Blue Coat
Church of England Academy

Year: 11	Subject: Automotive Studies

Overview

The ABC Level 1 Award in Automotive Studies has been developed to provide an introduction to the automotive sector. The structure and nature of the qualification provides the ideal route for learners to progress from the ABC Entry Level Award, Certificate and Diploma in Motor Vehicle Studies (Entry 3) on to higher level of study and skills acquisition, such as automotive apprenticeships as well as employment. Undertaking this qualification allows you to:

- gain work-related skills in the area of automotive studies
- develop generic employability skills
- prepare for further training within this occupational area
- gain an insight into core activities within this occupational area in order to allow them to make informed career decisions

Pupils will be taught theory and practical skills in a classroom, Metalwork room and automotive workshop. A range of vehicle engines have been sourced to teach pupils the principles of the internal combustion engine. Learners will be taught how to use specialist mechanics tool in a safe and effective manner.
Pupils are encouraged to attend car shows, read car related literature and watch TV shows such as Wheeler Dealers, Car SOS, Top Gear and other restoration type shows in their own time to support their learning of key concepts and vocabulary.
This qualification is for pupils who are aged 14 or over and who may be interested in a career in the automotive industry. The overall aim is to provide a basic level of knowledge and skills to start a career working within the sector or for progression into further study. Some pupils opt for this course due to a natural interest in car and the

fact that they want to understand how a car works for their own personal reasons, for when they buy their own car.

Year 11

Pupils now undertake the final 2 components and begin to revise for the online synoptic exam. Pupils have 3 lessons per week and practical tasks maybe weather permitting.

Current curriculum overview 14-16yrs

Year Group	Course Type	Number of Groups	Number of Pupils	Sessions per Week
9	Taster	1	30	2
10	Level 1	2	32	3 per group
11	Level 1	1	14	3

Year Group	Term 1	Term 2	Term 3
9	Introduction to Automotive Principles	Engine and Gearbox Types	Automotive Tools and Safety
10	Working in an Automotive Industry Environment	Using Engineering Materials and skill	Workshop Practices
11	Introduction to Automotive Electrical Principles	Remove and Re-fit Mechanical Components	Synoptic Revision

Pupils will study 4 mandatory components in this qualification

Component 1 - Working in an automotive industry environment (Pass Only)

Specification Reference	Assessment Criteria	Task No
1.1	State own responsibilities in relation to health and safety legislation.	1
1.2	State employer responsibilities in relation to health and safety legislation.	1
1.3	Identify safety equipment suitable for use in automotive engineering.	2,3
1.4	Identify safety signs and equipment.	4
2.1	Identify various employment opportunities in the automotive industries.	5
3.1	State key environmental impacts of vehicle emissions.	6
3.2	Identify the potential environmental impacts of waste disposal by the automotive industry.	7
3.3	Identify the environmental impact from the vehicle end of life cycle.	8
3.4	Identify different types of waste produced by the automotive industry.	7
	GRADE AWARDED	P

This theory based unit is delivered in a computer room allowing pupils access to research materials. Visits to real workshops are also advised.
Links to Science Curriculum for Safety/Hazardous Materials.

Component 2 - Using engineering materials and skills (Pass/Merit/Distinction)

Specification Reference	Assessment Criteria			Grade P/M/D	Task No
1.1	State health and safety legislation applicable to manufacturing vehicle accessories or tools.			P	3 4
1.2	Identify suitable PPE for manufacturing automotive accessories or tools.			P	3 4
	PASS	MERIT	DISTINCTION		
2.1	Identify different types of engineering materials	Identify ferrous, non-ferrous and non-metallic materials	Identify thermoplastic and thermosetting plastics.		1
2.2	Identify different engineering tools.	Identify mechanical fasteners used on the tools.	Identify material properties and characteristics of the tools.		2 2(M)
2.3	State how to handle engineering materials safely.			P	3
3.1	Use written instructions to create a tool / accessory.	Interpret technical drawings to create tools.	Produce a technical drawing to scale of the tool you will create		3 4
3.2	Select and use appropriate hand and power tools following instructions for: measuring & marking out metal cutting and forming drilling Thread forming				
3.3	Use tools safely to produce an automotive tool/accessory	Produce tool/accessory to an accuracy of 3.0mm.	Produce tool to an accuracy of 1.0mm.		3 4
4.1	Know why safety equipment is needed when disposing engineering material waste.			P	5
4.2	Know why engineering material waste should be disposed of safely.			P	5
4.3	Know how to dispose of hazardous and non-hazardous waste engineering materials safely and appropriately.			P	5
	GRADE AWARDED				

Pupils design a tool for removal of a canister type oil filter from an engine. This is then handmade using the machinery in room D4 (Metal Work Room)
Links with Design Technology and Visual Communication for Technical Drawings and interpretation. Explicit Engineering links.

Component 3 - Remove and re-fit mechanical components (Pass/Merit/Distinction)

Specification Reference	Assessment Criteria			Grade P/M/D	Task No
1.1	State health and safety legislation applicable to manufacturing vehicle accessories or tools.			P	3 4
1.2	Identify suitable PPE for manufacturing automotive accessories or tools.			P	3 4
	PASS	MERIT	DISTINCTION		
2.1	Identify different types of engineering materials	Identify ferrous, non-ferrous and non-metallic materials	Identify thermoplastic and thermosetting plastics.		1
2.2	Identify different engineering tools.	Identify mechanical fasteners used on the tools..	Identify material properties and characteristics of the tools.		2 2(M)
2.3	State how to handle engineering materials safely.			P	3
3.1	Use written instructions to create a tool / accessory.	Interpret technical drawings to create tools.	Produce a technical drawing to scale of the tool you will create		3 4
3.2	Select and use appropriate hand and power tools following instructions for: measuring & marking out metal cutting and forming drilling Thread forming				
3.3	Use tools safely to produce an	Produce tool/accessory	Produce tool to an accuracy of 1.0mm.		3 4

	automotive tool/accessory	to an accuracy of 3.0mm.			
4.1	Know why safety equipment is needed when disposing engineering material waste.			P	5
4.2	Know why engineering material waste should be disposed of safely.			P	5
4.3	Know how to dispose of hazardous and non-hazardous waste engineering materials safely and appropriately.			P	5
	GRADE AWARDED				

This theory and instructions are delivered in the classroom and the work undertaken on a car in the Automotive Workshop.
Links to Maths for torque setting and angles on vehicle components and engine ignition timing.

Component 4 - Introduction to basic automotive electrical principles (Pass/Merit/Distinction)

Specification Reference	Assessment Criteria			Grade P/M/D	Task No
	ASSESSMENT CRITERIA	MERIT	DISTINCTION		
1.1	Identify health and safety legislation	Find manufacturers' procedures for fitting electrical components.			6
1.2	Identify safe practices when working on or around a range of automotive vehicles applicable to working on automotive electrical systems.			P	6
1.3	Identify suitable PPE for working on automotive electrical systems.			P	6
1.4	Identify suitable workshop tools and equipment for working on automotive electrical systems.			P	1
2.1	Identify different types of automotive battery.	Obtain technical specifications to determine serviceability.	Evaluate condition and serviceability of circuits and make recommendations.		2, 6

2.2	Understand basic electric circuits.	Be able to identify: -Series circuit - Parallel circuit - Open circuit - Short circuit - High resistance			3
2.3	Identify different types of bulbs, lamps/lighting systems suitable for automotive vehicles.			P	5
3.1	Assemble a working series circuit.	Measure circuit voltages.	Measure circuit current and calculate wattage.		4
3.2	Assemble a working parallel circuit.	Test continuity of circuits.	Fault trace and resolve any issues.		4,6
3.3	Correct faults in the following electrical components: - Battery - Alternator - Lighting cluster			P	6
4.1	Know why safety equipment is needed when disposing electrical waste.			P	7
4.2	Know why electrical material waste should be disposed of safely.			P	7
4.3	Know how to dispose of hazardous and non-hazardous waste engineering materials safely and appropriately.			P	7
	GRADE AWARDED				

This unit has cross curricular links with some Science lessons. Science materials will be requested for circuit board sessions.