

Music Technology A Level

Scheme of Work. Producing and Analysing Principles and Practice

<i>Time-line</i>	Subject topics	Resources / activities (including ICT)	Assessment & skills (including ICT)	SEN / EHC / EAL / Gifted & talented
Y1-T1-W0	Properties of sound and how they are represented. volume, frequency, timbre, shape (envelope).	Demonstration of volume relation to graphic of audio wave form by placing hand on speaker cone – pupils do this in turn. Relate movement of speaker cone to graphic. Relate to frequency. Timbre cannot be represented in a time line, therefore we need another form of representation. Representing timbre with a graph: amplitude – vs – frequency. What does the graph show and how does it relate to sound in time. Talk with students taking notes	Q and A. Questionnaire Sheets. Knowledge and understanding of wave forms	Extension work by reference to text book. Further reading lists Handouts and Video clips for SEN Keywords Handout for EAL
Y1-T1-W1	Harmonic series and the relationship between waveform and harmonic shape.	Comparison of frequency content with wave form. Explain the difference between the frequency and time domain Relate both to traditional music notation. Time domain maps to time line but Frequency domain maps left (low) to right (high) to bottom to top. Play examples. Different strengths of harmonics produce different timbres. Harmonic content of different wave forms. Sine, Triangle, Square, Sawtooth, Pulse.	Q and A. Questionnaire Sheets. Knowledge and understanding of wave forms	As Above
Y1-T1-W2	Filters Noise – frequency content, Frequencies, Filters Filter cut – off. Resonance	Presentation with PPT.	As above Working in groups completing question sheet	As Above
Y1-T1-W3	Transducers and voltage levels Fundamentals of Transducers, Electricity (prep for DI) Transducers Electricity – voltage = dB (measurement of volume) Analogue/Digital	Presentation with PPT.	As above Working in groups completing question sheet	As Above
Y1-T1-W4	line level and mic level. Voltage and impedance. Conversion of Sound. Decibels and voltage. Analogue Tape	Presentation with PPT. Demonstration of setup of DI box	As above. Skills in setting up DI box.	As Above
Y1-T1-W5	Previous Lesson extension		As above	As Above
Y1-T1-W6	Decibels Volume level measurements. Phase	Presentation with PPT. Working in groups. Completing question sheets	As above	As Above
Y1-T1-W7	Acoustics		As above	As Above

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Y1-T1-W8	Previous Lesson extension		As above	As Above
Y1-T1-W9	Subtractive Synthesis, Oscillators Waveforms, VCO, VCF, VCA, LFO, ADSR, ES 2 Layout	Presentation with PPT. Working in groups. Completing question sheets. Working in Logic.	As above	As Above
Y1-T1-W10	Previous Lesson extension		As above	As Above
Y1-T1-W11	Sampling Theory, A to D conversion Digital Audio Analogue and Digital Comparison Sample Rates, bit depths, Nyquist Shannon Theory, ADC, DAC, aliasing, filters, reconstruction filters. EXS 24	Presentation with PPT. Working in groups. Completing question sheets. Working in Logic.	As above	As Above
Y1-T1-W12	Previous Lesson extension		As above	As Above
Y1-T2-W1	Capturing Sound - Microphones - Dynamic, Capacitor, Ribbon, directionality, proximity effect, presence peak and bass roll off	Presentation with PPT. Working in groups. Completing question sheets. Working in Logic.	As above	As Above
Y1-T2-W2	Previous Lesson extension		As above	As Above
Y1-T2-W3	Reverberation/Delay Early reflections, reverberant sound, reverb time, reverb chambers, springs, plates, digital reverb and convolution reverb	Presentation with PPT. Working in groups. Completing question sheets. Working in Logic.	As above	As Above
Y1-T2-W4	Previous Lesson extension		As above	As Above
Y1-T2-W5	EQ and Filters - revised LPF, HPF, band pass filters, shelving, notch filters, EQ, parametric and graphic	Presentation with PPT. Working in groups. Completing question sheets. Working in Logic.	As above	As Above
Y1-T2-W6	Previous Lesson extension		As above	As Above
Y1-T2-W7	Dynamic Control Gates and compressors threshold, ratio, attack, hold, release, soft knee	Presentation with PPT. Working in groups. Completing question sheets. Working in Logic.	As above	As Above
Y1-T2-W8	Previous Lesson extension		As above	As Above
Y1-T2-W9	Delay. Tape, Bucket Brigade, digital, multi tap, ping pong	Presentation with PPT. Working in groups. Completing question sheets. Working in Logic.	As above	As Above
Y1-T2-W10	Previous Lesson extension		As above	As Above
Y1-T3-W1	Time varying /modulation FX chorus, flange, phase, tremolo	Presentation with PPT. Working in groups. Completing question sheets. Working in Logic.	As above	As Above

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	Examples of use – recognise in songs			
Y1-T3-W2	Previous Lesson extension		As above	As Above
Y1-T3-W3	Side chaining gates/compressors Creative use of EQ – filter sweeps/extreme EQ	Presentation with PPT. Working in groups. Completing question sheets. Working in Logic.	As above	As Above
Y1-T3-W4	Previous Lesson extension		As above	As Above
Y1-T3-W5	Valves and Transistors.	Presentation with PPT. Working in groups. Completing question sheets. Working in Logic.	As above	As Above
Y1-T3-W6	Previous Lesson extension		As above	As Above
Y1-T3-W7	Balanced Lines Impedance	Presentation with PPT. Working in groups. Completing question sheets. Working in Logic.	As above	As Above
Y1-T3-W8	Balanced Lines Impedance	Presentation with PPT. Working in groups. Completing question sheets. Working in Logic.	As above	As Above
Y1-T3-W9	Numeracy – Frequency and Decibel	Presentation with PPT. Working in groups. Completing question sheets. Working in Logic.	As above	As Above
Y1-T3-W10	Numeracy – Frequency and Decibel	Presentation with PPT. Working in groups. Completing question sheets. Working in Logic.	As above	As Above
Year 2	Previous Lesson extension		As above	As Above
Y2-T1-W0	the examination requirements.	Overview of exam and course. Discussed timings etc Revision of synthesis – source modifier idea – Oscillator Modifier etc	As above	As Above
Y2-T1-W1	Digital Audio Revision	Talk with hand-outs and power point demonstration. Uses – CDs, DAWs, Samplers, Logic Emulation of analogue Prep: Binary code – why we need it – how it relates to decimal. How a computer stores numbers as ones and zeros in memory locations in the computer Measurement results in error Convert to digital – difference between analogue and digital – analogous – meaning of word. Draw on transparencies Draw image on graph. Quantisation Error and Dither Sample rate, Bit depth, Instruction booklet pictures – review inputs outputs etc Hand out - keywords	As above	As Above

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		<p><i>REVISED</i> <i>BIT depth, dither PCM</i> <i>Matti demo with sonic visualiser which showed need of dither and effects of quantisation error.</i> <i>Films shown on PCM and general revision of principles</i></p>		
Y2-T1-W2	Digital Audio Revision	<p>Part 2 Talk with hand-outs and power point demonstration. Uses – CDs, DAWs, Samplers, Logic Emulation of analogue Prep: Binary code – why we need it – how it relates to decimal. How a computer stores numbers as ons and offs in memory locations in the computer Measurement results in error Convert to digital – difference between analogue and digital – analogous – meaning of word.</p> <p>Draw on transparencies Draw image on graph. Quantisation Error and Dither Sample rate, Bit depth, Instruction booklet pictures – review inputs outputs etc Hand out - keywords</p> <p><i>REVISED</i> <i>BIT depth, dither PCM</i> <i>Matti demo with sonic visualiser which showed need of dither and effects of quantisation error.</i> <i>Films shown on PCM and general revision of principles</i></p>	As above	As Above
Y2-T1-W3	Synthesis Revision	<p>Revision of wave forms - square. triangle. sine, sawtooth, pulse. Oscillators, and the harmonic content. How time and frequency domain relate. Demonstration of examples of one wave form becoming another and resultant harmonic content change</p>	As above	As Above
Y2-T1-W4			As above	As Above
Y2-T1-W5	Phase	<p><i>Begin with phase of two wheels and degrees out of phase</i> <i>Wheels outline a sine wave – so points on a sine wave can be said to be out of phase</i></p>	As above	As Above

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		<p>Talk with hand-outs and power point. Demonstrate how it relates to mic position, speakers, reverb, synthesis, FX for guitar</p> <p>Preparation - principles of phase. Handout of combining sine waves.</p> <p>Show films on phase relationships. Show in logic by delaying two waves</p> <p>Demonstrate what happens when you delay a signal</p> <p>Phase Cancellation.</p> <p>3 films on phase cancellation. 1 handout on phase</p> <p>Presentations by groups. Use of PPT. Audio and visual examples.</p> <p>Seminar Discussion</p>		
Y2-T1-W6	Microphones Proximity Effect	<p>Presentations by groups. Use of PPT. Audio and visual examples.</p> <p>Seminar Discussion</p>	As above	As Above
Y2-T1-W7	Synthesiser Development Analogue synthesis Physical Modelling FM synthesis Software Synthesisers	<p>Preparatory talk on modulator and carrier – drawing of amplitude of one signal changing another.</p> <p>Handout and Film</p> <p>Talk with hand-outs and power point demonstration</p> <p>Review of types of synthesis</p> <p>Synthesisers – development and uses.</p> <p>Video of Robert Moog. And with Theremin.</p> <p>Samplers – and Drum Machines - controlled by midi</p> <p>Samplers - Sampling – editing of samples</p> <p>FM synthesis - Revision of the principles of phase. Playing of examples of music using FM synthesis. Overview of the EFM1 module with a demonstration.</p> <p>Students to Experiment with EFM in Logic following tutorials</p> <p>Handouts: FM synthesis principles. Instructions for EFM1</p> <p>Presentations by groups. Use of PPT. Audio and visual examples.</p> <p>Seminar Discussion</p>	As above	As Above
Y2-T1-W8	Electronic Instruments	<p>Presentations by groups. Use of PPT. Audio and visual examples.</p> <p>Seminar Discussion</p>	As above	As Above

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Y2-T1-W9	Samplers – Development and Techniques	Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion	As above	As Above
Y2-T1-W10	Guitars – Construction. Amps Guitar FX	Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion	As above	As Above
Y2-T1-W11	Sequencers Midi Drum Machines	Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion	As above	As Above
Y2-T1-W12	Dynamic processors Compressors Gates	Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion	As above	As Above
Y2-T2-W1	EQ	Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion	As above	As Above
Y2-T2-W2	Effects Reverb parameters Reverb Types Convolution Reverb	Explanation with powerpoint on convolution reverb. Keywords – impulse response Space designer – how to use. Handout (booklet on processing and manipulation NFNY – PUT DIGITAL REVERB BEFORE CONVOLUTION Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion	As above	As Above
Y2-T2-W3	Delay – tape and Digital Delay FX – chorus, phaser, flanger	Talk with hand-outs and power point demonstration. Chorus, Phaser, Flanger Delay settings – when to use tape delay and stereo delay. How to make guitar sound thicker Delays – Tape delay – how it works. Settings of delays. Examples of use of Delays from Lilly Allen and guitar examples Examples of old tape delay guitar FX Show screen shot of back of FX units Handouts: Tape delays and delay heads Instruction booklet pictures – review inputs outputs etc Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion	As above	As Above
Y2-T2-W4	Tape Recording: Principles Noise reduction	Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion	As above	As Above
Y2-T2-W5	Vocal FX Vocoders	Vocoder Principles. Demonstration. Side chaining using the Vocoder. Demonstration using film. Examples of its	As above	As Above

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		uses. Handout (booklet on processing and manipulation) Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion		
Y2-T2-W6	Lo Fi FX Distortion	Distortion Look at different types within logic <i>Revise – begin with signal flow. Illustrate possible areas of distortion.</i> <i>Prep with valves (revise next week)</i> <i>the principles of Valves – transistors-integrated circuit.</i> <i>How they work and their effect on the development of synthesis</i> <i>Talk with handout. Show one film.</i> <i>Questions and answers</i> Instruction booklet pictures – review inputs outputs etc Balanced Lines Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion	As above	As Above
Y2-T2-W7	Pitch FX Ring Modulation	Talk with hand-outs and power point demonstration. explanation of principles and demonstration Ring-Modulator Ring Modulator explanation of amplitude modulation. Pupils work on handout with resource explaining Ring Shifter plugin Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion	As above	As Above
Y2-T2-W8	Acoustics Speakers	Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion	As above	As Above
Y2-T2-W8	Cables and Connectors Balanced Lines	Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion	As above	As Above
Y2-T2-W9	Digital Audio Analogue and Digital Recording	Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion	As above	As Above
Y2-T3-W9	Gain Structure	Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion	As above	As Above

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Y2-T3-W10	Analogue Mixers	Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion	As above	As Above
Y2-T3-W10	Recording Media Studio Recording Formats Casette Tapes CD Audio	Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion	As above	As Above
Y2-T3-W1	Mastering	Presentations by groups. Use of PPT. Audio and visual examples. Seminar Discussion	As above	As Above
Y2-T3-W2	Past Paper Practice	Two part lesson. Questions in exam conditions. Review of answers		
Y2-T3-W3	Past Paper Practice	As Above		
Y2-T3-W4	Past Paper Practice	As Above		