Unit 4: Digital Audio Image Production

Resource Pack for BTEC Level 1 / Level 2 in Creative Digital Media Production

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Contents

Teacher's Introduction

This resource has been designed to cover the content in Pearson BTEC Level 1 / Level 2 (First) in Creative Digital Media Production specification for *Unit 4: Digital Audio Production*.

It contains information sheets containing all of the key theory for each Learning Aim, in the same order as the Unit 3 specification. Interspersed throughout the theory are objectives, key terms, questions and tasks.

In addition to the information sheets are the following:

- *Practical Task* – a scenario-based task requiring learners to demonstrate the skills, knowledge and understanding of the unit to research, plan, produce, edit and evaluate an audio production.
- *Learner Checklist* – encourages learners to take control of their progress by helping them identify where they can improve. Can be used for both peer and self-assessment.
- *Crossword* – a fun activity to reinforce the unit's key terminology.
- *Worksheets and Templates* – included to help with practical work that learners will complete during the unit.

Suggested answers to each question in the information sheets, as well as the crossword solution, can be found on pages 38-39. *Please note that these are not exhaustive and there may be alternative acceptable answers.*

Important: All tasks in this resource are designed to provide **practice only**, and are **not** designed or intended as a way for learners to provide evidence for the unit.

July 2016

Aim A – The Uses and Purposes of Di

Objectives:

- ✓ To be able to identify different types of audio within different digital m
- ✓ To understand the aims and purposes of audio within creative digital m

HOW AUDIO IS USED IN DIGITAL MEDIA PRO

Audio is everywhere, especially within the vari s media sectors and digital media platforms. The use of au i w thin digital media refers to a wide range of audio types th d ifferent purposes depending on the type of production.

- M de s the use of musical scores or tracks within the s themselves.
- **Effects** are produced or enhanced sounds that are utilised for emp example, the sound of a creaking door during a story reading over
- **Dialogue** is any human speech or conversation, such as a voiceove
- **Noise** can be described as sound that is loud and unpleasant – alt number of sounds that, when heard together, become inaudible. I with static noise, such as that from a radio or television.
- **Silence** denotes the absence of sound and noise.

Media sectors and audio products

The purpose of audio and how it is used varies across different media pla number of examples of how audio products are used across digital media

- **Film/video soundtrack** – All of the audio that accompanies or is sy usually describes any musical tracks that feature throughout the p and background music. The type of music can vary greatly depend target audience.
- **Radio broadcast** – Radio stations broadcast a range of audio types dialogue.
- **Internet** – Digital audio across the Internet is used in an assortme selection of purposes. Due to the development of broadband, it's large amounts of data in a short amount of time. Examples of aud music, Internet radio stations and podcasts a orm of Internet br series of audio tracks is made availa le o ownload.
- **Website sounds** – Altho gital audio across the Internet, w effects that are sit ec , meaning that different sites may featur not. Thes car through user interaction, such as when select e ttention of the user, e.g. sound effects that occur when a
- **games soundtrack** – This includes any gameplay music tha and also character dialogue and sound effects such as the sound o

Questions:

1. What is a film soundtrack? (1 mark)
2. Suggest two reasons why sound effects are used. (2 marks)

Sound within moving image production

Within moving image production there are two types of sound, **diegetic** and **non-diegetic**.

Key
✓ D
p
v
✓ N
th
fr
✓ S
a
p

Diegetic sound refers to sound whose source can be traced back to the scene; it's presented to the audience as being within the world of the production, although the source doesn't have to be on-screen.

An example is background noise of traffic in a scene within a car.

On the other hand, the sources of non-diegetic sounds are not visibly coming from within the scene, but is it implied that they are; for example, a narrator, mood music and sound effects that are added

The **fidelity** of sound means how faithful a sound is to its source, as perce to add effect and convey meaning. For instance, an image of a car accom dolphin call is clearly unfaithful to its source. However, the sound of a ca as faithful when accompanied by an image of a car, whether or not the en specific car or not.

Other sounds can be added in order to add effect; the audience generally or kick – even though such actions don't result in such prominent sounds

The sound level, that is how loud or quiet a sound is, can vary and influen of a scene and how the audience perceives it.

Low-level ambient sound can be used to set the scene and provide a base fo within a natural setting. In contrast, loud sound or music can be used to imm scene, an example being a nightclub scene where the audience would have a

The use of music is usually dictated by a number of factors, including the video and the atmosphere within the scene. For example, it's uncommon children with certain genres of music, such as heavy metal.

Sound clarity helps to strengthen the setting and atmosphere of the scen the awareness that the action is taking place within an enclosed space; a add clarity to any dialogue within the same scene.

Task:

Identify the diegeti n-diegetic sound from the following clip from BB tE
zzed.uk/c astenders

Is all audio faithful to its source?

Questions:

3. Explain the difference between diegetic and non-diegetic sound. (2 n
4. How can the fidelity of sound affect the perception of a scene's realit

Use of audio across digital media

Listed below is a series of examples of audio that are used across sectors
digital media:

- **Aural landscape** – The combination of dialogue, sound and music
generate a cinematic environment for an audience. This is used w
moving image products, such as in film and television, to evoke a
of place and setting. It can also reinforce a visual experience; for
example, a mixture of muffled dialogue, traffic sounds and footste
a city helps the audience to experience and imagine the scene.
- **Voiceover** – Commonly, dialogue is used in the form of a voiceove
instruction to a user. Announcements are also similar to voiceov
the time and details on a television broadcast.
- **Idents** – These are visual television station identifiers usually in th
plays prior to the beginning of a TV show. Displaying the name an
aim to help the audience identify the station, but also reinforc
accompanied by an easily identifiable audio track which is used to
- **Jingles** – Within a radio broadcast, a jingle is a short, catchy sound
reinforce the station's brand. It's normally made up of sound effec
by the station's name.
- **Interviews** – An interview is a disucussion involving questions and
people. Interviews can be conducted in either internal or external
require a different technical set-up for each individual situation (s
placement).
- **Phone-ins** – This describes the inclusion of telecommunications s
production; for example, a contestant phoning in during a radio sh
moving image, such as film, audio for electronic communication s
time. However, it has usually been recorded externally and added
- **Silence** – As previously mentioned, silence denotes the absence of
image production silence is often used as a method of creating tens
It can also be used to emphasise any other audio, such as dialogue,

Task:

Look at the following list of audio uses across digital media and note dow
used within a media sector that has been discussed.

- Incidental music / aural motifs
- News reports
- Icons
- Gameplay music
- Noise

Using the list, can you find evidence to back up your examples?

Questions:

5. What is an aural landscape? (1 mark)
6. What is the purpose of a jingle within a radio broadcast? (1 mark)

The purposes of digital audio

Within different media sectors digital audio can be used for a wide range
entice a specific emotion or reaction from the audience.

- **To create mood** – Music is commonly used to create mood or rein
within a scene; for example, the use of slow piano music to emph
moving image production a slow build-up of music can be used to
the audio with the video could be used to emphasise the climax o
- **To create ambience** – Ambient sound can be used to set a scene f
to understand the setting; for example, a nature soundscape withi
- **Pleonastic audio** – This is sound that has been heightened or exa
the action on-screen and focus the attention of the audience. It c
within a scene, which creates tension; an example of pleonastic a
within a moving image production; the volume level of footsteps
it's louder than it would be within real life.
- **Contrapuntal audio** – This is used to contradict and contrast with
a sense of shock or irony within the audience; for example, the us
violent or distressing scene.
- **Functional** – When audio is functional it's usually used to convey
viewer; for example, within a video game an audible voiceover tel
do to progress.
- **Persuasive** – Through the use of repetition, audio can be used to
audience. Radio stations employ this technique by playing advert
forcing the audience to remember. Dialogue, through the use of c
language, can also help to persuade, particularly within advertisin
- **Character identification** – The continued use of a specific audio tr
brand causes the audience to associate them together. This is sho
theme songs; think the identifiability of *The Simpsons* from its the
- **Introduce era** – Types of music can be associated with specific cul
often associated with specific time periods; for example, The Beat
with the 1960s.
- **Rhythm/pace** – Music can be used to provide pace across a range
as radio, moving image and Internet websites. Within moving ima
edited to the beat of the audio track. This can affect the mood of t
number of very short clips synchronised with a fast-paced audio tr
excitement or urgency within the audience.

Questions:

7. Explain two purposes of digital audio within a production. (2 marks)
8. State the difference between pleonastic and contrapuntal audio. (2 m

Aim B – Technical Requirements for D

Objectives:

- ✓ To understand the characteristics of sound and the effects of acoustics
- ✓ To be able to identify different microphones and provide situations for

AUDIO INDUSTRY TECHNOLOGY AND TERMIN

Digital audio file formats

A file format is a method of storing and compressing data from an audio track.

Compression describes the process of gaining an accurate representation of data without degrading the quality of the image to an unacceptable level. The reduction in file size allows more files to be stored and reduces the time required for data to be sent or downloaded over a network connection.

In this sense audio files can be categorised based upon the method by which they were compressed: uncompressed, lossless and lossy.

Uncompressed means the file is an exact replica of what was recorded. This usually results in a very large file size which would be problematic in terms of storage and sending via a network connection.

Uncompressed audio is usually referred to as RAW audio and mostly has the extension '.raw' or '.pcm'.

Lossless describes a compression technique whereby the aim is to reduce file size without resulting in a loss of audio quality.

Lossy, on the other hand, is a compression technique which aims to remove unnecessary data from the audio file. The objective is to retain quality while achieving a smaller file size through the removal of data from frequencies outside of the range of human hearing.

There are a number of different file formats used for storing audio data, d

Key

- ✓ C
- ✓ L
- ✓ L

Below are a number of audio file formats:

- WAV – Waveform Audio File Format is an audio format that is the on the Windows operating system; however, it's supported across and software applications.

  As it employs a lossless compression method there is no loss in au

- AIFF – Audio Interchange File Format is similar to a WAV file in th which offers flexibility. AIFF is the default lossless file format on

- CDDA – Compact Disc Digital Audio is the standard uncompressed compact discs (CDs). Some CD players only support this format w disc is burned on a computer, files are auto ally converted int

- MP3 – Moving Picture Experts G up -2 Audio Layer 3 is a popular small file size that mak d for use across the Internet and p speeds and sto ace can be an issue.

  3 sy format it results in a loss of audio quality.

Questions:

9. Explain the differences between MP3 and WAV file formats. (2 marks)
10. Define 'compression'. (1 mark)

Task:

Using **worksheet** Ⓐ and th compare the uses, advanta each of the following audio

- WAV
- OGG
- MP3

Exte four

Computer audio platforms

There are a very large number of audio software platforms available for u other devices, in particular over the Internet.

To simply listen to audio there are a number of popular software applicat QuickTime, Windows Media Player and iTunes.

Most applications support a wide range (if not all) of the most popular au exception is iTunes which doesn't support WMA (Windows Media Audio) f converted before being played.

Listening systems

'Listening system' refers to the use of the audio syste and how the spea channels for playback. Three different syste xplained in the follo

Name	Description
M (Monop mic)	M system where audio signals are routed throug single channel, meaning that all audio is distributed equ through the speakers. Public broadcasting systems are an example of when thi method is used.
Stereo (Stereophonic)	Stereo allows two or more audio signals to be routed to separate speakers, creating the impression of space and direction in a similar way to how we experience the real w This is what allows certain instruments to only come through one speaker when listening to music.

Name	Description	
Surround sound	Surround sound was first developed for use within cinema, encircling the user to increase the immersive experience. Assuming the speakers are set up in their correct location, it would allow the audience to locate the direction of the sound source. The difference between 5.1 and 7.1 surround sound is the relationship between speakers and subwoofers within the set up e.g. a 5.1 system has five speakers and one subwoofer.	Sig

Quest

11. Stereo systems provide the listener with: (1 mark)
    a) equal distribution of sound
    b) direction and spatial depth
    c) more than one speaker
12. Provide another example of when mono systems are used. (1 mark)

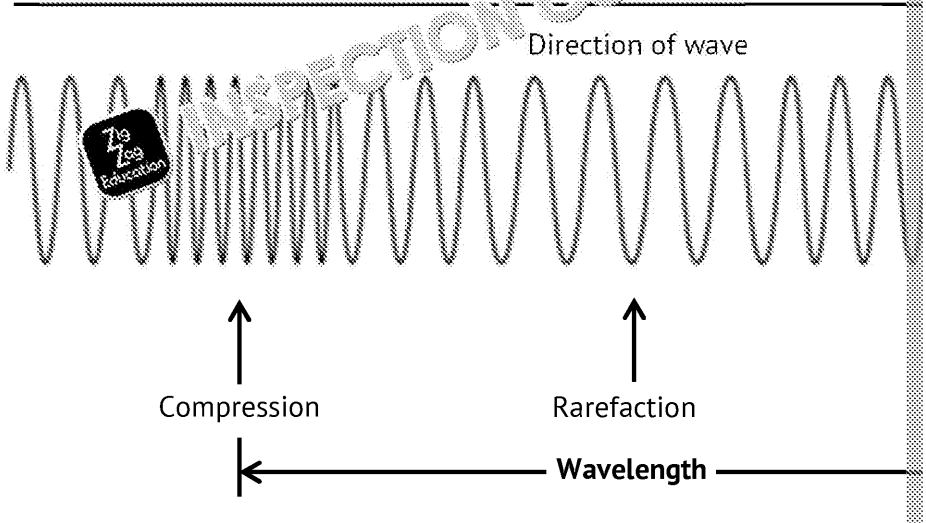
RECORDING AUDIO IN DIFFERENT ENVIRONM DIFFERENT PURPOSES

Basic sound principles

Sound is created when an object vibrates and creates sound waves. Thes which means that the waves travel in the same direction as transmission, that travel up and down.

Sound waves can travel through air, liquid and gas; however, they cannot outer space.

Example of a longitudinal wave is shown below:



Just like other waveforms, the features of a sound wave are the wavelength, fre

- A **cycle** is a complete vibration: starting from zero to the maximum the journey to the minimum amplitude in the opposite direction, a
- **Wavelength** describes the distance between two crests.
- The number of waves produced per second is the **frequency**. A wa sound will appear closer together and the pitch of the sound will
- **Amplitude** is the height of the wave. The louder the sound, the gr
- A **period** is the time it takes for one wave to complete a cycle.

Acoustics and sound perception

Acoustics refer to the properties of sou in particular how it travels thro properties of a room help to d in how the sound is transmitted.

When so va each the human ear they are funnelled into the nal and to the eardrum. This causes the eardrum to vibrate and the vibrations travel to another area called the cochlea.

From the cochlea, the vibrations are transferred into a signal that is sent to the brain through the auditory nerve.
The brain interprets these signals as sound.

Questions:

13. Sound waves travel in: (1 mark)
    a) transverse waves
    b) longitudinal waves
    c) diagonal waves
14. Describe the process from a sound being created to it reaching the b

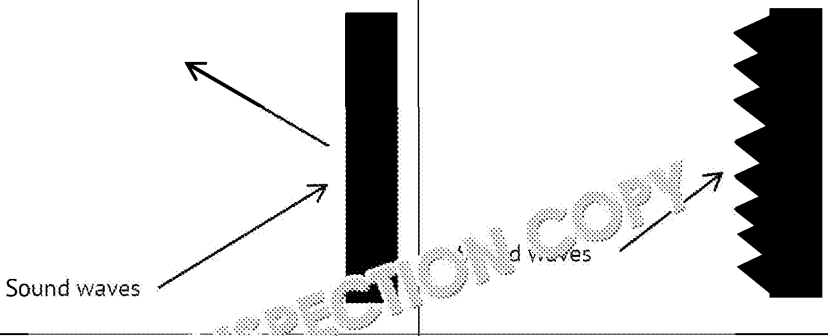
Task:

Draw an annotated longitudinal sound wave with a deep pitch and high amplitude.

How does the shape of the wave differ depending on the sound properties?

Interior acoustics

Interior acoustics describe how sound travels and interacts between diffe
a room. The shape of a room and the surface materials of objects can cau
to react in three different ways:



Reflecti – W[illegible] sound waves hit a h[illegible]face, such as glass, they are reflected back towards their source. The sound waves remain intact which results in an echo, and a degradation of music clarity and speech intelligibility.	**Absorption** – Incoming sound waves can be absorbed into a permeable material such as foam or sponge, and the energy is transferred into heat. This has the effect of dampening the sound.	**Sc** ar ra el Th sc in

Reverb and echo

Reverberation (or reverb) refers to the collection of reflected sounds with
enclosed space that create a distinct acoustic space. It's created when a l
number of echoes build up and then slowly decay as the sound waves are
absorbed into various surfaces throughout the space.

It's this process that gives a space a characteristic sound and can be impa
by a range of factors such as: the overall shape of the space, materials, wa
angles, flooring, doors, number of windows and the objects within.

The difference between a reverb and an echo is that reverb is a number o
together and happen within 30 ms after the original sound. On the other
repetition that occurs more than 30 ms after the origi[illegible] sound.

Acoustic treatment and sc[illegible]ng

The acoustic treatment of [illegible] pac[illegible] describes the use and addition of mate
decrease scatter[illegible] reflection of sound, in particular to reduce the ch
when re[illegible]g within a studio or other controlled environment.

Many of these treatment methods make use of foam blocks or tiles at cer
space to absorb or minimise the reflection of sound; they are most effecti

The other method aims to equally scatter sound around the space using a
such as plastic or wood covered in a fabric material; this is most effective
and high ranges.

This method is commonly used on a free-standing screen, useful for placeme

Studio acoustics

It's important to note that apart from the spatial characteristics of a space associated factors that could affect the quality of a sound recording. This and environment of the building and where you may expect to experience background noise.

The acoustics within a studio (as a controlled and usually purpose-built e more neutral. This allows the control of reverb, echo and other post-proc during the post-production process by the engineer.

Within a studio, any sound and recording booth should be soundproofed noise pollution, and the room itself must not have any features that introd interference into the recordin

Questi

15. State the differences between reverb and echo. (2 marks)
16. Suggest the difference between an echo and a delay. (1 mark)
17. Explain how a sound wave is: (3 marks)
    a) reflected
    b) absorbed
    c) scattered

Internal and external acoustics

Within a collective space or building, such as a school classroom, there is uncontrolled external noise such as the movement of people, or the whir A domestic setting would likely suffer from similar problems, e.g. ambien However, the general characteristics of an interior location are good as th which will result in higher-quality audio.

One possible adverse effect of recording within an indoor location is the r sound, when undesired. There are a combination of techniques and chang reduce the impact upon sound quality:

- Acoustically treating the space so that there is a physical sound ba and the open space causing the echo or rev . Wall sound insula absorb sound waves.
- Microphone placement – ng the microphone in such a wa any surrounding ; for example, moving the microphone clos directing it away from any external noise.
- hone choice – selecting a microphone that is more suited f undesired sound. This refers to the polar pattern of the microp

An exterior location is the least controllable recording location, although circumstances such as TV and film recording. In these situations it would completely control the environmental acoustics to replicate studio record as it wouldn't accurately represent the environment.

Within moving image production, background noise and ambience can be represent a scene.

However, some environmental features of external recording can be redu
can be reduced through the use of a windshield over the microphone.

Another method is to use an additional number of microphones, such as h
to capture dialogue and another to solely record background noise. This
control and adjustment of sound levels within post-production.

Exterior recording is overall more likely to result in lower-quality audio d
uncontrollable interferences such as weather conditions.

Simulated acoustics

It's also possible to make use of simulated a ti ffects such as reverb,
impression that the audio has been fi w.in another location. Becau
controlled environment can est very neutral acoustic sound, it's po
emulate the charact of another environmental space.

For exa film scene recorded within a studio could be set within a c
having a ly been recorded within the studio, would have none of the
known to the audience. Through the use of simulated acoustic effects it w
these characteristics and further immerse the audience within the experie

Questions:

18. What are simulated acoustics? (1 mark)
19. State one method that can be used to reduce wind noise when record
(1 mark)

MICROPHONES

A microphone is a transducer – a device that converts sound energy into
then be transmitted, amplified or recorded.

Microphone types

Microphone type describes a range of microphones that are designed and
different situations, locations and purposes.

Type of microphone	Descripti
Handheld	A handheld microphone is one that can be held in the hand of the performer, although it can also be mounted onto a stand. It's useful when a performer needs to be able to move freely, such as during a live performance.

Type of microphone	Description
Lavelier	Also known as a clip microphone, a lavelier microphone is small and discreet and can be clipped to the body or an article of clothing to allow hands-free operation. These microphones can be either wireless or wired (depending on their use) and are commonly used in television broadcasting.
Boundary	A boundary microphone is mounted to the floor or wall of a room in order to capture the overall ambient sound. It aims to capture sound as it is reflected and scattered off the walls. Boundary microphones are usually wireless.
Parabolic	Parabolic microphones make use of reflectors in order to collect and record sound from a distance. They are very sensitive in the direction along the axis of the dish, and are used in instances where it's impractical to get nearer to the source – for example, when recording wildlife calls.
Radio	A radio microphone is a microphone that is bi-directional, meaning that it picks up sound from either side. In circumstances such as a two-person conversation, this would be ideal.

Questions:

20. What is a microphone? (1 mark)
21. You're recording an on-location interview; compare and contrast the f boundary microphones for this use. (2 marks)

Microphone construction

A microphone is a transducer that converts sound waves into electrical sig
how it's built and how it functions.

Type of microphone	Description	
Dynamic	Within a dynamic microphone is a thin piece of membrane called a **diaphragm** that vibrates when hit by sound waves. The diaphragm is attached to a coil that moves back and forth over a magnet when hit by sound waves, converting them into an electrical signal. Dynamic microphones are robust and inexpensive which makes them ideal for on-stage use.	Sou  Diaph
Condenser	In a condenser microphone there are two metal plates – the diaphragm and another rigid plate – that are mounted close together. Both these plates are connected to a power supply which produces a charge between them. When the diaphragm vibrates from the incoming sound waves the distance between the two plates changes, causing a change in **capacitance** and an electrical signal. Condenser microphones require a **phantom power** of 48 V or a battery supply to work, and are more sensitive and susceptible to damage than dynamic microphones.	Back panel Battery
Ribbon	A ribbon microphone works using a thin piece of metal suspended between two magnetic poles. Sound waves cause this ribbon to vibrate and break the magnetic line of force – generating an electrical signal. Ribbon microphones are considered to produce a very warm and natural sound. However they are also very sensitive and more susceptible to damage as the ribbon is thin and can easily be dislodged from its position.	R Magne

Key terms:

- ✓ **Capacitance:** The capacity of a component to store electrical charge.
- ✓ **Phantom power:** A DC current sent through audio cables to provide po
equipment, usually 48 V.

Task:

Draw an annotated diagram showing the operation of a dynamic microph
circumstances in which you would use it.

Microphone characteristics and directional properties

The characteristics and directionality of a microphone describe its sensitiv
directions. In order to illustrate the directional properties of a microphon
plotted onto a graph called a polar pattern.

This polar pattern should be i... as though looking directly down
facing upwards.

Direc...y	Description	
Omnidirectional	An omnidirectional microphone equally picks up sound from all directions. **Uses:** Recording ambient or background noise. It's ideal when the microphone is static and the subject is moving, or when the sound is coming from multiple directions.	
Unidirectional	Unidirectional microphones only pick up sound from a single direction, the front with less sensitivity to the sides and back. **Uses:** When recording interviews and individual voices within locations with lots of background noise.	
Cardioid	A cardioid microphon... n ...st..., picks up sound from the fro... th...gh some is also picked up from t... ida... **Uses:** Cardioid microphones are good for general use and applications where sound needs to be picked up from the front and sides but not the back; for example, during a live music performance where the singer and surrounding instruments may need to be recorded, but not the audience.	

Directionality	Description	
Hyper-cardioid	These microphones are similar to cardioid polar pattern; however, they pick up less sound from the sides and a small amount from the back. **Uses:** Hyper-cardioid microphones are good for live music performances. In this circumstance it may be the best choice for a singer who wants to capture some of the audience with the sound mix.	
Bi-directional	Bi-directional or 'figure of eight' microphones pick up sound equally from the front and back, but badly from the sides. **Uses:** One possibility for use would be within an interview where two people are facing each other and have the microphone between them.	

Task:

Refer to **worksheet** Ⓑ detailing a range of different microphone pola

Complete any missing sections:

- Name
- Directionality
- Uses
- Diagram of polar pattern

Design limitations

- **Proximity effect:**
  Also known as 'bass tip-up', this refers to an effect that occurs when microphone, causing an increase in bass or low frequencies.

  The distortion effect is caused by the ports used to create direction omnidirectional microphones are not affected.

- **Inverse square law:**
  Sound becomes weaker as it travels further away from its source. This drop in intensity is calculated by the inverse square law, which time the distance between the microphone and source doubles ther by 6 dB. A 'free field' describes a space w[illegible] here are no reflectio

Mounts

A microphone mount [illegible] method by which the microphone is attach

Mou	Description
Stand	A microphone stand is a free-standing mount that allows the microphone to be positioned without the need to be held by a There are a number of different microphone stands availab range of circumstances. For example, a desktop stand for use in a seated position and overhead stand which is used for extreme heights and angles.
Rifle	A rifle mount allows a microphone to be mounted directly camera, eliminating the need for it to be held. It also holds the advantage of having the sound directed to the action being filmed.
Boom	A boom is an extendable pole and mount that allows the u lift the microphone to their desired height. It's commonly used within video filming to gain closer acce the subject audio, and positioned at a height that obscures view within the camera's framing.
Clip	A clip does exactly what the name suggests – clips the mic to an article of clothing or object closer to the source of the It's commonly used with lavelier microphones to allow hands operation.
Shock mou	A shock mo[illegible]ras[illegible]s the microphone to the stand using a tech[illegible]which helps to reduce background noise and isol m[illegible]ophone from vibrations that might be transferred throu microphone stand.

Task:

Suggest and explain a circumstance in which you would use the followin

- shock mount
- low profile microphone stand
- clip

Connectors

A connector is a device used to join together electrical circuits and usually
and jack ('female' end). Within audio there are a number of connectors th
microphones.

Connector type	Description
XLR	This is the most common connector used within professional microphones and other audiovisual equipment. They commonly have thr e t n the chassis, positive and negative
Audio jack	An audio jack can be either mono or stereo. They are available in a wide range of sizes, although the name usually refers to the original 6.35 mm (1/4 inch) size. Commonly used to connect electrical guitars, loudspeakers and line-level audio.
Mini-jack	A mini-jack – or 3.5 mm audio jack – is a type of connector used to connect headphones and earphones to audio equipment. It is a common connector seen on many devices such as mobile phones and computers.

Questions:

22. What is a ... e used for?
    rk
23. ... the connector type commonly used with professional microphones. (1 mark)

D

The 6.35 mm
oldest electrical

It dates from 1
exchanges

DIGITAL AUDIO RECORDING AND EDITING EQ

Audio editing software

Audio editing software refers to computer applications that permit audio t be recorded and edited.

There are a large number of different audio editing applications available multitrack recording, each offering a range of custom features and effects however, they all contain the core functions of recording and editing aud

Professional paid-for software such as Protools cu rse and Adobe Auditi additional properties that allow users a ditional customisation; however, such as Audacity.

Hand[illegible]portable digital audio recorders

A handh[illegible]igital recording device allows the user to record audio on lo using built-in microphones. Most handheld recorders capture audio in stereophonic sound which gives depth and spatial placement; this is achie through the use of the two microphones located in an X/Y coincidental po

This technique is where two cardioid microphones are placed at an angle as possible to each other without touching.

Some handheld recorders also accept signals via XLR and audio jack conn connection of an external microphone as a replacement for, or in conjunc microphones. This is useful in situations such as when filming video, whe the camera may not be enough to capture high-quality audio.

Desktop audio interfaces

An audio interface is a piece of hardware that allows sound to be recorded to a computer. Although most computers always have the ability to record and output sound, they are not intended for use with higher-resolution audio which can result in latency and delay issues.

An audio interface not only ensures that any sound re rded is of high quality, but also features a number of ad io input and output connectors – usually XLR and a o ack. This not only allows the microphones and instrument o permits the user to record from m

For exa a could record high-quality audio of a guitar and s somethi wouldn't be possible with a single input sound card includ

Multitrack recorders

A multitrack recorder is a stand-alone device that allows the user to reco audio across a number of individual tracks without the aid of a computer, although most still can be connected to a computer if needed.

It allows the connection of musical equipment through XLR and audio jac inputs and usually features a range of inbuilt effects and editing techniqu

Advantages of using this recording method include that they feature phys faders and knobs, giving the user immediate control over the audio input Additionally, the portability of the device means it can be taken to a location when needed, such as when recording live music performance.

Questions:

24. Su an outcome of recording music directly to a computer with (1 mark)

RECORDING TECHNIQUES AND PROCEDURES

Recording techniques and procedures refers to the importance of good pr high-quality audio that's suitable for use. This also extends to organisati productions, including the pre-production tasks.

Equipment check

Having and checking all the required equipment prior to recording is very creation of contingency plans, and reinforces time perimeters and the ma skills.

Within this check it's important that all equipment is present and functio has been hired especially for use.

This is best suited to a simple checklist:

Production: The Cheese-Loving Jazz Band
Date: 20/04/15

Equipment:	ent:	Functioning:
Condenser micr	✓	✓
r	✓	X

Additionally, checking that equipment is properly set up before recording ensures that any errors or mistakes, which could result in the need to rere project time if not seen, are noticed prior to editing.

Sound levels

Prior to and during the recording process, the sound engineer should chec
in order to avoid distortion such as popping and clipping.

Audio clipping refers to an effect that occurs when the amplitude of an in
goes beyond the capability of the digital system; in other words, when a m
instrument is too loud, certain parts of the audio are 'clipped' and clearly n
the recording.

To avoid the likelihood of clipping, input levels should be monitored and not
of the sound monitor. The input level can be adjus[illegible]ugh the use of the

Popping is an undesired noise th[illegible]oc[illegible]s when a vocalist causes a large a
the microphone; for ex[illegible]v[illegible]n common strong sounds such as 'P' are
One metho[illegible]to [illegible]or significantly reduce popping is to place a pop
and sub[illegible]his helps to cut surplus air pressure and absorb sound.

Audio distortion can also appear as a cracking sound within the audio cha
connectors or leads. For this reason it's essential to check leads and cable

Questions:

25. Why is it important to conduct an equipment check prior to undertak
26. What do popping and clipping refer to in audio production? (1 mar

Microphone mounting

Using the correct type of microphone stand and mount helps to ensure that it has appropriate support for use and that any resultant recordings are as clear as possible.

The sound engineer within any production also holds the responsibility of monitoring the recorded audio signal to guarantee that the microphone choice, placement and mount enable the best compromise between ambient background noise and high-quality audio.

To do this the sound engineer must monitor the incomin[illegible]audio both prior to
recorded.

For example, during the reco[illegible]g[illegible]f[illegible]ong the sound engineer could dec
interference a shock [illegible]est used.

Start [illegible]top times

When recording audio it's good practice to have an appropriate signal tha
performers and other crew members when the audio has started and stop
This helps to safeguard against noises and other interference that could c

For example, the sound engineer may want to capture the eventual decay
instruments at the end of a song. In order to avoid the performers speakin
in which audio is still being recorded, the engineer could agree a hand sig
when the recording has stopped.

Within film-making this could mean recording additional sound for use as
responsibility for scene timings will lie with the director who will provide

Within film production the audio and video tracks can be recorded separa
synchronise both tracks, a clapperboard is used. The clapperboard shows
video track and, as it's closed, there is a loud noise that appears as a spike
waveform. The editor can then easily align this spike in the waveform wi
seeing the point at which the clapper is shut.

Sound log

A sound log is a report that's used within film pr to record the tim
tracks that have been recorded.

By recording the scen number, date and audio file number it h
identify th hat goes together with a specific video take.

An example of a sound log is shown below:

Sound Log				
Production title: Much Ado About Nothing **Date:** 25/10/15				
File name	**Scene**	**Take**	**Duration**	
Track15	3	5	00:45:40:00	Do

Aim C – Producing and Reviewing Di

Objectives:

- ✓ To be able to plan, produce and edit an audio recording.
- ✓ To critically analyse a finished project.
- ✓ To be able to identify strengths and weaknesses.

PLAN THE RECORDING AND EDITING OF DIGI PRODUCTS

Personal management

Throughout the entire production it's vital that within the team personal management and organisation are kept to the highest standard possible. This helps to keep the project running on time and, consequently, saves money.

Punctuality and time management are directly linked with good organisational skills. Ensuring that tasks are time-bound, and any set objectives are achievable and realistic, helps to safeguard against any unexpected delays.

Furthermore, remembering to include transportation and set-up times wit made is essential, particularly when recording in a location that has limite avoid the extension of the task and also scope creep.

Organisational skills include good preparation for work; this means makin performers and crew know their schedule and the roles required of them. provide all members of the team with copies of the pre-production docun thoroughly know and understand the project.

Finally, knowing the importance of safe working practices is the responsib the project. Information such as the location of fire exits, emergency mee and first aid should be made clearly available to control any risks.

Product

In order to begin planning for the audio production the type of produ is important as it allows the band and engineer, or team, to start the planning types of equipment and any corresponding equipment they may need.

Remember that different microphones have distinctive audio properties, a suited to recording different instruments or voices.

This choice is directly related to the type of audio product being recorded specific sound within the recording rather than a simulated effect within

Brief

When producing an audio track for a **client**, no matter the type of media production, it's vital that the pre-production stage is completed properly to ensure that the client's wishes have been fulfilled.

In this instance it's useful to create a brief after first discussing the project with the client; this is a short, but descriptive, account of the task ahead.

This clearly defines the requirements and purpose of the recording; it can also include aspects or ideas the client has that can help during the editing process:

- **Purpose** – What is the audio being recorded for? A sound effect?
- **Source** – What is being recorded? Instruments? Vocals? Foley so
- **Scope** – This defines the size of a project, and any previously se it the music for a soundtrack in time for a film edit.
- **[illegible]** – This links directly to scope, as it defines time constraints any additional costs, such as additional equipment to create sound
- **Tone and style** – Are there any specific feelings or emotions that t the audience? Do they want the recording to have a distinctive ac

Overall, it's essential that everyone working on the project understands w what the client wants. This this will help them to prepare for the task ahe

An example of a brief is included below:

Client information	ZigZag Productions is a small animation com adverts for the UK government.
Contact	ZigZag Productions, Somerset Road, Bristol, B
Project	Soundtrack, sound effects and voiceover for a driving in the snow.
Project information	There has been a shortage of grit this winter across the dangers in a highly serious manne
Requirements and restrictions	Three minutes long. Sound effect of blowing wind.
Objective	To create tension and reinforce a serious atm
Key dates	Final deadline: 26th February 2018
Budget	£200
Content	Voiceover should be d[illegible]y a child. Soundtrack mu[illegible]de violin.

Ke
✓
✓

Task:

You have been tasked with re of a play at your school. There from the audience and speech of which should be clearly hea

Write a brief and establish a follow. Remember to include t

- project details
- suggested microphone
- mounting techniques
- details of core content

Questions:

27. Why is it important to create a brief? (1 mark)
28. Suggest an additional scenario that could lead to scope creep. (1 mark)

DIALOGUE SCRIPT

If recording dialogue it will be helpful to format the text into a script, part one performer. This clearly sets out the dialogue for each performer and the recording. If the dialogue intends to induce a specific reaction or emo should be detailed within the script to clearly inform the performer.

Within certain circumstances, such as when recording narration for a film to provide the performer with a screenplay that includes stage and charac to time and suit the dialogue according to the action that will occur on-sc

- Stage direction and slug lines are used to establish the scene and if the scene is interior (INT) or exterior (EXT), the location and tim also include any initial transitions.

> INT. AN EARTY [illegible]RY-SCHOOL CLASSROOM – SUNSET
> Or
> EXT. TRAFALGAR SQUARE – EARLY MORNING

- Action describes any stage directions that the audience will see u camera shots and movement. Any diegetic or non-diegetic sound

> A small, brown rat runs across a cracked and wet pavement; the camera follo it runs. The camera comes to an abrupt stop as a ginger tomcat drops from a

- Characters' names are always capitalised and appear above their r
- Dialogue is anything that the characters say; it is positioned below
- Directions about the character's tone of voice or emotional state c

> JOHN
> (Speaking in a childlike voice) Why hello there kitty-cat! What's that you h certainly done a number on that one, haven't you? In that case I'm not sure maybe I'll have this catnip myself!

A radio script clearly identifies all segments of the production such as jing news segments, background music, tracks and songs. It also details some rhythm to any performers.

An example of a radio script is shown belo:

> **Intro:** Radio ident ir [illegible]nds)
>
> **Cue D.**
> GOOD MORNING AND WELCOME TO RADIO ATLANTA. TODAY WE'VE G TUNES FOR YOU. FIRST OF ALL A CHRISTMAS CLASSIC.
>
> **Cue track: Jingle Bells – Berkshire County Choir. (3 mins 20 secs)**
>
> **At 2 mins in, lower the volume to background noise level. As the track e ambient background music as the DJ talks.**

Cue DJ:
THAT WAS A GREAT REDITION BY OUR VERY OWN COUNTY CHOIR. T
HAVE THE COUNTY COUNCIL LEADER JOHN SIMONS ON THE SHOW T
THE COUNTY CHRISTMAS FAIR. LISTEN OUT FOR THE INTERVIEW AT
SIMPSON WITH THE MORNING NEWS.

End of segment.
Cue news ident jingle (7 seconds)

Cue Matt Simpson:
FIRST UP THE LOCAL NEWS. THERE HAS BEEN A STUDENT PROTEST
INTO READING CITY CENTRE THIS MORNING AS THEY ARE PROTESTING A
GOVERNMENT DECISION NOT TO REDUCE SCHOOL HOURS. EXPECT
TAKING THE BUS. THE POLICE HAVE NOT YET OPENED A DIVERSION.

Task:

Look at the excerpt Ⓓ of the short story *Hansel and Gretel* by Brothers G

Convert the excerpt into a script with narration that could be used for a

EQUIPMENT LIST

As previously mentioned, checking equipment before undertaking an aud
opportunity to notice broken equipment and make contingency plans for

However, it's also important to keep a list of the equipment that's availab
studio that has a wide range of equipment.

This list helps to inform the choice of equipment. It should detail the ass
available, any distinctive properties that it has and its use.

An example of an equipment list is shown below:

Sound Equipment List		
	Uses	
Microphones		
Shure SM58	Dynamic microphone [illegible] performance	Cardio clear v
AKG C414 XLS	Co[illegible]crophone, multiple [illegible]cations.	Nine s cut fil
Mixers		
Yamaha [illegible]L 32	Live-sound mixing console.	• Mo me an • St fu

Most professional studios will have their own studio list detailing the equ
available; this provides a source for the acquisition of equipment.

Recording schedule

A recording schedule is a document that specifies the order in which the e
an audio track are recorded and also details any time constraints.

The biggest problem when recording at a professional studio will be the c
booking time. A schedule can help to outline a time frame for each task a
recording and ensure that they are done within the allocated time.

Project table

One method to visualise a project schedule is within a table. This method
project and also the recording process.

Information such as roles, the specific task and budget can be clearly
milestones.

An example of a simple project table is shown below:

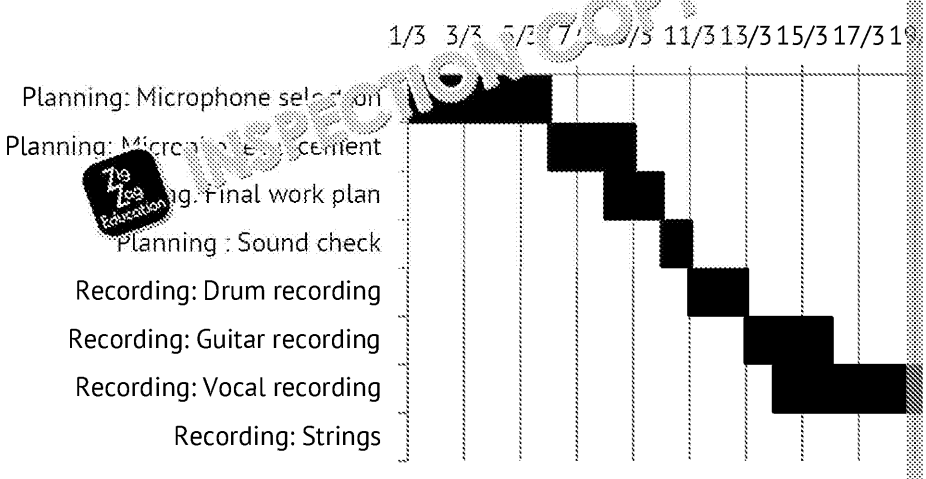
Key milestones	Tasks	Staff	Budget	
Planning			£50	1
	Microphone selection	All	£10	
	Sound check	Sound engineer	£5	
Recording			£200	7
	Studio time	Drums and guitar	£20	
	Studio time	Vocals	£5	

Gantt chart

A Gantt chart is another method in which a project schedule can be visual
left) against time (along the top). Each bar symbolises an activity, its star
depending on its length.

One of the main advantages of a Gantt chart is that it allows a visualisatio
that tasks can be grouped together to denote certain milestones within a

An example of a simple Gantt chart is shown below:



Sound check

When recording within an uncontrolled environment, such as an outdoor l
first be made in order to assess the suitability of the location.

Sound levels at the location should be taken to determine if there is a sub
noise that could interfere with the recording.

A list should also be compiled noting down any existing or anticipated pr
contain:

- **Known conditions** – Any known conditions that could influence th
excessive noise pollution.
- **Logistics** – The amount of space ava[illegible] use. Is it big enoug
and equipment? Is it far to [illegible]rt the equipment? Are there st
- **Health and safety** – How safe is the location? Are there locks to p
the crew and equipment be? Are there fire exits?
- [illegible] – Does the location have the facilities to provide power to
- **[illegible]nce** – Is permission required to record at the location?
- **Location images** – A bird's-eye sketch of the location listing any i
exits and power source locations. Photographs would also be suit

Risk assessment

This is an important stage in assessing and managing health and safety prior to filming. This process requires you to look in detail at every task and activity and decide the possible hazards that they present.

By highlighting potential risks it allows you to note the likelihood of their occurrence and how to control them should they arise.

Example of a section of a risk assessment is shown below:

Hazard	Persons who may be harmed	Property which may be damaged	Evaluati
Loose wires from guitar to amplifier could be tripped over.	Crew and performer	Guitar, cables	Hi

Task:

Imagine you are about to record an audio track in your classroom.

Using the provided templates (Ⓔ), complete a location recce and risk assessment.

PRODUCE AUDIO CONTENT

Connecting equipment and sound checking

Microphones and instruments should be directly connected to the mixer being used to record the audio. If using a mixer connected to a computer, then the computer software should display a volume visualisation within the sound level meter. (A multitrack meter will also display a level meter directly on the console.)

It is at this time that a sound level check should be performed. The performers themselves should play their instrument or sing as they would during the actual recording; this allows the sound engineer to set the equipment input levels accurately.

As mentioned previously, setting the incorrect input levels can result in the recording being too quiet for its use. Conducting a sound check just prior to reduce these risks.

Recording and editing audio

Once the sound levels have been confirmed and the performers are ready, recording.

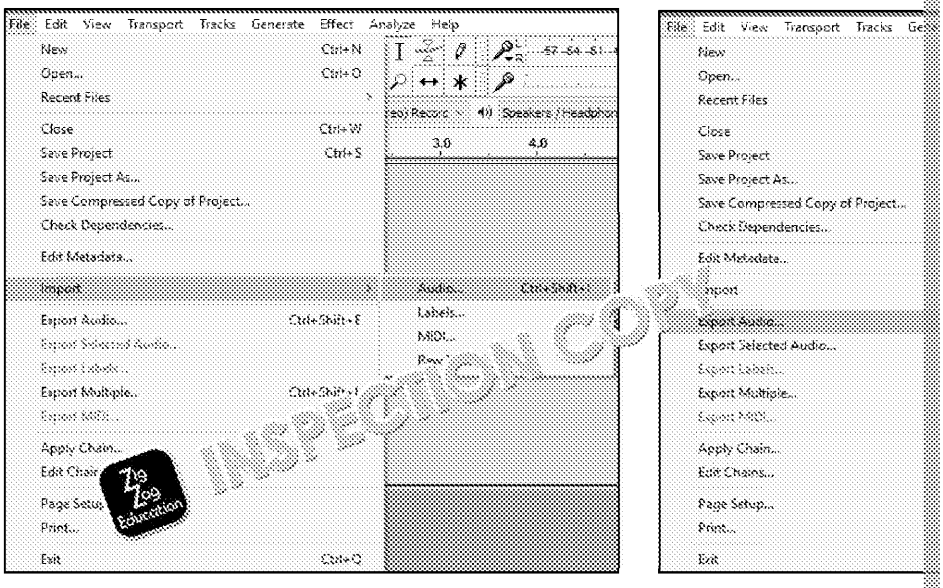
The sound engineer should begin recording before any audio sounds from cue should be given by the engineer once they judge the recording ready.

The list below displays the basic controls from the audio editing applicati

	Record: Begins recording the selected input into the audio tr
	Pause: This temporarily stops the recording; the user can res the point at which it was paused.
	Stop: Stops the recording and creates an enclosed track from
	Play: Plays the selected track from the selected point along t
	Rewind: Winds the track back to the beginning. Holding per incremental steps.
	Fast-forward: Winds the track forward to the end. Holding p incremental steps.

During the editing process it's possible to import files that have been exte timeline. These audio tracks can then be edited like any clip recorded wit

The images below shows the process of importing audio footage into *Aud*
playable format:



Importing audio **E**

Audacity also features a number of tools to facilitate basic editing of audi
the tools available and what they do:

I	**Selection tool:** Clicking on the timeline with this tool selected de playback; clicking and dragging selects a range of audio to play c
	Envelope tool: Clicking the timeline creates a control point that a smooth changes in the volume level of a track. This tool also all audio track.
	Draw tool: Enables the user to make repairs to clicks and noises. manually redraw the waveform.
	Zoom tool: Zooms in and out of the timeline, allowing more prec waveform.
↔	**Time shift tool:** This tool allows audio tracks to be moved along t down into another track.
✱	**Multi-tool:** All five tools in one. Only one tool is selected at any t position and the selected modifier ke

Task:

In the audio editor of your choice, record or import an audio track onto

Using the tools available, adjust the audio so that it fades in and out.

SELF-EVALUATION OF OWN AUDIO PRODUCT

Critical thinking and self-evaluation can be thought of as processes that c
improvement and reflection, both of which are vital factors in this final st

When reviewing a finished project a number of questions are raised in rel
client's brief and design requirements.

Here are examples of a number of questions you could ask yourself when

- What were the aims of the brief?
- Is the final audio suited to what the client asked for?
- Is it appropriate for the production?
- Is it of acceptable quality?

The use of analytical and evaluative questions forces the user to form ans
and rea

Examples of analytical questions:

- How…?
- Why…?
- What are the reasons for…?
- What is the relationship between… and…?
- What are the possible solutions to these issues?

Examples of evaluative questions:

- What are the advantages or disadvantages of…?
- Is… clear or unclear?
- Is there support for my opinion?
- Is… applicable for the project?

It's important to receive unbiased feedback as this provides the opportun
perspective which, in turn, provides an opportunity for any last-minute ch

It could be useful to note down all the strengths and weaknesses that we
various stages of the project development.

Additionally, an analysis of the final audio track (in relation to the origina
visual and mental representation of the development of an idea. The sign
can be used to avoid making similar mistakes and highlight key strengths
projects.

Unit 4: Digital Audio Production – Pr

For this task you must research, plan, produce and review an audio track for

Scenario – Lunchtime debates

Your school has recently started a lunchtime debating society that occurs during the lunch hour on a Thursday. There are many students within the school who have expressed an issue in attending a meeting, but so far attendance has b[illegible]r.

The meetings centre around tw[illegible] with opposing views, with audience interacti[illegible] the form of questions and the expressio[illegible] th[illegible]ons.

It has be[illegible]ggested that one method of attracting additional members would be to record debates and put them online in the form of

The society has requested that you plan, record and edit a podcast. The a dialogue from both speakers, members of the audience and the general a clapping and booing). There should also be a musical jingle and accompa and concludes the podcast.

The **audio track** should be at least two minutes in length and exported fo

Task 1 – Research

➔ This task covers **Learning Aims A and B**

This task requires you to research the uses and technical requirements of produce a **presentation** of your findings.

You must do the following:

- Highlight the different types of audio that are used across differen how they are used across various media sectors.
- Identify **at least two** media sectors and analyse the purpose of aud providing detailed and interactive examples.
- Research and compare a range of micro[illegible] types and polar pat scenarios where each should b[illegible]e
- Analyse a range of re[illegible] techniques and procedures, including outdoor locatio[illegible] impact of location on audio quality.

Task 2 – Plan

➔ This task covers **Learning Aim C**

It is important that you follow the requirements of the brief carefully. Th sound and the type of production.

Produce a plan detailing the necessary information and equipment that y track for the client. Provide a clear, detailed justification for your choices.

Try to include the following information and be as detailed as possible:

- **Microphone choice** – What type of microphone is best suited for e
- **Microphone placement** – How should the microphone be position need to be considered?
- **Key features** – What are the key features to include?
- **Idea** – What are the aims and purpose of the track?
- **Pre-production** – Has all the relevant documentation been comple

Your plan and documentation should include consideration of each of the demonstrate your ability to draw upon relevant skills/knowledge/understa have studied.

Task 2b – Produce

➔ This task covers **Learning Aim C**

Now that you have carried out the planning stages, you can begin recordi

To complete this task, you should do the following:

- Set up all the relevant equipment at an appropriate location.
- Pay attention to the pre-production documentation.

Don't forget:

- dialogue script
- microphone polar patterns
- the type of recorder best suited for the environment
- sound level check
- personal management

Task 2c – Edit

➔ This task covers **Learning Aim C**

You should now be ready to edit the recordings to produce an audio track

You will need to do the following:

- View and review the recordings.
- Import the recordings into an editing application, if needed.
- Cut and position recordings.
- Apply effects and adjust volume levels.
- Export audio in an appropriate format.

Task 2d – Evaluate

➔ This task covers **Learning Aim C**

Having produced an audio track, you should now write a detailed review a

It should include:

- meeting the aims of the brief
- reference to the original ideas and plans
- strengths and weaknesses
- critical analysis
- any future improvements

Unit 4: Digital Audio Production –

Learning aim A: Understand the uses and purposes of digital audio pro

Mark band	What is needed
Level 2 Distinction	Have you given a **clear** and **detailed** description of the uses and audio in **two** media industry sectors and products?
	Have you provided **appropriate** and **detailed** references to exam
Level 2 Merit	Have you **described** the uses and purposes of audio in **two** media sectors and products?
	Have you provided references to **examples**?
Level 2 Pass	Have you **described** the uses and purposes of audio in **two** media sectors and products?
Level 1	Have you given a **brief** description of the uses and purposes of a media industry sector?

Learning aim B: Understand the technical requirements for digital aud

Mark band	What is needed
Level 2 Distinction	Have you provided an **in-depth** explanation of the characteristic and exterior recording locations?
	Have you **explained** and given **examples** of how they can affect quality?
Level 2 Merit	Have you given a **clear** and **detailed** description of the character interior and exterior recording locations?
	Have you **explained** how they can affect audio quality?
Level 2 Pass	Have you given a **brief** description of the characteristics of interi or recording locations?
	Have you **explained** how they can affect audio quality?
Level 1	Have you **given** the characteristics of interior recording locations

Mark band	What is needed
Level 2 Distinction	Have you **compared** and **contrasted** different types of microphon their characteristics?
	Have you provided **justification** for their use in a range of differe environments?
Level 2 Merit	Have you given a **clear** and **detailed** descripti n of the **different** microphones and their characteristics?
	Have you assessed ... **ability** for different acoustic environ
Level 2 Pass	...ve you given a **brief** description of the **different** types of micro ...their characteristics?
	Have you completed an assessment of their **suitability** for differe environments?
Level 1	Have you outlined **two** types of microphones and their character

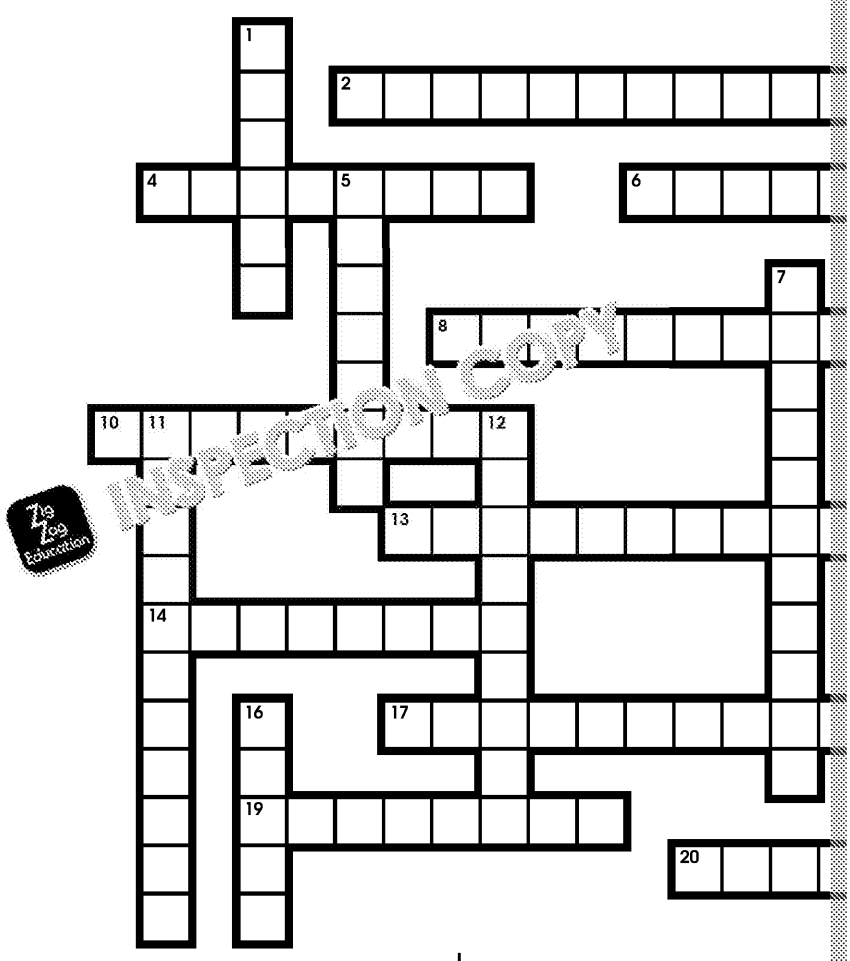
Mark band	What is needed
Level 2 Distinction	Have you provided a **clear**, **detailed** and **evidenced** assessment o **different** techniques and procedures used when recording audio?
Level 2 Merit	Have you provided a **clear** and **detailed** description of the **differe** techniques and procedures used when recording audio?
Level 2 Pass	Have you given a **brief** description of the di...**ent** techniques an procedures used when recordin... audio?
Level 1	Have you d...n...ated **two** techniques and procedures used for ...o?

Learning aim C: Produce and review digital audio for media production

Mark band	What is needed
Level 2 Distinction	Have you used **appropriate** equipment to record **creative** and **cle** recordings in different acoustic environments for **three** different products?
Level 2 Merit	Have you used **appropriate** equipment to record **satisfactory** and recordings in different acoustic environments for **two** different m products?
Level 2 Pass	Have you recorded **sa** **tr** and **clear** recordings in different environments for different media products??
Level 1	Have you recorded audio in both interior and exterior locations?

Mark band	What is needed
Level 2 Distinction	Have you **assessed** the appropriateness of your choices during th production and **explained** the extent to which they have **fulfilled**
Level 2 Merit	Have you **explained** and provided **examples** of how your product the brief and purpose?
Level 2 Pass	Have you given a **clear** and **detailed** description of the strengths audio product in relation to the brief and purpose?
Level 1	Have you given a **brief** description of the strengths of your audio

Unit 4: Digital Audio Production – C



Across

2 The characteristics, sensitivity and directionality of a microphone. (5,7)

4 Sound that is perceived to originate from within the scene. (8)

6 The correction and modification of a sound. (7)

8 A transducer, a device that converts sound energy into electrical energy. (10)

10 The science and study of sound. (9)

13 A measure of how faithful a sound is in relation to its source. (5,8)

14 A type of microphone th... mos... picks up sound from th... t, though some is als... d ...om the side. (8)

17 A DC ... sent through audio cables to provide power to a microphone or other equipment, usually 48 V. (7,5)

19 A compression technique whereby the file size is reduced without a loss in quality. (8)

20 A device used to transmit and receive electromagnetic waves. (5)

Down

1 A number of repetition... and happen within 30...

3 Sound that is perceive... scene. (3-8)

5 Sound used within a p... speech. (7)

7 Gaining an accurate re... smaller file size, witho... audio to an unaccepta...

9 A compression technic... unnecessary data from... is to retain quality and... human hearing, while ...

11 The capacity of an ele... electrical charge. (11)

12 A longitudinal wave re... (5,4)

15 A type of connector us... devices. (3)

16 A clear repetition of a ...

18 An individual repetitio... than 30 ms after the c...

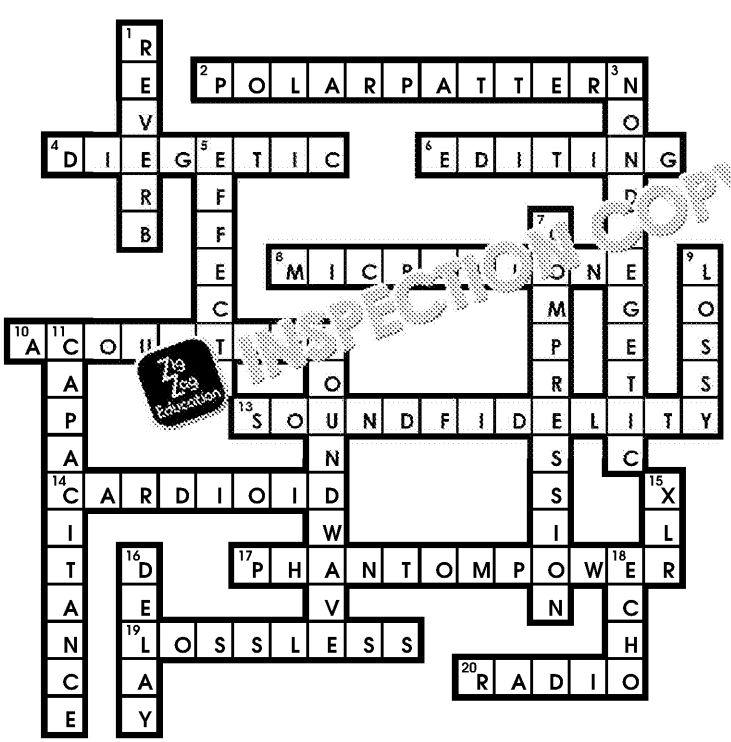
Answers

QUESTIONS

1. Music that accompanies or is synchronised to a film, TV show, video gam image. (1 mark)
2. Two marks for two of the following: (2 marks)
   - Emphasis
   - Theatrical purposes
   - To simulate reality
   - Create a mood
3. Two marks given for both answers: (2 marks)
   - Diegetic sound is sound that is perceived to originate from within th
   - Non-diegetic sound is sound that isn't meant to appear as if it's with
4. The fidelity of sound can affect the perception of reality as if the sound i source it can disengage the audience.
5. An aural landscape is a combination of dialogue, sound and music that c environment. (1 mark)
6. A jingle is a short, catchy sound bite that is used to reinforce the radio st
7. Two of the following, with examples: (2 marks)
   - To create mood, to create ambience, pleonastic audio, contrapuntal character identification, to introduce era
8. Two marks given for both answers: (2 marks)
   - Pleonastic audio is used for exaggeration or emphasis.
   - Contrapuntal audio is used for contrast and contradiction.
9. Two marks for mentioning each of the following: (2 marks)
   - WAV is a lossless compression method so there is no loss in audio q
   - MP3 is a lossy format, so there is some loss of audio quality and dat
10. Compression is the reduction of a file size without degrading its quality t (1 mark)
11. Stereo systems provide the listener with audio direction and spatial dep
12. Monophonic systems are also used in communication systems. (1 mark)
13. Sound waves travel in longitudinal waves. (1 mark)
14. A sound is created when an object moves or vibrates, creating a sound w This sound wave then travels through the air to the human ear where it's and to the eardrum. This causes the eardrum to vibrate and the vibratio the cochlea. From the cochlea the vibrations are transferred into a signa through the auditory nerve. The brain interprets these signals as sound.
15. The difference between a reverb and an echo is that reverb is a number o blended together and happen within 30 ms after the original sound, whe repetition that occurs more than 30 ms after the original sound. (2 mark
16. An echo is a repeated delay that decays and diffuses over time; a delay is

17. One mark for each of the following answers: (3 marks)
    - A sound wave is reflected when it hits a hard surface, such as glass, and is reflected back towards its source.
    - A sound wave is absorbed when it hits a permeable material, such a transferred into heat and the sound is dampened.
    - Sound waves are scattered when they hit an object and are diffused
18. Simulated effects are acoustic properties of a sound that have been crea computer software. (1 mark)
19. The use of a wind shield can help to reduce wind noise. (1 mark)
20. A microphone is a transducer – a device that converts sound energy into then be transmitted, amplified or recorded. (1 mark)
21. One mark for each of the following: (2 marks)
    - A handheld microphone is ideal for a situation where moving freely
    - A boundary microphone will capture the overall ambient sound. On m acking sound noise.
22. A boom arm is an extendable arm that allows a microphone to be place (1 mark)
23. XLR (1 mark)
24. Recording music directly to a computer without an audio interface can r delays and latency issues. (1 mark)
25. Checking equipment is important as it allows the creation of contingenc perimeters and the maintenance of organisational skills. (1 mark)
26. Popping and clipping describe distortion and noise within the audio sign
27. A brief is important as it allows you to clearly document the wants and n ensuring that the project moves in the right direction and helps to avoid
28. One mark for one of the following (1 mark)
    - Any scenario in which the design is changed and therefore requires
    - The delay of a task.

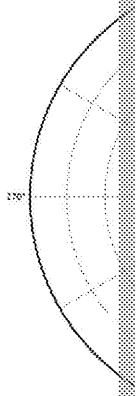
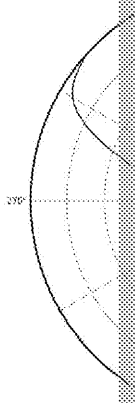
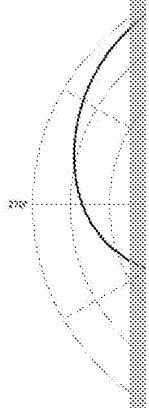
CROSSWORD

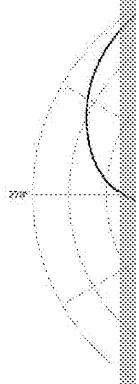
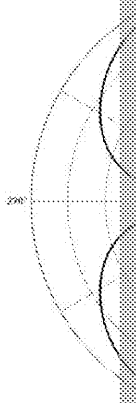


Ⓐ Comparison of Audio File Formats

File format	Common uses	Advantages
WAV		
MP3		
OGG		

Ⓑ Microphone Polar Patterns

Directionality	Description	
Omnidirectional	**Uses:**	
	_____ microphones only pick up sound from a single direction, the front with less sensitivity to the sides and back. **Uses:** When recording interviews and individual voices within locations with lots of background noise.	
Cardioid	**Uses:**	

Directionality	Description	
Hyper-cardioid	These microphones are similar to cardioid polar pattern; however, they pick up less sound from the sides and a small amount from the back. **Uses:**	
	Uses:	

© Client Brief

Client information	
Contact	
Project	
Project information	
Requirements and restrictions	
Objective	
Target audience	
Key dates	
Budget	
Content	
Additional information	

Ⓓ **Excerpt from *Hansel and Gretel***

Hard by a great forest dwelt a poor wood-cutter with his wife and his two ch
Hansel and the girl Gretel. He had little to bite and to break, and once, when
he could no longer procure even daily bread.

Now when he thought over this by night in his bed, and tossed about in his a
his wife, "What is to become of us? How are we to feed our poor children, w
anything even for ourselves?"

"I'll tell you what, husband," answered the woman, "early tomorrow morning
into the forest where it is the thickest. There we will light a fire for them,
more piece of bread, and then we will go to our work and leave them alone.
home again, and we shall be rid of them."

"No, wife," said the man, "I will not do that. How can I bear to leave my chil
wild animals would soon come and tear them to pieces."

"Oh! you fool," said she, "then we must all four die of hunger, you may as we
coffins," and she left him no peace until he consented.

"But I feel very sorry for the poor children, all the same," said the man.

The two children had also not been able to sleep for hunger, and had heard
to their father. Gretel wept bitter tears, and said to Hansel, "Now all is over

"Be quiet, Gretel," said Hansel, "do not distress yourself, I will soon find a wa
folks had fallen asleep, he got up, put on his little coat, opened the door bel

The moon shone brightly, and the white pebbles which lay in front of the ho
pennies. Hansel stooped and stuffed the little pocket of his coat with as ma
went back and said to Gretel, "Be comforted, dear little sister, and sleep in pe
and he lay down again in his bed.

Ⓔ Location Recce

Production title: .....

Crew: .....

Location: .....

Date of production: .....

Date of recce: .....

Local condition: • Any known problems? If yes, please detail (including source information)	No ☐ Yes ☐	
Aid needed? • If yes, please detail name, address and contact numbers for each person/organisation • Permission needed? • Protective clothing needed? If yes, please detail	No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐	
Equipment position: • Any obstructions? • Easy to reach and safe?	No ☐ Yes ☐ No ☐ Yes ☐	
Requirements: • Power available? If no, please detail alternative arrangements • Sound equipment	No ☐ Yes ☐ No ☐ Yes ☐	
Anticipated problems: • Sound • People • Other	No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐	
Other considerations: • Security considered • Welfare considered (transport, food, first aid, etc.)		

Location Details

Location address: .....

Contact name: .....

Telephone no.: .....

Emergency Services

Police: 999 (Emergency)

Hospital: .....

101 ext. (Local)

Power Problems

No. of power outlets: .....

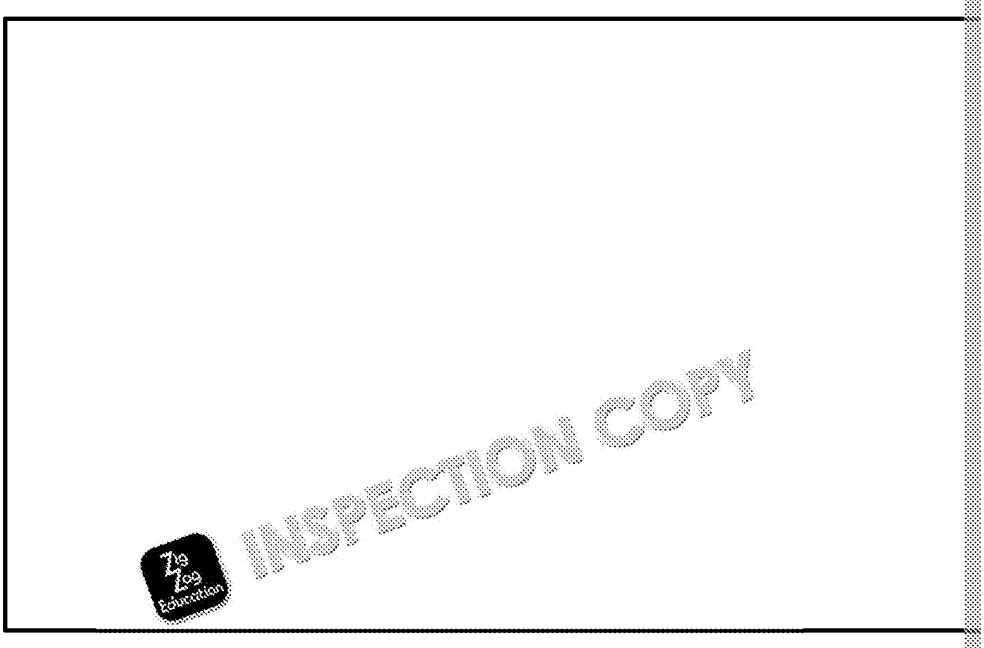
Location of circuit breakers: .....

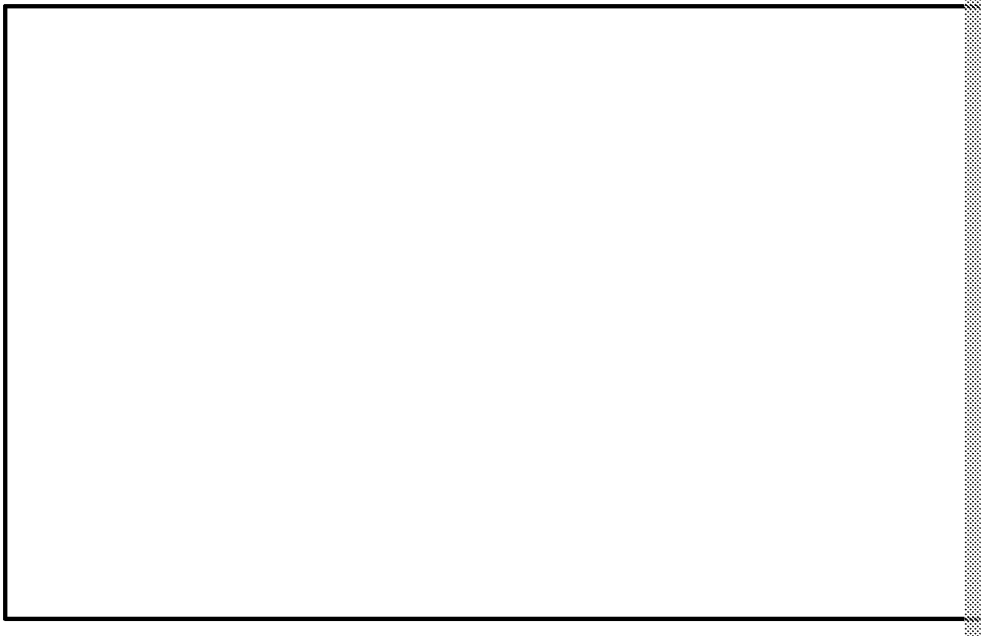
Audio Problems

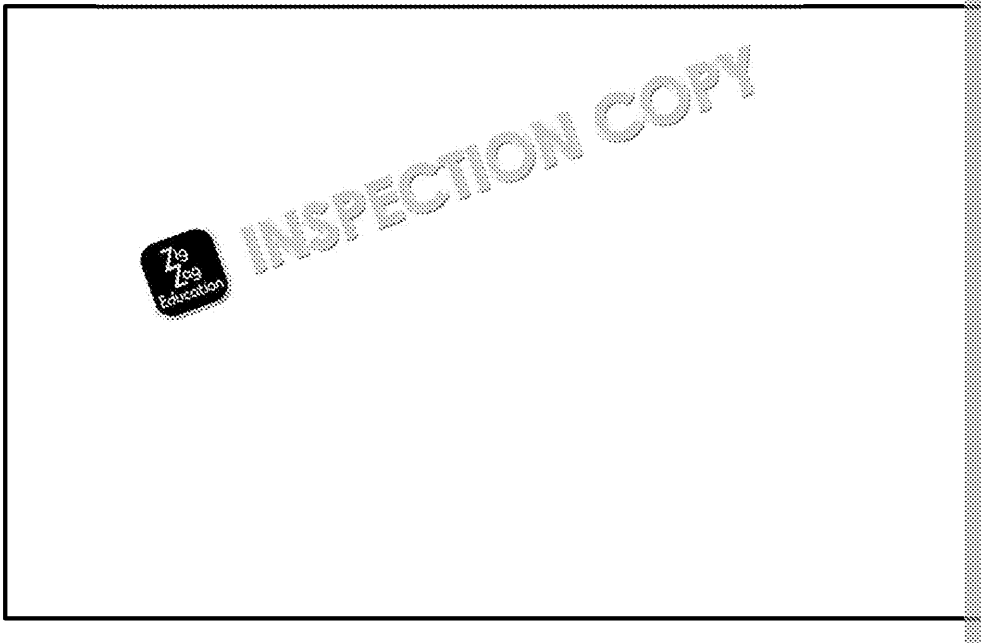
Interior ambient sound: .....

Exterior ambient sound: .....

Location Sketches







Risk Assessment

Production title: .....

Date of production: .....

Location: .....

Date of risk assessment: .....

Hazards	Persons who may be harmed	Property which may be damaged

Equipment Checklist

Production:	Date:	
Equipment	**Present: X/✓**	

Sound Log

Project title:

File name	Scene	Take	Duration