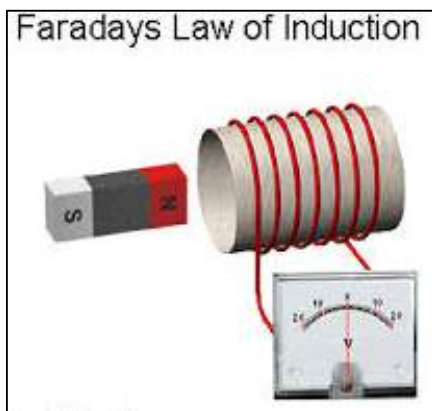
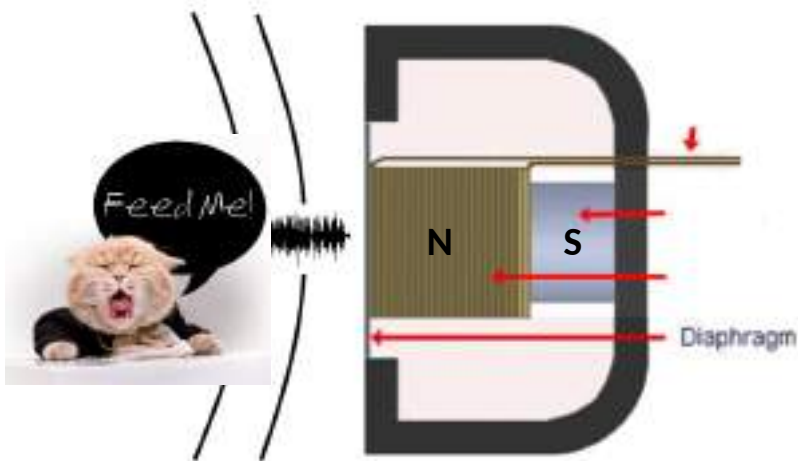
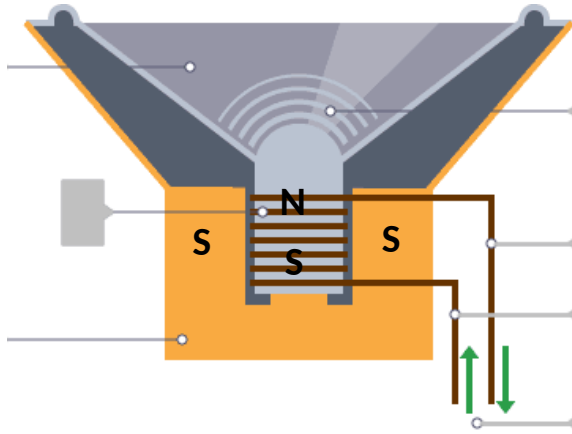


Task 1

Label the following diagrams below:

Induction - _____ (rus) , _____ (lv)

Look at the cross section of the speaker and microphone and label the parts.



Task 2

You have been asked to record a live band with the following instrumentation: Voice, Electric guitar, Bass Guitar, Drum Kit and Piano. Using the information sheets in the back of this booklet, provide a detailed analysis and plan on how you would record these instruments. You should include details on the type of microphone, positioning (use diagrams) and different audio FX or processes you would use.

Task 3

Create a health and safety - risk assessment sheet for an event happening in the school hall. It should be in table form and contain:

Risk, likelihood of it happening, outcome of it happening and measures to prevent it happening.

Task 4

Label this mixing desk, use the internet to research any aspects you don't know.



Task 5

Following the success of your studio recording, the band has asked you to be their sound engineer on a European tour. Create a shopping list of equipment they will need to tour.

THE ARRANGEMENT:

INSTRUMENTATION

What is playing?

How are they playing?

ORCHESTRATION

What musical parts have they been given?

Where is the melody?

How is it accompanied?

TEXTURE

What types of patterns?

e.g. chords, broken chords, power chords, drum kit patterns

THE PRODUCTION:

DYNAMICS PROCESSING

Compressor

Noise Gate

Limiter

MIX & STEREO FIELD

Wide
Prominent Instruments?

Narrow
Hidden Instruments?

FX?

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EQUALISATION ('EQ')

High Mid Low
(FREQUENCY CONTENT)

CAPTURE & FEEL

Close Mic
Studio

Ambient
Live

CAPTURE - MICROPHONES AND DIS

CHALLENGES

- Tuning
- Buzzes/Hums
- Capturing Frequency Range
- Appropriate Microphone
- Strong Levels
- Avoiding Distortion
- Balance and Blend
- Ambience
- Capturing Dynamic Range

MICROPHONE CHOICES



DYNAMIC



CONDENSOR



PZM

MICROPHONE POSITIONING

CLOSE/DISTANT

SINGLE/PAIR

POLAR PATTERN / PICKUP PATTERN

CARDIOID

OMNI

FIGURE OF EIGHT



QUESTIONS TO THINK ABOUT:

- What type of microphone?
- Where are you going to place it (distance?)
- What type of pickup pattern?

DI BOXES



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THE EFFECTS OF EFFECTS



CHORUS Sound detuned & delayed by around 40ms. Makes the sound appear thicker & richer.



PHASER Combines two copies of the same sound with the second slightly delayed, giving a 'swirling' effect.



DELAY Sound stored & played back after a length of time ('echo')



FLANGER



TREMOLO Guitar Based FX



WAH WAH



DISTORTION

REVERB The result of sound reflecting against walls. There are a lot more reflections in a large room compared to a small room. Carpets & fabrics absorb reflections.



"Reverberation"

SPRING GATED **PLATE CONVOLUTION** **DIGITAL**

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SOLVING PROBLEMS



DISTORTION/WIDE DYNAMIC RANGE
Use a compressor to control dynamics
Adjust levels when sound-checking



NO STEREO FIELD/MONO RECORDING
Mix to stereo master
Place tracks in stereo field using pan



POOR BALANCE BETWEEN PARTS
Multitrack the recording
Use faders to adjust individual track volumes



MUDDY PARTS/DULL SOUNDING
Use EQ to remedy
Position microphones correctly
Use appropriate microphones



LITTLE DEPTH OF FIELD
Use reverb to add depth
Use EQ to change 'position' in mix



PLOSIVE SOUNDS
Use pop shield
Move away from microphone



PROXIMITY EFFECT
Accents bass frequencies
Move away from microphone

ENHANCING MUSIC



USE OF STEREO FIELD
Panning of instruments
Moving of instrument across field



USE OF EFFECTS
e.g. delay, reverb, chorus, flanger, phaser



LOOPING OR SAMPLING
Taking a pre-recorded piece of audio and integrating it into a project



SEQUENCING
Add parts not performed by live players and further edit after process finishes



ENHANCING MUSICAL DETAIL
e.g. 'breathy' quality to vocal parts



ADDITION OF SUB-BASS
Often used in club circuits

SOME OTHER EFFECTS



VOCODER
Synth follows voice - sounds 'robot-like'



AUTOTUNE
Tunes voice - over use gives 'R&B effect'

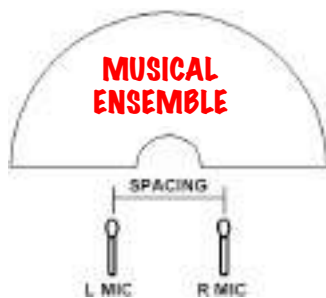
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AMBIENT RECORDING

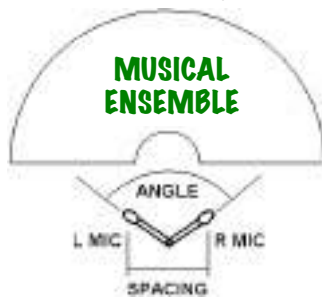


Three main possible configurations for recording a musical ensemble in stereo using two microphones.



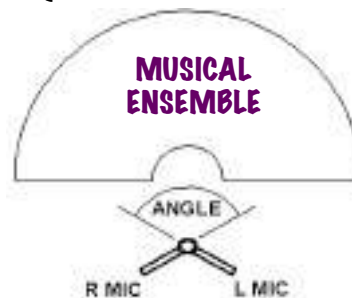
SPACED PAIR

- Time differences give stereo effect
- Off centre images diffuse
- Exaggerated stereo spread
- Warm sense of ambience
- Not mono compatible



NEAR COINCIDENT PAIR

- Level & time differences between mics give stereo effect
- Sharp images
- Accurate stereo spread
- Sounds more 'spacious'
- Not mono compatible



COINCIDENT PAIR (XY)

- Level differences give stereo effect
- Sharp images
- Stereo spread ranges from narrow to accurate
- Mono compatible

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RECORDING SESSIONS 1



You will be asked to suggest a recording set up including microphone choice, distances and pickup patterns. These are common instruments.

GRAND PIANO



- Condenser Microphone
- Stereo / Coincident Pair
- One for bass, one for treble
- 15-60cm from strings
- With lid open

DRUM KIT



- Close mic each drum with clip dynamic microphones and 2 condenser overheads
- Cardioid pickups
- Close to each skin (15cm)
- OR - stereo recording using 2 condenser microphones
- OR - same as above but with dynamic microphone on snare

AC. GUITAR



- Condenser Microphone
- Cardioid Pickup
- 20cm away
- Point where neck joins body
- OR - fretboard & soundhole - 2
- OR - stereo XY pair

EL. GUITAR



- Dynamic Microphone
- Close to speaker grille
- Avoid proximity effect
- Take amp off the ground
- OR - DI / use amp modelling

BRASS/SAX.



- Condenser Microphone
- Cardioid Pickup
- 30cm-1.5m
- Front of instrument to pick up 'heard' sound

UPRIGHT PIANO



- Condenser Microphone
- Stereo / Coincident Pair
- Three octaves apart
- 15-60cm from strings
- Not pointing directly at hammers

VOCALS



- Condenser Microphone
- Cardioid Polar Pattern
- 14-45cm from mouth
- A little above/below mouth
- Use pop shield & sprung cradle

BASS



- Use a DI
- Phantom Power required
- OR - could mic up cabinet in same way as E. Guitar

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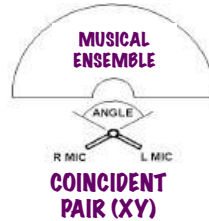
RECORDING SESSIONS 2

Alternatively, it is possible that you may be asked how you would record a larger ensemble (i.e. a group of instruments). This could be anything from a horn section to an orchestra, so have a look at this.

LARGE ENSEMBLE



- See 'AMBIENT RECORDING'



SMALL ENSEMBLE



- Stereo pair to pick up ensemble
- Musicians placed naturally
- Condensers for detail & sensitivity
- Ambience - louder instruments further back
- Far enough away to capture general sound and not to damage mics

e.g. STRING QUARTET, HORN SECTION

ORCHESTRAL INSTRUMENT

- Condenser Microphone
- Cardioid Pickup
- 30cm-1.5m
- Front of instrument to pick up 'heard' sound



PERCUSSION INSTRUMENT

- Condenser Microphone
- Cardioid Pickup
- Small diaphragm
- Up to 12 inches from skin/sound
- Careful for overload



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