OCR
Oxford Cambridge and RSA

Cambridge **NATIONALS LEVEL 1/2**

Cambridge NATIONALS

CREATIVE iMEDIA

Unit R088 – Creating a digital sound sequence

DELIVERY GUIDE

Version 1

ocr.org.uk/creativeimedia

CONTENTS

INTRODUCTION

This Delivery Guide has been developed to provide practitioners with a variety of creative and practical ideas to support the delivery of this qualification. The Guide is a collection of lesson ideas with associated activities, which you may find helpful as you plan your lessons.

OCR has collaborated with current practitioners to ensure that the ideas put forward in this Delivery Guide are practical, realistic and dynamic. The Guide is structured by learning outcome so you can see how each activity helps you cover the requirements of this unit.

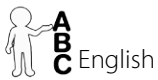
We appreciate that practitioners are knowledgeable in relation to what works for them and their learners. Therefore, the resources we have produced should not restrict or impact on practitioners' creativity to deliver excellent learning opportunities.

Whether you are an experienced practitioner or new to the sector, we hope you find something in this guide which will help you to deliver excellent learning opportunities.

If you have any feedback on this Delivery Guide or suggestions for other resources you would like OCR to develop, please email resources.feedback@ocr.org.uk.

OPPORTUNITIES FOR ENGLISH AND MATHS SKILLS DEVELOPMENT AND WORK EXPERIENCE

We believe that being able to make good progress in English and maths is essential to learners in both of these contexts and on a range of learning programmes. To help you enable your learners to progress in these subjects, we have signposted opportunities for English and maths skills practice within this resource. We've also identified any potential work experience opportunities within the activities. These suggestions are for guidance only. They are not designed to replace your own subject knowledge and expertise in deciding what is most appropriate for your learners.



English

Maths


Work

Please note

The timings for the suggested activities in this Delivery Guide **DO NOT** relate to the Guided Learning Hours (GLHs) for each unit.

Assessment guidance can be found within the Unit document available from www.ocr.org.uk.

The latest version of this Delivery Guide can be downloaded from the OCR website.

UNIT AIM

This unit builds on units R081 and R082 and learners will be able to apply the skills, knowledge and understanding gained in those units.

Gaming technologies, mobile phones and multimedia websites all use digital sound sequences to enhance and inform their content.

This unit will enable them to understand where digital sound sequences are used in the media industry such as radio, film, web applications or computer gaming. The learner will also learn how these technologies are developed to reach an identified target audience.

On completion of this unit, learners will understand the purpose of digital audio products and where they are used. They will be able to plan a digital sound sequence, create and edit a digital sound sequence and review the final sound sequence against a specific brief.

Unit R088: Creating a digital sound sequence	
LO1	Understand the uses and properties of digital sound
LO2	Be able to plan a digital sound sequence
LO3	Be able to create a digital sound sequence
LO4	Be able to review a digital sound sequence

KEY TERMS

UNIT R088 – CREATING A DIGITAL SOUND SEQUENCE

Explanations of the key terms used within this unit, in the context of this unit	
Key term	**Explanation**
Bit depth and Bitrate	Bit rate refers to the speed at which data is transferred, whereas bit depth is the 'resolution' or quality of the transferred data. http://mp3.about.com/b/2012/03/07/bit-depth-vs-bit-rate.htm provides a more detailed explanation. http://www.presonus.com/news/articles/sample-rate-and-bit-depth also provides a helpful discussion, but this is at a higher level and possibly more suited for teacher rather than learner use.
Digital audio product	The final exported digital sound sequence as required by the client brief.
Digital sound sequence	A digital sound sequence is a digital representation of the audio waveform for processing, storage or transmission. When analogue sound waves are stored in digital form, each digital audio file can be decomposed into a series [or sequence] of samples.
Exporting a digital sound	Exporting refers to the process whereby a format is chosen for a final product so that it is suitable for purpose and compatible with the client requirements. Usually this will involve selecting a format for which dedicated software is not required.
Gain / Volume	Gain refers to the increase in power/voltage or amplitude of a signal. It is often described using units of decibels (dB). In editing a sound sequence, gain is altered to achieve a difference in the level of a particular sound. (In playback the term is often referred to simply as volume).
Mixing	1. To blend audio signals together into a composite signal. 2. The signal made by blending individual signals together. (www.testing1212.co.uk)
Pitch	The pitch of a note value refers to how high or low the note sounds. (https://www.quora.com/What-does-the-term-pitch-mean-in-music), or 'The perception of frequency by the ear' (www.testing1212.co.uk)
Sampling	'Sampling is a method of converting an analogue sound signal into a digital file containing binary numbers.' (www.teach-ict.com). In recording sound to create a digital sound sequence, therefore, candidates will be using sampling. The greater the frequency of the sampling (expressed as a measure of Hertz), the better the quality of the sound which is captured in digital format. CD quality sound uses 44.1KHz. There is a fuller explanation and diagrams to explain this, along with some lesson tasks at http://www.teach-ict.com/gcse_computing/ocr/214_representing_data/sound/miniweb/pg4.htm
Sound Effects	These are more commonly referred to as Foley. Named after Jack Foley, this term relates to the creation and addition of sound effects to audio-visual products during post-production. Foley can include effects such as footsteps, doors opening, clothing rustling, fire or running water etc. Sound effects may be created and recorded manually using props to simulate sounds, but banks of pre-recorded sound effects are also available.
Timbre	http://study.com/academy/lesson/musical-timbre-of-instruments-and-singers-definition.html
Tonal range	The range between the lowest frequency and highest frequency that can be played.
Tone	'Any single-frequency signal or sound' (www.testing1212.co.uk)
Voiceover	A recording of the voice of an unseen narrator speaking (as in a motion picture or television commercial), or the voice of a visible character (as in a motion picture) expressing unspoken thoughts. http://www.merriam-webster.com/dictionary/voiceover

MISCONCEPTIONS

Some common misconceptions and guidance on how they could be overcome		
What is the misconception?	**How can this be overcome?**	**Resources which could help**
MP3 files are no different from other files in terms of sound quality	Learners may experiment with saving files in different formats and listening to them using good quality sound equipment (headsets, speakers). Teachers could explain and demonstrate the difference in file size following compression as MP3. Candidates could research the methods used to compress an audio file for MP3 output – i.e. which frequencies are lost.	
Bit depth and bitrate are the same	Bit rate refers to the speed at which data is transferred, whereas bit depth is the 'resolution' or quality of the transferred data.	http://mp3.about.com/b/2012/03/07/bit-depth-vs-bit-rate.htm http://www.presonus.com/news/articles/sample-rate-and-bit-depth also provides a helpful discussion, but this is at a higher level and possibly more suited for teacher rather than learner use.
Speed and Tempo are the same in Audacity	Altering Speed in Audacity alters the tempo AND pitch of a sound. Altering Tempo does NOT alter the pitch.	Audacity audio editing software downloadable from http://audacityteam.org/
Echo and reverb are the same	Echo occurs when the second hearing of the sound occurs more than 0.1 secs after the first sound. Reverberation is used to describe the effect created when the second hearing of the sound comes less than 0.1 secs after the first, so that the ear detects this more as one prolonged sound.	http://www.physicsclassroom.com/mmedia/waves/er.cfm Audacity / Garageband / other audio editing software
Looping through zero is not important	Learners often trim or cut sounds with a resulting glitch or audible click or stutter when a section is removed from the centre of an audio file. Looping or cutting at the zero amplitude point will avoid this problem and result in a more effective edit.	http://manual.audacityteam.org/o/man/tutorial_looping.html
Louder = clearer	Learners will instinctively increase the gain or volume of any track which is too quiet. If they learn instead to use Ducking or Compressor tools they will avoid the distortion which results from too much gain or volume on a particular track.	http://manual.audacityteam.org/o/man/tutorial_mixing_a_narration_with_background_music.html

SUGGESTED ACTIVITIES

LO No:	1		
LO Title:	**Understand the uses and properties of digital sound**		
Title of suggested activity	**Suggested activities**	**Suggested timings**	**Also related to**
The sectors and uses of digital audio products	Learners could create a mind map showing all the places where digital sound products are used. Some uses may be more obvious than others; teachers may wish to draw out some of the uses which are outside learners' experience such as those used in business to inform (telephone answer systems for example). This investigation can then be widened to consider the types of sounds used in each digital audio product, and learners can categorise the component parts as voice, music, ambient sound, sound effects and so on. Learners may save examples of each type of digital audio product which can be found from a web-based search; and may also investigate the switchboard system used by their school if one exists. By breaking the audio products down into components, they will be able to see whether there is a link between the categories of sounds used and the sector or purpose of the audio product. Thus they might identify that advertisements are more likely to use music than information announcements at a train station; or that they are more likely to find sound effects in a radio advertisement than a switchboard or customer service line.	15 minutes 45 minutes	Unit R081 LO3
The story of the Angry Birds soundtrack	http://www.soundworkscollection.com/videos/angrybirds Learners could watch this video and identify the characteristics of the music which make it suitable for its use in a computer game.	20 minutes	
Sound in computer games	https://vimeo.com/16516382 This video resource provides an introduction and exploration into the many ways in which video game music and sound design are fundamentally different from linear media such as television or film. It also covers what to expect when working on a game, and how being part of a game team is very different from being hired to score or do sound design for more traditional media. It could be watched as an extension or homework activity, with learners making notes which could then be used if designing sound sequences for games.	1 hour	

Title of suggested activity	Suggested activities	Suggested timings	Also related to
Moods created by audio products – Homework / independent research task	Learners may investigate the moods and emotional responses evoked by different audio products. For example, they could describe the music used for 'on hold' tones on a telephone switchboard, and compare this to the music used by a radio advert or computer game. Similarly, learners can begin to develop a vocabulary for accurately describing voices, and annotate the tone, pitch, volume, mood and pace of voices used in different audio products. They would recognise a difference between advert voiceovers and station announcements, for example; or a difference between 'special offer' announcements and 'staff announcements' in a supermarket. Teachers could test learners' understanding of this aspect of the unit by asking pupils to suggest inappropriate combinations of music, sound effects and voices. For example, an advertisement for double glazing voiced by Eeyore or Marvin the Paranoid Android; a train station announcement voiced by the man who presents the Safestyle double glazing advert, a meditation CD with a hip-hop soundtrack. They could source deeply unsuitable music tracks to be used whilst customers are on hold on a telephone line, or explain why the use of different famous voices for SatNav devices is humorous.	1 hour	
Audio file formats	See Lesson Element File formats and properties. Learners use a list of web resources and own research to compile a set of notes on similarities, differences and applications of commonly-used digital audio file formats. See Lesson Element File formats and properties	1 hour	
The properties of digital sounds	Learners could undertake research into key terms for sound properties as a group activity, and compile a comprehensive set of notes covering bit depth, sample rate, tonal range, clarity, pitch and timbre. Teachers may wish to guide learners' work by providing definitions for learners to match to the correct term. See Lesson Element File formats and properties	1 hour	
Tutorials and information	http://www.mediacollege.com/audio/ This resource includes tutorials and information to support LO1 including a useful glossary of terms.	30 minutes	
BBC Bitesize	http://www.bbc.co.uk/schools/gcsebitesize/dida/using_ict/recording_sound_clipsrev1.shtml This set of resources explains basic theory relating to digital sound, recording and editing sounds. It also includes a Test Bite for learners to test their own progress and understanding. It could be used as a homework activity.	15 minutes	
Sound theory	http://www.hammersound.net/audiobasics/audiobasics.html This web resource is divided into several sections covering the theory of digital sound, sampling theory and a step-by step guide to recording sound. It could be used as homework or flipped learning activity to support learners' understanding of the technical terms used in the unit.	30 minutes - 1 hour	

Title of suggested activity	Suggested activities	Suggested timings	Also related to
Environmental considerations and limitations	Teachers could explain the use of clapper boards to synchronise sound and pictures in video recording. Learners could also investigate the effects of bespoke and home-made 'deadcat' mic shields in windy conditions. Learners could also experiment with built-in and external microphones on camcorder equipment if available, and comment on the effects of distance from subject on the quality of sound captured.	1 hour	
Creating sound effects	The following links provide an entertaining and informative description of how sounds are captured by foley artists in the making of Toy Story, Robin Hood and 2012. https://www.youtube.com/watch?v=BVUgsMRvOeI Toy Story Foley https://www.youtube.com/results?search_query=Foley+Artist+Gary+Hecker+ Foley Artist Gary Hecker on Robin Hood and 2012. Learners could use the information in these videos to help generate their own sound effects later in the unit. See Resource Links available from http://www.ocr.org.uk/qualifications/creative-imedia-level-1-2-award-certificate-j807-j817/ under the heading Support Materials for additional web-based resources for the properties of digital sounds.	30 minutes	

SUGGESTED ACTIVITIES

LO No:	2		
LO Title:	**Be able to plan a digital sound sequence**		
Title of suggested activity	**Suggested activities**	**Suggested timings**	**Also related to**
Interpreting client requirements and understanding target audience requirements	This work should build on what has been learnt in LO1. Learners could differentiate between client and target audience requirements by sorting the elements of several different design briefs provided by the teacher into two groups: what the client needs and what the target audience would want or expect. For example, a railway station announcement for the next train departing from a particular platform has as its client the rail company, but the target audience is train passengers. The client needs the announcement to include the name of the company and details of the service, but the target audience also requires that the announcement be clear and unambiguous with a word-rate less than 70 words per minute. In addition it must be brief enough to be memorable and timely so that it coincides with the arrival of the train.	30 minutes	R081 LO2
Produce a workplan	See Delivery Guide and Lesson Elements for Unit R081 Work planning and production schedules available from http://www.ocr.org.uk/qualifications/creative-imedia-level-1-2-award-certificate-j807-j817/ under the heading Support Materials.	2 hours	R081
Equipment for creating a digital sound sequence	Learners should investigate the capabilities of the available equipment and in addition should investigate alternatives which may not be immediately available. There may be opportunities for learners to work in groups to find out how to operate the available equipment and then teach each other, making sure to highlight the pros and cons of each item of equipment.	1-2 hours depending on the amount of equipment available	
Software for creating a digital sound sequence	Teachers could demonstrate how to use the tools of available editing software. Learners may practise using several short clips either created or downloaded, and experiment with applying effects and building up multiple tracks. Also see Lesson Element Big John's Diner Advertisement Tasks 2 and 8.	1-2 hours depending on the amount of equipment available	
Planning a digital sound sequence	Teachers could demonstrate how to create a timeline for a digital sound sequence, showing how items such as overlayed tracks, relative volumes and cross-fades etc. can be represented in diagrammatic form. Learners could then practise creating a timeline or plan from a client brief. Alternatively, learners could deconstruct a completed sound sequence to generate a timeline showing its composition. See Lesson Element Big John's Diner Advertisement, Tasks 6 and 7. Also See Lesson Element Planning a digital sound sequence.	1-2 hours (depending on number of examples completed)	

Title of suggested activity	Suggested activities	Suggested timings	Also related to
Test plans	Learners could work together to generate a mind map or list of the components of a sound sequence which could or should be tested. For example, clarity of sound, length, quality of sound, relative volumes, suitability of component sounds, pace and so on. These components can then be used as individual tests. Teachers could facilitate a discussion to produce an audio sequence test plan. Teachers could explain how success criteria can be generated and how test plans can be maintained throughout the creation process. Learners could also be shown how test plans are supported by the use of version control. See Lesson Element Big John's Diner Advertisement, Tasks 3 and 5.	1 hour	
Legislation	Learners could research and collect examples of terms of use from different websites offering access to royalty-free, free download, creative commons and paid-for download and purchase of audio files. Teachers could explain the difference between free and royalty-free sounds. Learners could investigate the legalities of downloading music files from sites such as iTunes, and consider the difference between ownership and licensed use. As an extension or additional task, learners may wish to investigate how they would go about obtaining a licence to reproduce existing music tracks as 'cover versions' using the Performing Rights Society website: www.prsformusic.com	1 hour	

SUGGESTED ACTIVITIES

LO No:	3		
LO Title:	**Be able to create a digital sound sequence**		
Title of suggested activity	**Suggested activities**	**Suggested timings**	**Also related to**
Recording and sourcing sounds	See Lesson Element Big John's Diner Advertisement Task 1.		
Editing assets	See Lesson Element Big John's Diner Advertisement Task 1.		
Mixing assets	Learners could reconstruct an existing advert from a script, and then compare their work with the original advert. See resource: http://www.tilda.com/adverts/tilda-kids-radio-advert This contains the Radio advert script with an example of the final advert. Best aimed at MB1. See Lesson Element Planning a digital sound sequence; Task 4. This activity suggests learners recreate the advert for 'MarmaladeHorseFish'. They can then compare their work with the original advert which can be found at: http://factory.uk.com/studio/portfolio-item/pg-tips-marmalade-horse-fish/ See Lesson Element Big John's Diner Advertisement Tasks 2.	2-3 hours depending on number and complexity of scripts used	
Saving and exporting sound sequences	Teachers could explain the options in the available software for saving and exporting sounds as different formats and file sizes. Learners could use the files created in the Big John's Diner Advertisement Lesson Element above to experiment with saving using alternative formats and compression or bit rate. They could then examine the effects on file size and overall quality, and present their findings as a table for comparison. Teachers could encourage learners to identify the threshold at which compression renders quality unacceptable for the intended purpose of the sound file. Learners could also investigate the compatibility of different file formats with software for listening to the sounds.	1 hour	

SUGGESTED ACTIVITIES

LO No:	4		
LO Title:	**Be able to review a digital sound sequence**		
Title of suggested activity	**Suggested activities**	**Suggested timings**	**Also related to**
Reviewing advertisements	Learners could use the test plans generated in their work for LO2 to analyse and review a range of radio advertisements for suitability and effectiveness; suggesting improvements where relevant. See resource: https://www.youtube.com/results?search_query=Radio+Advert+Examples Radio advert examples. 2.29 long.	1 hour	All units as reviewing is tested in all units
Reviewing business and information sound sequences	Learners could investigate a range of automated telephone systems, for instance Argos Check and Reserve line 0345 640 1010; or National Rail's TrainTracker™ 0871 200 49 50 (NB calls charged at 10p per minute) and comment on clarity, usefulness and appropriateness to customer need. This could be undertaken as an individual homework task.	1 hour	All units as reviewing is tested in all units
Reviewing learners' own digital sound sequences	Learners could use the test plans generated in their work for LO2 to analyse and review the digital sound sequences they have created. See Lesson Element Big John's Diner Advertisement Tasks 3, 4, 5 and 8.	1 hour	All units as reviewing is tested in all units

The small print

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