

## Area of study 2:

### Principles of sound and audio technology

Component 1: Recording	Component 2: Technology Based Composition	Component 3: Listening and Analysing	Component 4: Production and Analysing
		2.1 Acoustics	2.1 Acoustics
			2.2 Monitor speakers
		2.2 Leads and signals	2.3 Leads and signals
			2.4 Digital and analogue
Numeracy is not included in the AS specification >>>		2.3 Numeracy	2.5 Numeracy
		2.4 Levels	2.6 Levels

### Area of study 2: Task List

Topics	Content	Skills, knowledge and understanding	S	C	M
Acoustics (3,4)	How the live room acoustics affect the recording	Room size; absorption; reflection; diffusion  Isolation booths for vocals, drums and amps; using natural and chamber reverb			
	Acoustics parameters	Describing a reverb tail: pre-delay time; early and late reflections; reverberation time (RT60); resonant frequencies			
Monitor speakers (4)	The characteristics of different monitor speakers	The frequency ranges handled by tweeters, woofers and subwoofers			
	How monitor speakers work	Electromagnetic induction			
	How different types of monitor speakers affect mix translation	Checking mixes on different monitoring, e.g. headphones, speakers with pronounced mid range and systems with subwoofers			

Leads and signals (3,4)	Connectivity including signal path and signal types	Discussing signal path in context of the effects heard on commercial recordings (3) Aux sends; insert points; sub-groups; mixer channel strips (4)			
	The different types and uses of leads	Jack; XLR; MIDI cable; digital ins/outs; computer data cables e.g. Firewire and USB Use of balanced connections to avoid noise problems, e.g. hiss, hum and rumble DI boxes			
	Impedance	Signal levels: mic; line; instrument			
	How leads work (4)	Balanced and unbalanced connections			
	The advantages and disadvantages of different leads and connectivity (4)	Comparing balanced and unbalanced; analogue versus digital connections; comparing computer data connections Comparing computer data connections			
Digital and analogue (4)	The differences between digital and analogue technologies	Frequency response; signal-to-noise ratio (dynamic range); headroom Digital and analogue clipping How components such as valves and transistors affect the sound			
Numeracy (3,4)	Technical numeracy	Parameter settings and associated units of measurement: levels in decibels; frequency in Hertz; delay time in milliseconds/note values; tempo in bpm; synthesiser octave settings in feet; coarse tuning in semitones; fine tuning in cents; feedback and effects mix percentages Understanding binary, formulae and logarithms and how they are used in music technology (4)			
	How to display and interpret information graphically (4)	Waveforms; EQ curves; compressor responses; amplitude envelopes Interpreting frequency response and polar response graphs, to understand how sound quality is affected			

	How to make calculations to describe sound waves (4)	Waveform frequency, phase and amplitude			
Levels (3,4)	Principles of levels and metering	Management of levels to prevent distortion and maximise signal-to noise ratio			
	Levels and metering scales	Decibel scales: when to use peak and RMS metering (4)  Psycho-acoustics related to perceived volume			
	The specifications of digital recordings and how they affect sound quality (4)	A/D and D/A conversion; sample rate; bit depth; streaming bit rate; uncompressed PCM audio formats; data compressed formats, e.g. mp3			