9 & Q10	Watch this video on transverse and longitudinal waves	
		Sound: Sound waves: Generation and propagation; Speed of sound	p. 2.8	**p. Q6:** Q1.8	Practical: bell jar with electric bell Echoes: reflection	
		Reflection of sound waves: *echoes; solve problems*	p. 2.9	**p. Q8:** Q11 & Q12	Practical: measuring speed of sound in air	
WEEK 4 *2 – 6 Feb*		Pitch, Loudness, Sound quality (tone)	p. 2.9 – 2.10	**p. Q6:** Q1.7 & Q1.8; **p. Q8:** Q11	Different tuning forks/ musical instruments, oscilloscope	
		Ultrasound: General applications; Medical applications (create images)	p. 2.10 – 2.11	**p. Q8:** Q13	Watch videos on the uses and working of ultrasound: here and here	
WEEK 5 *9 – 13 Feb*		**Electromagnetic radiation**: Dual nature: Wave nature; Particle nature	p. 2.11 – 2.12			
		Generation and propagation of electromagnetic (EM) waves *Mutually regenerating electric and magnetic fields, traveling at c = 3 x 10^8 m.s^{-1}*	p. 2.12	**p. Q9:** Q17.1 & Q17.2	Simulation on generation and propagation of EM waves here	
WEEK 6 *16 – 20 Feb*		Electromagnetic (EM) spectrum: Relationship between frequency (*f*), wavelength (λ) and speed (c) of EM radiation Types of EM radiation (properties)	p. 2.13 – 2.14	**p. Q8:** Q15.3; **p. Q9:** Q15.4, Q16, Q17.3 & Q17.4		
		Penetrating ability *(energy)*; Dangers of radiation	p. 2.14 – 2.15			
WEEK 7 *23 & 24 Feb*		Particle nature of EM radiation: Quantization (*define photon*); Energy of a photon: $E = hf = h\frac{c}{\lambda}$	p. 2.15 – 2.16	**p. Q8:** Q15.1 – 15.3 **p. Q9:** Q17.3 & Q17.4		
WEEK 7 *25 – 27 Feb*	**ELECTRICITY & MAGNETISM** *13 school days* PAPER 1: 35 marks	**Electrostatics:** Positive and negative charges *(protons and electrons)* in materials; objects can be neutral, positively or negatively charged	p. 4.5	**p. Q14:** Q8, Q9 & Q10.1– 10.3	Watch this video on charging of insulators through the transfer of electrons	
		The transfer of charge; *triboelectric charging of insulators*	p. 4.5 – 4.6	**p. Q14:** Q9, Q10.1– 10.4	Electroscope; glass and Perspex rod and cloths	
WEEK 8 *2 – 6 March*		Charge conservation *(state and apply principle)*: Calculation of charge after contact: $Q = \frac{Q_1+Q_2}{2}$; the SI unit for charge: coulomb	p. 4.7 – 4.8	**p. Q14:** Q12 **p. Q15:** Q13		
		Charge Quantization *(state and apply principle)*: $q = ne$	p. 4.8 – 4.9	**p. Q14:** Q12; **p. Q15:** Q13		
		Forces between like and unlike (opposite) charges	p. 4.6 – 4.7	**p. Q14:** Q11; **p. Q15:** Q14		
		Forces between charged and uncharged objects *(polarization of molecules inside insulators)*	p. 4.7	**p. Q14:** Q10.5; **p. Q15:** Q15 & Q16	Watch this video on polarisation in insulators	

NOTE

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WEEK 9 *9 – 13 March*	**Electric circuits:** Important Circuit components; circuit diagrams	p. 4.9 – 4.10		Simulations to build electric circuits & investigate Voltmeter & Ammeter readings: here and here	
	Potential difference; emf *(define and calculate)*: $V = \frac{W}{Q}$	p. 4.11 – 4.12	**p. Q15:** Q17 & Q18		
	Electric current strength *(define and calculate)*: $I = \frac{Q}{\Delta t}$ Direction of current *(electron and conventional)*	p. 4.12 – 4.13	**p. Q16:** Q19		
	Measuring current and voltage: ammeter and voltmeter	p. 4.13			
	Resistance *(define)*	p. 4.13 – 4.14	**p. Q16:** Q20		
WEEK 10 & 11 *16 – 27 March*	Time for consolidation and revision *(10 school days)*			**Formal Assessments: Control Test (one paper; min 75 marks)**	

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CONTENT THAT WILL BE TESTED

- Transverse pulses on a string/spring
- Transverse waves
- Longitudinal waves
- Electromagnetic radiation
- Electrostatics
- Electric Circuits

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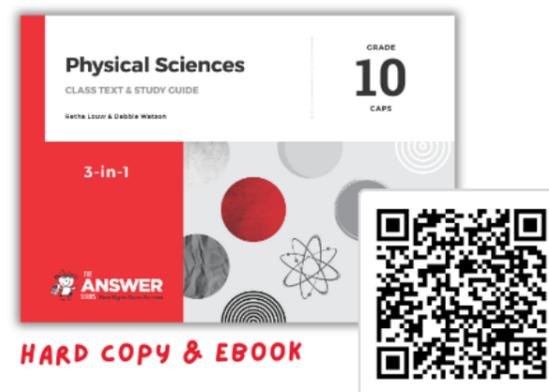| ACADEMIC WEEKS	CAPS TOPIC	CORE CONTENT & PAGE NUMBERS *Based on TAS Gr 10 PS 3-in-1 Class Text & Study Guide*		SUGGESTED EXERCISES *From TAS Gr 10 PS Class Text & Study Guide*	POSSIBLE PRACTICAL TASKS / CONSOLIDATION	DATE CONTENT WAS COMPLETED
WEEK 1 *8 – 10 April*	**ELECTRICITY & MAGNETISM** *8 school days* PAPER 1: 35 marks	**Control Test** – Discussion and Remedial Work of Control Test				
		Electric Circuits *(cont.)*: Resistance	p. 4.13 – 4.18			
WEEK 2 *13 – 17 April*		Resistors in series *(same current; potential dividers; total resistance)*	p. 4.14 – 4.15	**p. Q16, Q17:** Q20 – Q25	Simulation to build different circuits with series/parallel resistors here	
		Resistors in parallel *(same potential difference; current dividers; total resistance)*; Solve problems *(Ohm's law)*	p. 4.15 – 4.16		- Formal Practical p. 4.14 - Here is an assessment on electric circuits	
WEEK 3 *20 – 24 April*	**MATTER & MATERIALS** *28 school days* PAPER 2: 70 marks	**Revision of matter and classification:** The material(s) of which an object is composed; properties	p. 1.1 – 1.15	**p. Q2, Q3:** Q8		
		Mixtures: Homogeneous and Heterogeneous	p. 1.2 – 1.3	**p. Q1, Q2:** Q1 – Q4		
		Pure substances: Elements and Compounds: Evidence for purity	p. 1.3 – 1.4	**p. Q1, Q2:** Q1 – Q4	Watch this video on paper chromatography	
		The states of matter and the kinetic molecular theory: Particulate nature *(diffusion, Brownian motion)*; Three states of matter; Freezing point, melting point, boiling point	p. 1.11 – 1.13	**p. Q3:** Q9, Q11	Watch this video on Brownian motion	
WEEK 4 *28 – 30 April*		The states of matter *(cont.)***:** Identify the state of a substance given the MP, BP); State/phase changes	p. 1.13 – 1.14	**p. Q3:** Q9, Q10	- Formal Practical p. 1.14 - Watch videos on the heating curve of water video 1 and video 2	
		Kinetic molecular theory: Solids, liquids and gases	p. 1.14 – 1.15	**p. Q3:** Q9, Q11	Practical – heating curve of water here	
		The Atom: Basic building block of all matter Atomic mass and diameter (actual); Relative atomic mass	p. 1.18 – 1.19		Watch an interesting video on the development of the atom here	
		Structure of the atom: Protons, neutrons, electrons; The atomic number (Z); The atomic mass (A)	p. 1.19 – 1.20	**p. Q3:** Q12	Simulation on Rutherford's experiment here	
WEEK 5 *4 – 8 May*		Isotopes: Calculate the average atomic mass; Representing atoms using $^A_Z E$ notation	p. 1.20 – 1.21	**p. Q4:** Q12.4.1, Q13	Simulation on isotopes here	
		Electron configuration: Orbitals; The Aufbau principle; Orbital box diagrams; Spectroscopic electron notation	p. 1.21 – 1.24	**p. Q3, Q4:** Q14 – Q16	Watch this video of s- and p-orbitals	
		Names and Formulae of substances: Elements; Compounds; Write name when formula is given and vice versa; Using prefixes in names	p. 1.4 – 1.8	**p. Q2:** Q5 – Q7		
		Metals, Non-metals and Metalloids	p.1.8 – p.1.9	**p. Q2, Q3:** Q8		
		Electrical conductors, Non-Conductors, Semi-conductors	p.1.10	**p. Q2, Q3:** Q8		
		Thermal Conductors and Non-Conductors	p.1.10	**p. Q2, Q3:** Q8		
		Magnetic and Non-Magnetic Materials	p.1.11			

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WEEK 6 *11 – 15 May*	**MATTER & MATERIALS (cont.)** *28 school days* PAPER 2: 70 marks	**The Periodic Table:** The relationship between the position of elements in the PT and their electron arrangement: Groups and periods; The electron structure and the PT	p. 1.25 – 1.27	**p. Q5:** Q21	
		Periodic repetition of properties of elements	p. 1.27 – 1.29	**p. Q4, Q5:** Q18.2 & Q18.3	
		Periodicity of ionisation energy, electron affinity and electronegativity	p. 1.29 – 1.32	**p. Q4:** Q17	
		Similarities in the chemical properties of elements in the same groups (1, 2, 17 and 18)	p. 1.32 – 1.34	**p. Q4, Q5:** Q18	
WEEK 7 *18 – 22 May*		**Chemical Bonding:** Covalent bonding, Ionic bonding *(Definition; Lewis dot diagrams of elements, covalent molecules, ions and ionic compounds)*; Revision of naming	p. 1.34 – 1.37	**p. Q5:** Q19 – Q22	Simulation on building an atom here
WEEK 8 *25 – 29 May*		Metallic bonding	p. 1.37 – 1.38		<mark>Practical Demonstration</mark>: Watch this video on the reaction between Fe and S
		Revision of relative molecular and formula mass	p. 1.39 – 1.41	**p. Q12:** Q15	
		Physical and chemical change: Separation of particles during physical and chemical change *(properties; definition)*; Synthesis reactions; Decomposition reactions	p. 3.1 – 3.4	**p. Q9:** Q1 & Q2	
WEEK 9 *1 – 5 June*	**CHEMICAL CHANGE** *10 school days* PAPER 2: 60 marks	Conservation of atoms and mass	p. 3.4 – 3.5	**p. Q9:** Q3.3.3 **p. Q10:** Q4.1.5 & Q5 **p. Q11:** Q9.1.2	- Watch this video on everyday examples of Physical and Chemical Changes - Watch videos on the conservation of mass here and here
		Law of constant composition	p. 3.5 – 3.6	**p. Q10:** Q6 **p. Q11:** Q9.2	Watch this video on the Constant Composition of Compounds
		Representation of chemical change: Writing and balancing chemical equations; Interpreting balanced equations	p. 3.6 – 3.8	**p. Q11:** Q7, Q8 & Q9.1	Simulation to balancing equations here
WEEK 10 *8 – 12 June*		**Quantitative Aspects of chemical change:** Atomic mass and mole concept *(Avogadro's number)*	p. 3.16 – 3.17	**p. Q12:** Q15.1, Q15.4 & Q15.5	
		Molecular mass and formula mass: Molar mass; Relationship between m, M and n $(n = \frac{m}{M})$	p. 3.17	**p. Q12:** Q15.2 & Q15.3	
		Amount of substance (n), molar volume (V_m) (of gasses at STP)	p. 3.20 – 3.21	**p. Q13:** Q19 & Q22.4	
WEEK 11 & 12 *17 – 26 June*	Time for consolidation and revision *(8 school days)*			**Formal Assessments: June Exam (min 100 marks) & Experiment (min 50 marks)**	

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CONTENT THAT WILL BE TESTED

- Electric circuits
- Matter and classification
- States of matter and the kinetic molecular theory
- The atom
- The Periodic Table
- Chemical bonding
- Energy
- Physical and chemical change
- Representing chemical change
- Quantitative aspects of chemical change

ACADEMIC WEEKS	CAPS TOPIC	CORE CONTENT & PAGE NUMBERS *Based on TAS Gr 10 PS 3-in-1 Class Text & Study Guide*		SUGGESTED EXERCISES *From TAS Gr 10 PS Class Text & Study Guide*	POSSIBLE PRACTICAL TASKS / CONSOLIDATION	DATE CONTENT WAS COMPLETED
WEEK 1 *21 – 24 Jul*	**CHEMICAL CHANGE** *9 school days* PAPER 2: 60 marks	Control Test: Discussion and corrections				
		Molar concentrations of solutions: $c = \frac{n}{V}$	p. 3.21 – 3.22	**p. Q13**: Q20 & Q21		
		Determining the composition of substances: Quantitative analysis by measuring mass; Percentage composition; The empirical formula of a given substance; Water of crystallisation	p. 3.18 – 3.20	**p. Q12**: Q16 – Q18	Formal practical investigation: p. 3.19. Water of crystallisation of $CuSO_4$	
WEEK 2 *27 – 31 Jul*		Basis Stoichiometric calculations: Calculations based on number of moles, volume, mass and molar mass; Percentage (%) yield	p. 3.22 – 3.23	**p. Q12**: Q15 **p. Q13**: Q19, Q22		
WEEK 3 *3 – 7 Aug*	**MECHANICS** *37 school days* PAPER 1: 75 marks	**Physical Quantities:** Scalar quantity; Vector quantity; The difference between scalar and vector quantities	p. 5.1 – 5.2	**p. Q17**: Q1		
		Graphical representation of vector quantities: Vector diagrams	p. 5.2 – 5.3			
		Properties of vectors: Equal vectors; Negative vectors; Addition, Subtraction, Multiplication of vectors	p. 5.3 – 5.4	**p. Q17**: Q2	*Not all shared resources are TAS creations – some are shared contributions from our Teacher WhatsApp group.*	
		Resultant vector: *Algebraic vector addition; Graphical tail-to-head vector addition*	p. 5.4	**p. Q17**: Q2		
WEEK 4 *11 – 14 Aug*		**Motion in one dimension:** Position, reference point, frame of reference; Motion in one dimension; Position relative to a reference point	p. 5.5 – 5.7	**p. Q18**: Q3		
WEEK 5 *17 – 21 Aug*		Distance; Displacement;	p. 5.8 – 5.10	**p. Q18**: Q4		
		Average speed; Average velocity; Calculations; Conversion between different units of speed and velocity	p. 5.10 – 5.12	**p. Q18**: Q5 & Q6 **p. Q19**: Q10	Watch this useful video on the difference between **speed** and **velocity**	
WEEK 6 *24 – 28 Aug*		Acceleration $a = \frac{\Delta v}{\Delta t}$; Calculations	p. 5.12 – 5.13	**p. Q19**: Q11 – Q12		
		Using a ticker timer; Calculations; Positive and negative acceleration	p. 5.13 – 5.16	**p. Q20**: Q13		
WEEK 7 *31 Aug – 4 Sept*		Instantaneous speed and velocity: Constant or uniform velocity; Constant and uniform acceleration; Instantaneous velocity	p. 5.16 – 5.17	**p. Q19**: Q11 – Q12		
		Description of motion using words, diagrams, graphs: *position-time, velocity-time, acceleration-time graphs for uniform/constant velocity and accelerated motion*	p. 5.17 – 5.20	**p. Q18 – Q20**: Q7 – Q12	- Formal practical investigation: Measurement of velocity & position/time, velocity/time and acceleration/time graphs for a moving trolley - Watch this video on the practical investigation	

NOTE

WEEK 8 7 – 11 Sept	MECHANICS (cont.)	Gradient of 1) position-time graph: *Instantaneous velocity* 2) velocity-time graph: *acceleration* Area under 1) velocity-time graph: *displacement* 2) acceleration-time graph: *average velocity*	p. 5.19 – 5.20	**p. Q18 – Q20**: Q7 – Q12	Watch this useful video on the explanation of the different graphs: x-Δt, v-Δt, and a-Δt	
	37 school days	Using equations of motion: $v_f = v_i + a\Delta t$; $v_f^2 = v_i^2 + 2a\Delta x$; $\Delta x = v_i\Delta t + \frac{1}{2}a\Delta t^2$; $\Delta x = \frac{v_i + v_f}{2}\Delta t$ *Steps for problem solving*	p. 5.22 – 5.23	**p. Q20**: Q14 – Q19		
WEEK 9 14 – 18 Sept	PAPER 1: 75 marks					
		Road safety: Speed and stopping distance	p. 5.24	**p. Q20 – Q21**: Q20 – Q27		
WEEK 10 21 – 23 Sept	Time for consolidation and revision (*5 school days*)			**Formal Assessments: Control Test (one paper; min 75 marks) & Experiment (min 50 marks)**		

According to the official DBE ATP, the 2025 content of term 3 week 10 corresponds with that of term 4 week 1. It is therefore removed from term 3, so that the last week of term 3 is available for revision and the September control test.

CONTENT THAT WILL BE TESTED

- Quantitative aspects of chemical change
- Vectors and scalars
- Motion in one dimension
- Instantaneous speed and velocity

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WEEK 1 *6 – 9 Oct*	**MECHANICS** *9 school days* PAPER 1: 75 marks	September control test: Discussion & Remedial work				
WEEK 2 *12 – 16 Oct*		**Energy:** Gravitational field	p. 5.25	**p. Q21 – Q22:** Q28 – Q31	- Watch [this] useful video on mechanical energy - Simulation to illustrate the conservation of mechanical energy [here]	
		Gravitational Potential Energy ($E_p = mgh$ **or** $U/PE = mgh$)	p. 5.25 – 5.26			
		Kinetic Energy ($E_k = \frac{1}{2}mv^2$ **or** $K/KE = \frac{1}{2}mv^2$)	p. 5.26			
		Mechanical Energy: ($E_M = E_p + E_k$) *(calculations)* Conservation of mechanical energy *(Law of Conservation of Mechanical Energy)* Applications *(free-falling objects, pendulums, roller coasters and inclined planes)*	p. 5.27 – 5.28			
WEEK 3 – 5 *19 Oct – 6 Nov*	**ALL TOPICS**	Consolidation and Revision				
WEEK 6 – 10 *9 Nov – 9 Dec*		Time for consolidation and revision *(23 school days)*		**Final Examination: Paper 1 (100 marks) & Paper 2 (100 marks)**		

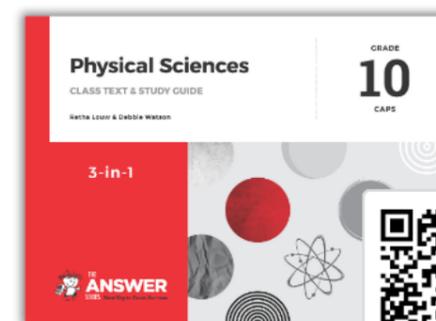| **FINAL EXAMINATION**	
PHYSICS PAPER 1 (100 marks)	**CHEMISTRY PAPER 2 (100 marks)**
- Transverse pulses - Transverse waves - Longitudinal waves - Sound - Electromagnetic radiation - Electrostatics - Electric circuits - Vectors and scalars - Motion in one dimension - Instantaneous speed and velocity and the equations of motion - Energy	- Matter and classification - States of matter and the kinetic molecular theory - The atom - The periodic table - Chemical bonding - Physical and chemical change - Representing chemical change - Quantitative aspects of chemical change

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