

Mechanics Overview - Curriculum Progression Map

	Term 1 – 8 weeks	Term 2 – 7 weeks	Term 3 – 6 weeks	Term 4 – 6 weeks	Term 5 – 5 weeks	Term 6 – 7 weeks
Year 7	<p>Knowledge & Skills:</p> <p>During this term pupils will learn the basics in Engineering using bridge construction to develop understanding of strength points. We will cover bridge disasters across the world and the development of structures.</p> <p>Lesson 1 – Expectations of the area, and Health & Safety</p> <p>Lesson 2 – Tool identification in the workshop?</p> <p>Lesson 3 – Introduction to Engineering, relating it to future jobs.</p> <p>Topics Name: Building Bridges</p> <p>Lesson 4 – Bridges of the world. Case study of failed bridges. Using Meccano and Lego to build structures</p> <p>Lesson 5 – Paper Bridge Challenge</p> <p>Lesson 6 – Continued Bridge Challenge</p> <p>Assessment: Pupils to understand structure of two types of bridge. End of term test.</p> <p>Completion of work booklet.</p>	<p>Knowledge & Skills:</p> <p>The History and development of the bicycle, understanding parts and how the mechanical elements work to create movement.</p> <p>Topic title: Know your bike</p> <p>Lesson 1 History of the Bicycle</p> <p>Lesson 2: History of the Bicycle continued</p> <p>Lesson 3: Design your own Bicycle</p> <p>Lesson 4: Bicycle parts recognition & tools required</p> <p>Lesson 5: Practice using tools & PPE selection</p> <p>Lesson 6: Pedals off. Understand reverse thread (L&R)</p> <p>Lesson 7: Wheels off</p> <p>Assessment: Pupils will understand basic parts of a bike. End of term test</p> <p>Completion of booklet.</p>	<p>Knowledge & Skills:</p> <p>Pupils to develop confidence in dismantling a bicycle on their own. The importance of Health & safety in and out of the workplace</p> <p>Lesson 1: Wheels off refresher including removal of tyre and inner tube</p> <p>Lesson 2: How to fix a puncture</p> <p>Lesson 3: Brakes / Servicing them</p> <p>Lesson 4: Bearings / Grease</p> <p>Lesson 5: Service your bike</p> <p>Lesson 6: On your bike- manoeuvres and signals</p> <p>Assessment: End of Term assessment on Bicycle servicing</p>	<p>Knowledge & Skills:</p> <p>Pupils introduced to Go karts continuing with confidence building with the use of tools and PPE.</p> <p>Lesson 1: History of the Go kart</p> <p>Lesson 2: Design your own Go Kart</p> <p>Lesson 3: Make your own Go kart from the materials provided.</p> <p>Lesson 4: Make your own Go Kart Continued</p> <p>Lesson 5: Know your way around one of the schools Go Karts-Part identification.</p> <p>Lesson 6: How to remove and replace a Go Kart wheel, using safe working practices</p> <p>Assessment: End of Term Assessment on the history of the Go Kart</p>	<p>Knowledge & Skills:</p> <p>Pupils introduced to Power tools and how to remove a car wheel following safe working procedures and their own PPE Selection</p> <p>Pupils will also be introduced to the Pit Stop Challenge</p> <p>Lesson 1: How to remove a wheel from a car using power tools & safe working practices</p> <p>Lesson 2: Pit stop challenge- Students given the chance to compete to get the quickest time removing & replacing a road wheel</p> <p>Lesson 3: Pit Stop Challenge Continued</p> <p>Lesson 4: How to make a service/ inspection list for a Go Kart</p> <p>Lesson 5: Servicing a Go Kart</p> <p>Assessment: End of term assessment on servicing a Go kart</p>	<p>Knowledge & Skills:</p> <p>Pupils Introduced to basic electronics & Wiring</p> <p>Lesson 1: Basic electronics (Video)</p> <p>Lesson 2: Batteries & Bulbs</p> <p>Lesson 3: Series Circuit</p> <p>Lesson 4: Parallel Circuits</p> <p>Lesson 5: Design your own circuit</p> <p>Lesson 6: Solar powered toys & Wind turbines</p> <p>Assessment: End of Term Assessment written and practical (Making a Solar powered toy)</p>

Curriculum Progression Map KS3

	Term 1 – 8 weeks	Term 2 – 7 weeks	Term 3 – 6 weeks	Term 4 – 6 weeks	Term 5 – 5 weeks	Term 6 – 7 weeks
Year 8 & 9	<p>Knowledge & Skills:</p> <p>During this term pupils will learn the basics in Engineering using bridge construction to develop understanding of strength points. We will cover bridge disasters across the world and the development of structures.</p> <p>Lesson 1 – Expectations of the area, and Health & Safety</p> <p>Lesson 2 – Tool identification in the workshop?</p> <p>Lesson 3 – Introduction to Engineering, relating it to future jobs.</p> <p>Topics Name: Building Bridges</p> <p>Lesson 4 – Bridges of the world. Case study of failed bridges. Using Meccano and Lego to build structures</p> <p>Lesson 5 – Paper Bridge Challenge</p> <p>Lesson 6 – Continued Bridge Challenge</p> <p>Assessment: Pupils to understand structure of two types of bridge. End of term test.</p> <p>Completion of work booklet.</p>	<p>Knowledge & Skills:</p> <p>The History and development of the bicycle, understanding parts and how the mechanical elements work to create movement.</p> <p>Topic title: Know your bike</p> <p>Lesson 1 History of the Bicycle</p> <p>Lesson 2: History of the Bicycle continued</p> <p>Lesson 3: Design your own Bicycle</p> <p>Lesson 4: Bicycle parts recognition & tools required</p> <p>Lesson 5: Practice using tools & PPE selection</p> <p>Lesson 6: Pedals off. Understand reverse thread (L&R)</p> <p>Lesson 7: Wheels off</p> <p>Assessment: Pupils will understand basic parts of a bike. End of term test</p> <p>Completion of booklet.</p>	<p>Knowledge & Skills:</p> <p>Pupils to develop confidence in dismantling a bicycle on their own.</p> <p>The importance of Health & safety in and out of the workplace</p> <p>Lesson 1: Wheels off refresher including removal of tyre and inner tube</p> <p>Lesson 2: How to fix a puncture</p> <p>Lesson 3: Brakes / Servicing them</p> <p>Lesson 4: Bearings / Grease</p> <p>Lesson 5: Service your bike</p> <p>Lesson 6: On your bike- manoeuvres and signals</p> <p>Assessment: End of Term assessment on Bicycle servicing</p>	<p>Knowledge & Skills:</p> <p>Pupils introduced to Go karts continuing with confidence building with the use of tools and PPE.</p> <p>Lesson 1: History of the Go kart</p> <p>Lesson 2: Design your own Go Kart</p> <p>Lesson 3: Make your own Go kart from the materials provided.</p> <p>Lesson 4: Make your own Go Kart Continued</p> <p>Lesson 5: Know your way around one of the schools Go Karts-Part identification.</p> <p>Lesson 6: How to remove and replace a Go Kart wheel, using safe working practices</p> <p>Assessment: End of Term Assessment on the history of the Go Kart</p>	<p>Knowledge & Skills:</p> <p>Pupils introduced to Power tools and how to remove a car wheel following safe working procedures and their own PPE Selection</p> <p>Pupils will also be introduced to the Pit Stop Challenge</p> <p>Lesson 1: How to remove a wheel from a car using power tools & safe working practices</p> <p>Lesson 2: Pit stop challenge- Students given the chance to compete to get the quickest time removing & replacing a road wheel</p> <p>Lesson 3: Pit Stop Challenge Continued</p> <p>Lesson 4: How to make a service/ inspection list for a Go Kart</p> <p>Lesson 5: Servicing a Go Kart</p> <p>Assessment: End of term assessment on servicing a Go kart</p>	<p>Knowledge & Skills:</p> <p>Pupils Introduced to basic electronics & Wiring</p> <p>Lesson 1: Basic electronics (Video)</p> <p>Lesson 2: Batteries & Bulbs</p> <p>Lesson 3: Series Circuit</p> <p>Lesson 4: Parallel Circuits</p> <p>Lesson 5: Design your own circuit</p> <p>Lesson 6: Solar powered toys & Wind turbines</p> <p>Assessment: End of Term Assessment written and practical (Making a Solar powered toy)</p>

Curriculum Progression Map KS4 YR 10 Options A & B

	Term 1 – 8 weeks	Term 2 – 7 weeks	Term 3 – 6 weeks	Term 4 – 6 weeks	Term 5 – 5 weeks	Term 6 – 7 weeks
Year 10	<p>Knowledge & Skills:</p> <p><u>UNIT 1 – HEALTH 7 SAFETY part 1</u></p> <p>Identify personal responsibilities and the responsibilities of others in the working environment</p> <p>Identify and use correctly, equipment and procedures provided for Health and Safety in the workplace.</p> <p>Demonstrate good housekeeping routines in the working environment</p> <p>Select and use correct Personal Protective Equipment</p> <p>Identify 4 Substances Hazardous to Health according to current regulations</p> <p>Demonstrate appropriate ways to dispose of waste products in accordance with environmental guidance.</p> <p><u>Assessment:</u> Internally assessed through;</p> <ul style="list-style-type: none"> -Unit booklet -Job cards -Practical 	<p>Knowledge & Skills:</p> <p><u>UNIT 1 – HEALTH 7 SAFETY part 2</u></p> <p>Know the principles of safe Manual Handling</p> <p>Demonstrate safe Manual Handling using appropriate equipment</p> <p>Identify the principles of fire prevention</p> <p>Identify the type and location of fire extinguisher(s) in the working area</p> <p>State the procedure to follow in the event of an emergency evacuation</p> <p><u>Assessment:</u> Internally assessed through;</p> <ul style="list-style-type: none"> -Unit booklet -Job cards 	<p>Knowledge & Skills:</p> <p><u>UNIT 2 – INTRODUCTION TO BRAKING SYSTEMS part 1</u></p> <p>Use safe working practices when working on vehicle braking systems</p> <p>Remove and replace road wheels with attention to:</p> <ul style="list-style-type: none"> • safe jacking procedure • use of correct jacking points • use of axle stands <p>use of torque wrench</p> <p>Identify and locate the main components of a vehicle braking system to include:</p> <ul style="list-style-type: none"> • master cylinder • brake servo • disc brakes • drum brakes • parking brake • warning lights <p>Identify the wheels that the parking brake operates</p> <p><u>Assessment:</u> Internally assessed through;</p> <ul style="list-style-type: none"> -Unit booklet -Job cards -Practical 	<p>Knowledge & Skills:</p> <p><u>UNIT 2 – INTRODUCTION TO BRAKING SYSTEMS part 2</u></p> <p>Remove and replace disc pads and report on the condition of:</p> <ul style="list-style-type: none"> • brake pads • brake discs • brake caliper • flexible brake hose <p>Remove and replace brake drum and report on condition of:</p> <ul style="list-style-type: none"> • brake drum • brake shoes • brake wheel cylinders <p>Perform checks on condition of:</p> <ul style="list-style-type: none"> • brake fluid • operation of brake warning lights <p>Check and top-up brake fluid reservoir</p> <p><u>Assessment:</u> Internally assessed through;</p> <ul style="list-style-type: none"> -Unit booklet -Job cards -Practical 	<p>Knowledge & Skills:</p> <p><u>UNIT 3 - INTRODUCTION TO VEHICLE INSPECTIONS part 1</u></p> <p>Use safe working practices when undertaking routine vehicle inspection</p> <p>Identify key periodic inspections that should be performed on a vehicle and the main reasons for carrying them out.</p> <p>Perform straightforward periodic maintenance to include checking and reporting on:</p> <ul style="list-style-type: none"> • engine oil level • coolant level • tyre condition, pressure and tread depth • operation of all external lights • screen washer fluid level • brake/clutch fluid reservoir level • condition of seatbelts • foot pedal and handbrake lever travel • driver information warning lights <p><u>Assessment:</u> Internally assessed through;</p> <ul style="list-style-type: none"> -Unit booklet -Job cards -Practical 	<p>Knowledge & Skills:</p> <p><u>UNIT 3 - INTRODUCTION TO VEHICLE INSPECTIONS part 2</u></p> <p>Use safe working practices when undertaking routine vehicle inspection</p> <p>Identify key pre delivery inspections that would be undertaken by a professional vehicle retailer on a new vehicle and the main reasons for carrying them out</p> <p>Identify key pre delivery inspections that would be undertaken by a professional vehicle retailer on a used vehicle and the main reasons for carrying them out</p> <p>Perform straightforward pre-sale inspection on a used vehicle to include checking and reporting on</p> <ul style="list-style-type: none"> • engine oil level • coolant level • tyre condition, pressure and tread depth • operation of all external lights • screen washer fluid level • brake/clutch fluid reservoir level • condition of seatbelts • foot pedal and handbrake lever travel • driver information warning lights • condition of interior and exterior body, paint and trim • operation and condition of in car entertainment • vehicle and passenger comfort systems • vehicle security system • vehicle documentation <p>Employ industry standard documentation to identify findings of vehicle inspections</p>

Year 10	<p>Knowledge & Skills:</p> <p><u>UNIT 4 – INTRODUCTION TO VEHICLE VALETING part1</u></p> <p>Use safe working practices when valeting vehicles</p> <p>Valet vehicle exterior to include:</p> <ul style="list-style-type: none"> • Selection and use of appropriate cleaning tools, materials and products for: <ul style="list-style-type: none"> ○ Washing and drying vehicle exterior ensuring removal of dirt, detergent and water ○ Restoring surface finish to bodywork, bright work, exterior trim and glass <p>Protecting surface finish including bodywork, bright work and exterior trim.</p> <p>Valet vehicle interior to include:</p> <ul style="list-style-type: none"> • Selection and use of appropriate cleaning tools, materials and products for: <ul style="list-style-type: none"> ○ Carpets ○ Upholstery ○ Plastic trim ○ Glass 	<p>Knowledge & Skills:</p> <p><u>UNIT 4 – INTRODUCTION TO VEHICLE VALETING part2</u></p> <p>Demonstrate how to protect sensitive electronic components and the air intake prior and during an engine bay valet</p> <p>Select and use appropriate cleaning tools, materials, methods and products to clean engine bay</p> <p>Perform visual inspection of a valeted vehicle for cleaning residues and surface finish</p> <p>Identify key findings of inspection and rectify any imperfections.</p> <p>Demonstrate appropriate ways to dispose of waste products in accordance with environmental guidance</p> <p><u>Assessment:</u></p> <p>Internally assessed through;</p> <ul style="list-style-type: none"> -Unit booklet -Job cards -Practical 	<p>ABC awards introduction to units covered- Vehicle inspections</p> <p>New Vehicle inspections Used Vehicle inspections Periodic inspections Valeted Vehicle inspections</p> <p>Assessment: Create an inspection list for a GoKart</p> <p>Mechanics Quiz 4- first attempt with feedback</p>	<p>ABC awards introduction to units covered- Vehicle valeting. Interior Exterior</p> <p>Investigate the life cycle of a car Investigate a car dealership, listing all the different roles and responsibilities</p> <p>Assessment: Create inspection list for a valeted vehicle</p> <p>Final assessment Mechanics Quiz 4 Covering all units completed Feedback</p>		
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Curriculum Progression Map KS4 YR 11 Option A & B

	Term 1 – 8 weeks	Term 2 – 7 weeks	Term 3 – 6 weeks	Term 4 – 6 weeks	Term 5 – 5 weeks	Term 6 – 7 weeks
Year 11	<p>Knowledge & Skills:</p> <p><u>UNIT 1- Responsibilities in relation to Health & Safety legislation</u></p> <p>Lesson 1: State own responsibilities in relation to health and safety legislation State employer responsibilities in relation to health and safety legislation. Lesson 2: Identify safety equipment suitable for use in automotive engineering. Identify safety signs and equipment. Lesson 3: Identify various employment opportunities in the automotive industries. Lesson 4: State key environmental impacts of vehicle emissions. Lesson 5: Identify the potential environmental impacts of waste disposal by the automotive industry. Lesson 6: Identify the environmental impact from the vehicle end of life cycle. Lesson 7: Identify different types of waste produced by the automotive industry.</p> <p><u>Assessment:</u> End of Term Assessment on Responsibilities in relation to Health & Safety</p>	<p>Knowledge & Skills:</p> <p><u>UNIT 2- Using Engineering Materials and Skills</u></p> <p>Lesson 1: Identify Different Engineering Materials Lesson 2: Engineering tools Lesson 3: Produce a Vehicle Accessory or Hand Tool Accessory or Hand Tool Planning Part 1 Lesson 4: Manufacture the Hand Tool using own design. PPE & tool selection- Part 1 Lesson 5: Manufacture the Hand Tool using own design. PPE & tool selection- Part 2 Lesson 6: Waste Disposal <u>Assessment:</u> End of Term Assessment on Using Engineering Materials and skills.</p>	<p>Knowledge & Skills:</p> <p><u>UNIT 3- Remove and refit mechanical components- Part 1</u></p> <p>Lesson 1: Remove and refit Engine Components Lesson 2: Remove engine components and report on their condition Lesson 3: Re-fit Engine Components Lesson 4: Remove and refit Braking System Components Lesson 5: Remove and refit Braking System Components & report on their condition</p> <p><u>Assessment:</u> End of Term assessment on Remove and refit Mechanical components part 1</p>	<p>Knowledge & Skills:</p> <p><u>UNIT 3- Remove and refit mechanical components- Part 2</u></p> <p>Lesson 1: Refit Braking System Components Lesson 2: Remove and Refit Steering and Suspension System Components Lesson 3: Remove and Refit Steering and Suspension System Components and report on their condition then refit Lesson 4: Remove Suspension system components and report on their condition then refit Lesson 5: Waste Disposal <u>Assessment:</u> End of Term assessment on the Removal and refit of Mechanical Components</p>	<p>Knowledge & Skills:</p> <p><u>UNIT 4 Introduction to Automotive Electrical Principles- Part 1</u></p> <p>Lesson 1: Identify Health & Safety Legislation Lesson 2: Identify safe practices when working on or around a range of automotive vehicles applicable to working on automotive electrical systems. Lesson 3: Identify suitable PPE for working on automotive electrical systems. Lesson 4: Identify suitable workshop tools and equipment for working on automotive electrical systems. <u>Assessment:</u> End of Term Assessment on Electrical principles Part 1</p>	<p>Knowledge & Skills:</p> <p><u>UNIT 4 Introduction to Automotive Electrical Principles- Part 2</u></p> <p>Lesson 1: Identify different types of Automotive batteries Lesson 2: Understand basic Electric Circuits Lesson 3: Identify different types of bulbs, lamps/lighting systems suitable for automotive vehicles. Lesson 4: Assemble a working “Series” Circuit Lesson 5: Assemble a working “Parallel” Circuit Lesson 6: Know why electrical material waste should be disposed of safely. <u>Assessment:</u> End of Term Assessment on Electrical Principles Part 2 – Written and Practical assessments</p>