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Year 11 Overview 2025-26 – *Physics*

Date	Wk	Week	Units Studied & Learning Outcomes	Key Concepts & Assessment
8 weeks (12 Lessons) (38 Days)				
Tues 2-Sep Tues Y7 only Wednesday-whole school	A	1	• Overview of Unit/No. lessons Forces and motion and momentum revision (for higher) (3 lessons) Sep – Pressure in a gas/fluid/atmospheric pressure (3 lessons) Energy and circuits (5 lessons) • Lesson **Sequence** of Content: • Lesson 1 - Revision of Newtons Laws of motion • Lesson 2 – Revision of Motion graphs and motion on a straight line • Lesson 3 – Vector diagrams and resolution of forces (H/Sep) • Lesson 4 – Revision of momentum and then calculations involving momentum in collisions and explosions • Lesson 5-7 – Pressure in gases HT – Sep Pressure in a fluid/atmospheric pressure • Lesson 8 – Recap of basic circuits – symbols and series/parallel • Lesson 9 – Investigating Series rules • Lesson 10 – Investigating Parallel rules • Lesson 11 – Using V=IxR and the circuit rules • Lesson 12 – ST2 revision • Unit Learning Outcomes: GW - Be able to calculate momentum and know the difference between vectors and scalars BI - Be able to use the conservation of momentum in collisions and explosions. Drawing vector diagrams EW – Apply knowledge of momentum in different contexts and resolve pairs of forces	• Foundational Concepts Forces and motion & Energy and circuits • Resolve a single force into two components (HT) • Know how to calculate moments and understand the principle of moments • Explain how a gas causes pressure and how pressure changes with altitude • Know how hydraulic machines work • Know how to calculate pressure • Understand what causes high and low pressure. • Know how hydraulic machines work • Be able to explain how a gas causes pressure and explain how the pressure caused by a gas can change • Know the standard circuit symbols • Know where to place a voltmeter and ammeter in a circuit • Be able to explain what is meant by voltage and know the rules for voltage in series and parallel circuits. • Know what electrical resistance is • Tier 2/3 Vocabulary • Glossaries, quick quizzes, within exam questions, PowerPoints. **Key words:** Forces, resultant force, pressure, series, parallel, circuit, velocity, ammeter, voltmeter, current, potential difference, resistance • Links to wider disciplinary knowledge/cultural capital: history, culture, authentic artefacts, music, art(ists), literature? The invention of the battery -- which could produce a continuous flow of current -- made possible the development of the first electric circuits. Alessandro Volta invented the first battery, the voltaic pile, in 1800. Careers links - applications engineer, data analyst, design engineer, electrician, electrical engineer • ***Equality Diversity and Inclusion (EDI) links?*** • Early awareness of electricity among ancient Egyptians aware of shocks from electric fish. • Korean-American Dawon Kahng helped invent the metal-oxide-semiconductor field-effect transistor (MOSFET) which has become the most-widely manufactured device in history.
8-Sep	B	2		
15-Sep (INSET Friday)	A	3		
22-Sep	B	4		
29-Sep	A	5		
6-Oct	B	ST1		
13-Oct	A	ST1		
20-Oct	B	8		

Prior (Y9/10)	Current (Y11)	Next (Post 16)
Y9 Recall the difference between scalar and vector quantities (with examples).	V-I Characteristic graphs – more focus on current flow through	Y12/13 – Electricity - current-voltage characteristics, resistivity, circuits

			Y7 - forces Year 9 – power equation Y 8 – Building circuits and circuit symbols, defining voltage and current	different devices Different types of current (AC/DC) Wiring a plug HT: Resolving a force	Y12/13 – Further mechanics

Common misconceptions

- mix up velocity and speed
- energy is used up in a circuit

Parent and Carers month/Black History month
World afro day
International day of sign languages
world mental health day
world teachers day
World cerebal palsy day

- **Assessment** (Quiz/Tests/application tasks/ ST: Including foundational concepts, wider disciplinary knowledge, key content.)
- Week 6:
  Circuits & Forces FT
  Forces & circuits HT/Sep

Half-Term		**7** weeks (10-11 lessons) (35 Days)		
3-Nov	A	9	• Overview of Unit/No. lessons • Lesson **Sequence** of Content: Lesson 1 – Introduce the equations P=IV, Q=It, E= QxV Lesson 2 and 3 – Use the equations above and circuit rules in calculations Lesson 3/4/5 VI Characteristics Lesson 6 – Thermistors and LDRs recapped from practical carried out in Year 10 Lesson 7– ACDC and features of mains electricity Lesson 8 – Wiring a plug Lesson 9 – Dangers of mains electricity Separates Lesson 10 – How objects become charged Lesson 11 – Electric fields and applications of static electricity • Unit Learning Outcomes: **GW** – Can use the equations P=IV etc and state the features of a mains plug **BI** – Combine the circuit rules and the equations to perform calculations on circuits **EW** – Can explain why mains electricity can be dangerous. Explain the VI characteristics of diode/resistor and filament bulb	• Foundational Concepts - Energy and circuits • Tier 2/3 Vocabulary - Glossaries, quick quizzes, within exam questions, PowerPoints. • Links to wider disciplinary knowledge/cultural capital: history, culture, authentic artefacts, music, art(ists), literature? • The invention of the battery -- which could produce a continuous flow of current -- made possible the development of the first electric circuits. Alessandro Volta invented the first battery, the voltaic pile, in 1800. The very first circuits used a battery and electrodes immersed in a container of water. Momentum, was actually introduced by the French scientist and philosopher Descartes before Newton • Careers links - applications engineer, data analyst, design engineer, electrician, electrical engineer • ***Equality Diversity and Inclusion (EDI) links?*** • Early awareness of electricity among ancient Egyptians aware of shocks from electric fish. • Korean-American Dawon Kahng helped invent the metal-oxide-semiconductor field-effect transistor (MOSFET) which has become the most-widely manufactured device in history. *Mens health awareness month/disability confident month* *Diwali* *Remembrance Sunday* *Transgender awareness week* *World Diabetes Day* *World AIDS day* *Christmas Day* **Assessment** (Quiz/Tests/application tasks/ ST: Including foundational concepts, wider disciplinary knowledge, key content.) Week 13: Thermistor Nat Grid FT Nat grid VI HT & Sep
10-Nov	B	10		
17-Nov	A	11		
24-Nov	B	12		
1-Dec	A	13		
8-Dec	B	14		
15-Dec	A	15		

Prior (Y9/10)	Current (Y11)	Next (Post 16)
Y 8 – Building circuits and circuit symbols, defining voltage and current	V-I Characteristic graphs – more focus on current flow through different devices	Y12/13 – Electricity - current-voltage characteristics, resistivity, circuits

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			<table><tr><td>Y7 - forces Year 9 – power equation</td><td>Different types of current (AC/DC) Wiring a plug HT: Momentum calculations, resolving a force</td><td>Y12/13 – Further mechanics</td></tr></table> • **Common misconceptions -** confuse how to set up voltmeter and ammeter	
Christmas Holiday			6 weeks (9 lessons) (30 Days)		
5-Jan	B	16	• <u>Overview of Unit/No. lessons</u> National Grid (3 lessons) & Electromagnetic induction (3 lessons) • <u>Lesson **Sequence** of Content</u>: Lesson 1 – Revision on energy resources Lesson 2 – Make up of national grid Lesson 3 – Demand on the national grid Lesson 4 – Recap motor effect and link to induction Lesson 5 – Generators Lesson 6 – Transformers • <u>Unit Learning Outcomes</u>: GW BI EW <table><tr><th>Prior (Y9/10)</th><th>Current (Y11)</th><th>Next (Post 16)</th></tr><tr><td></td><td></td><td></td></tr></table> **Common misconceptions**	• Foundational Concepts • Tier 2/3 Vocabulary **Key words:** Generator, transformer, potential difference, conservation, motor effect, induction **Links to root words (etymology):** • Current from the latin, *currere*, 'run' – defined as the flow of electric charge • Voltage – commonly referred to as 'potential difference' – from the latin, potent/potential – being able/power • Circuit, originates from latin, *'go round'* • Amps/amperes – named after French scientists Andre André-Marie Ampère • Links to wider disciplinary knowledge/cultural capital: history, culture, authentic artefacts, music, art(ists), literature? • The invention of the battery -- which could produce a continuous flow of current -- made possible the development of the first electric circuits. Alessandro Volta invented the first battery, the voltaic pile, in 1800. The very first circuits used a battery and electrodes immersed in a container of water. Careers links - applications engineer, data analyst, design engineer, electrician, electrical engineer • ***Equality Diversity and Inclusion (EDI) links?*** • Scientists from different nationalities *LGBT+ History month* *Holocaust memorial day* *World Hijab Day* *Children's mental health week.* *Safer internet day* *Chinese New Year*
12-Jan	A	17			
19-Jan	B	ST2			
26-Jan	A	ST2			
2-Feb	B	20			
9-Feb	A	21			

				Assessment (Quiz/Tests/application tasks/ ST: Including foundational concepts, wider disciplinary knowledge, key content.) Please Highlight the week number where formal feedback will be given (once per half term)
Half-Term			6 weeks (9 lessons) (29 Days)	
23-Feb	B	22	• Overview of Unit/No. lessons Exam Prep	• Foundational Concepts *Women's history month* *Ramadhan begins* *World Down Syndrome day* *Transgender day of visibility* **Assessment** (Quiz/Tests/application tasks/ ST: Including foundational concepts, wider disciplinary knowledge, key content.) Foundation: Week 3 Forces and motion FT 25-26 Higher/Sep: Week 3 Forces and motion HT and Sep 25-26
2-Mar	A	23		
9-Mar	B	24		
16-Mar	A	25		
23-Mar	B	26		
30-Mar (finish Wednesday 1st April)	A			
Easter Holiday			5 weeks (7-8 lessons) (23 Days)	
20-Apr	B		Exam Prep	
27-Apr	A	29		
4-May (Bank holiday Mon)	B	GCSE		
11-May	A	GCSE		
18-May	B	GCSE		
Half-Term			7 weeks (10-11 lessons) (34 Days)	
1-Jun	A	GCSE	Exam Prep	
9-Jun	B	GCSE		
16-Jun	A	GCSE		
23-Jun	B	GCSE		
(Total: 190 Days)				

Prompt Questions

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Please revisit the prompts from last year:

- What are the Key concepts for this unit?
- How will it link to wider disciplinary knowledge/cultural capital: history, culture, authentic artefacts, music, art, literature?
- How does it build on prior knowledge and link to other units, concepts, years, GCSE?
- What is it intended students will have learned?
  - For each Unit? By the end of the Year?
    - GW: ; BI: ; EW
- Is it worth summarising in a knowledge organiser?

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- **Assessment: how do you know they have learned the foundational concepts, curriculum and wider disciplinary knowledge? Does assessment look like GCSE light? Should it?**
- Skills used/learned
- Tier 2/3 vocabulary ((Etymology e.g. of Greek/Latin)
- How will you assess students understanding?
- How will written feedback be given?
- How can lessons be adapted?