

Production Technology

Introduction – Cerri asks us to introduce ourselves and asks us where we have come from and what experiences we have had with lighting.

Me- No experience, but I'm interested to find out how lighting works with paint / scenic art. Can you use lighting like paint? Can I get the same satisfaction from it as a medium? How can I play with emotion when using light?



The early Greeks and Romans used the sun as their spotlight, timing the performance to its position behind the audience bringing light to the stage.



There have been many developments to lighting since then. Starting with candles in candelabras and chandeliers, but this only created low light and many fire hazards. Paint colours needed to be strong so the audience could see the scenic images.

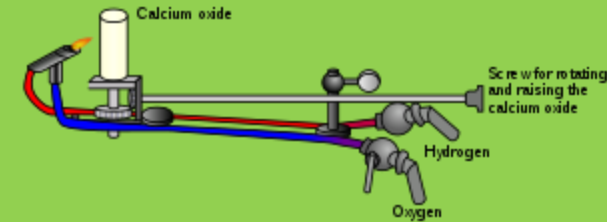


Image by Unknown author is licensed under CC BY



(pas, 2016)

Oil lamps came next, and they were the first dimmable light by adjusting how much fuel was burnt at a time. They could add colour to the oil lamp light by putting coloured glass in front.



After this came lime burning and Carbon Arc which created a stronger source of light.



(Vidumsky, 2012)

The first electric filament bulb created was called Tungsten light, it gives a warm light.

This then got upgraded again to the higher colour temperature halogen, but they get very hot and break easily.

We are now in the light emitted diode stage of lighting, LED's we know them as and they produce safer, greener and cheaper light. The LED might be harder to get the softer, warmer, older tones of light but overall have more properties than the older ways of lighting a stage.



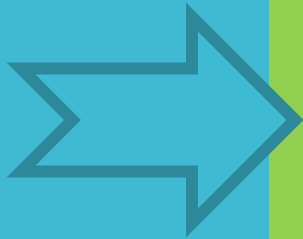


Light Design

Colour

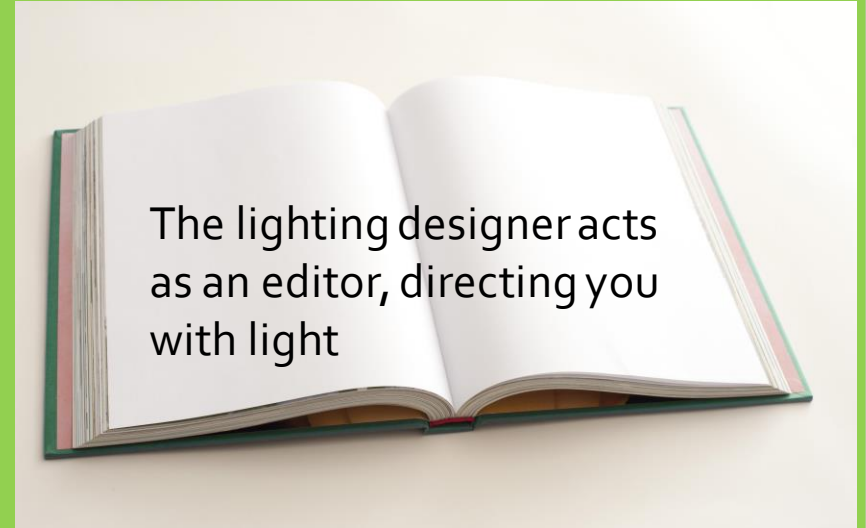
Texture

Mood

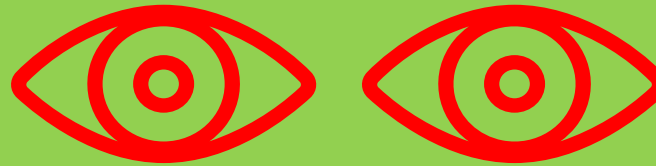


- Visual cues to light their words
- Help the narrative come to life expressing the mood and tone.

Are the elements used to engage the audience.



Light helps to direct the audiences focus



Light allows the actors, action & artistic elements to be seen !!!

My Interpretation

frequency

Colour choice

style

Pace (slow-fast-graceful,energy)

Lighting Design

- The purpose of lighting a narrative is to help engage the audience using **colour**, *texture* and **mood**.
- Light will help to control the focus you want the audience to have on the narrative.
- We can control the when, where, who, and how the audience perceive the narrative.
- It's like being an editor , controlling what is seen and when.
- Visibility= see set and props
- Selective focus= audience's attention
- Modelling = sharp form
- Key light = interesting use of light



The when, where, who and how in the narrative, is given in lighting design to create the right mood serving the narrative. When watching you may not even realise how the light is guiding your understating, as the light edits your viewing using selective focus.

Lighting designers use light to engage audiences and help highlight the important parts of the narrative, helping to give a fuller experience to their senses. Using colour, texture and mood as the designer's pallet they can focus your attention

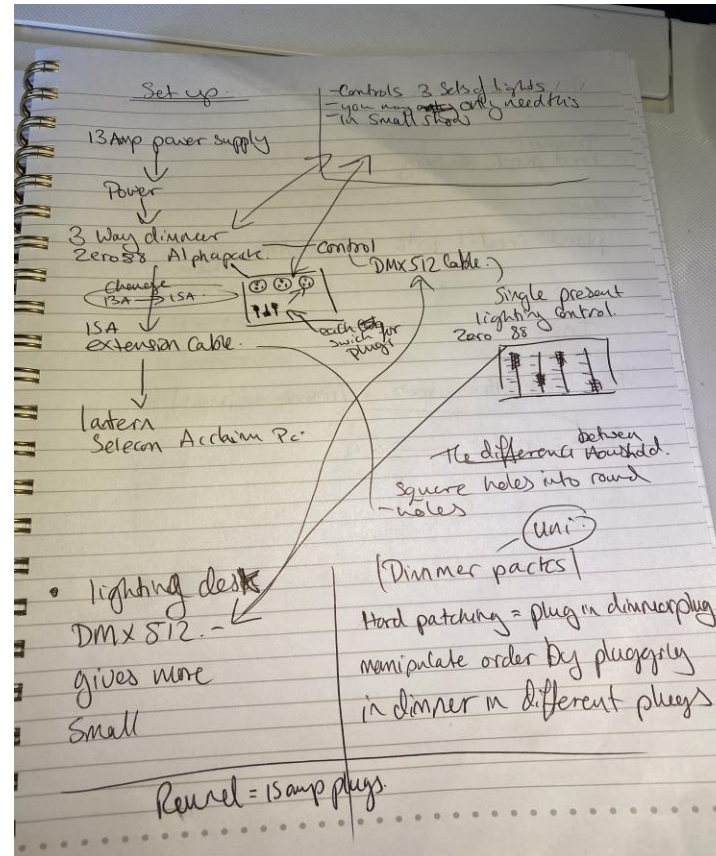
The lighting designer can create a bit like an artist can, by choosing style, colour, pace and frequency to help build the show. They will work alongside the rest of the production team, reading scripts, attending rehearsals, exchanging ideas, researching and creating lighting plans to help communicate the best possible outcome for the production.

[Kenneth Posner Rankings And Opinions\(ranker.com\)](#)

[Famous Lighting Designers | List of the Well-Known Lighting Designers\(ranker.com\)](#)

Control-How

Plug it in !!



Control the equipment!!

- Plug it in correctly
- Select Lantern (light)
- Dimmer control, (size of dimmer board relevant to amount, of lights needed. Has a socket per slider control)
- Lighting desk (Dmx512 is standard)
- Channel control, Can adjust "level" of control channel. (lighting intensity)

<https://www.onstagelighting.co.uk/learn-stage-lighting/lighting-desk-basics-beginners-guide-to-stage-light-control-1/>

Equipment

- Lighting equipment needed to produce a stage production can consist of an endless amount of equipment or very little depending on budget, space size, power supply, location and narrative. The most used piece of lighting is a directional spotlight fixture. It has a hard- edged beam and can throw short and long -distance light therefore is very versatile. Names such as Ellipsoidal or Source four are well known in the industry. (Henry, 2021) *In the theatre, spot fixtures are most used for front light, sidelight and any lighting angle where you need to project a gobo.* Gobos are fixtures that can create texture. Then we have wash fixtures that create soft edge beams creating atmosphere, the Fresnel can produce general light to cover the stage and gels are used with it to give colour. (Henry, 2021) Modern LED pars give a wash of changing colour. Beam light fixtures are used a lot for back lighting and very popular for lighting bands. The scoop and par come under this category of light. You can control the lighting by using a lighting desk manually and there are also programs that will operate automotive lights. The designer will create a program to be appropriate for the show.

E q u i p m e n t

Modern rich auditoriums can have profile spots with the capability to follow actors automatically, they will wear a receiver that gives a signal to the equipment to move when they do, but in most cases the job of spotting is done manually.

Followspots is used manually and are mostly used in musicals, dance and drama shows. The spot can change colour, size and softness.

The circle outline of a spot can be changed to give different effects helping to suit the mood needed. A soft, hard or frosted edge can be chosen.

Shutters are also used to play with the amount of light that is shone from the side or top and bottom of the spot, this can then produce line shadow and sharp-edged dark parts to the lighting design. An Iris is used to shape the beam size and barn doors help baffle light away from somewhere. The top hat can be used to stop the lens from being seen.

Intensity of light can also play an important part to how we design mood: low light, bright light colour generic light. Colour changes create different moods, gels can be used to do this. The tone and hue of a colour show us the feelings of warm and cold tones of a colour.

Strip lights and LED strips give flat even colour so, could be used to flood a back wall with white light or even colours of choice. This would have been done mostly by mixing gels over the lights but now we can use LED to produce the colour change by the push of a button. Also, using the flat light silhouettes can be created when back light is given to a person or object that stands in front of the light.

Lights also have many different accessories that can be added to them to produce different effects. The Gobo can be made from metal or glass, it sits in a Gobo holder and plastic colours can be added to change colour they sit in a gel frame. The Gobo then rotates before the optics of a directional spotlight and casts interesting textures adding more depth and interest to the lighting design. A Gobo can be made bespoke by a company for as little as around £70, all you need to do is send the design to them and they will make it. A standard stock Gobo may only cost £10

Shape and form can be created using structure lighting

Smoke and Haze can be added to create atmosphere



GOBOplus is a company that specialises in Gobos

GOBO CATEGORIES

Abstract

Architectural and Retail

Black & White (ALL)

Black & White Abstract

Black & White Breakup

Black & White Rotation

Black & White Scene

Boundaries and Wildlife

Breakups

Charity Gobos

Churches and Heraldics

Christmas Gobos

Clouds and Sky

Colour

Colour Abstract

Colour Breakup

Colour Rotation

Colour Scene

Easter

Effects Glass

Emojis

Fire and Ice

GOBOS

GoboPlus are the premier online supplier of all Rosco, GAM, DHA & GoboPlus gobos. With 3000+ gobos in the range, GoboPlus boasts one of the largest gobo catalogues in the world. All gobos are produced using the latest etching technology and go through rigorous quality control checks. Gobos are available in glass or metal and can be supplied for any lantern/projector. Catalogue gobos typically run on a **Next Day Delivery** Service (depending on location) and we deliver worldwide.

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77805 / 905

Leaf Breakup (Medium)

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Rosco, GAM & DHA gobos available online at GoboPlus

FILTER

We provide high-quality colour lighting filters in a vast range of colours that are accurately consistent from batch to batch, long-lasting and dependable. Every filter is checked against a scientifically generated set of parameters. Our colour lighting filters/gels are all available on Next Day Delivery or our Same Day service (London only). If you're not sure which filter is right for you, call our team of experts now on +44 203 603 1335.

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Sort By Best Sellers

4-Swatchbooks / Rosco Swatchbooks

All 4 Swatchbooks

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E119

119 Dark Blue

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201 Full CT Blue

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E101

101 Yellow

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Rosco E-Colour Filter/Gel (goboplus.com)

GOBO PROJECTORS & LANTERNS

Need to project a gobo? We're putting together a range of GoboPlus approved projectors that are easy to maintain and install. If you need support and guidance with projecting a gobo, please give our expert team a call.

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FG2120

Optikinetics GoboPro+ LED 120w projector (Black or White - Lens included)

£666.00

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Optikinetics GoboPro LED 30w Projector (Black or White - Lens included)

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GOBOQUICK-56

Goboquick £225.00

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200454

Derksen PHOS 45 Outdoor

£1,227.27

(£1.00 inc VAT)

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GOBOQUICK-56-PACKAGE-ST-COL

Goboquick Colour Stock Gobo Package

£250.00

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GOBOQUICK-56-PACKAGE-ST-BW

Goboquick Black and White Stock Gobo Package

£225.00

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200854

Derksen PHOS 85 Outdoor

£1,645.45

(£1.00 inc VAT)

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20015

Derksen PHOS 45 Indoor

£904.55

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View Product

GOBOQUICK-56-PACKAGE-CUS

Goboquick Custom Package

£250.00

(£300.00 inc VAT)

View Product

Gobo Projectors & Lanterns (goboplus.com)

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NIKE

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YOUR TEXT HERE

WHICH GOBO MATERIAL SHOULD YOU CHOOSE?

Metal

Patterns are etched from metal sheets to produce a stencil. Any 'islands' of metal are held in place with fine lines which may show in projection. Metal is cost effective and good for simple black & white designs.

Glass - Most Popular!

Images are created by etching away the metal or dichroic coating on the glass allowing for high resolution images, including greyscale and multi-colour. Glass Gobos are suitable for more detailed patterns, coloured logos and photographic images. They are recommended for long term use & the glass is able to withstand high temperatures when handled correctly.

Cool Ink Plastic

Intended for short term use and only in fixtures where the manufacturer expressly approves the use of 'plastic' Gobos. The HD version has an added black layer to improve the image definition, and provide a little durability. Available in B-86mm, M-65.5mm and E-37.5mm sizes. Special sizes can be made to order.

Custom Gobo Order Guide (goboplus.com)

4 functions



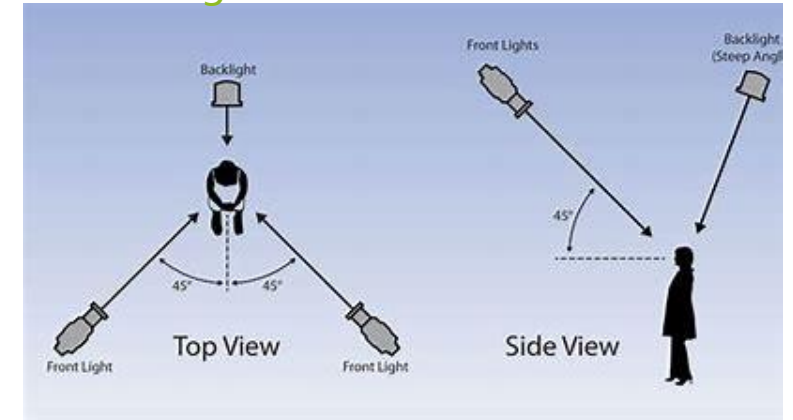
- **The four functions of stage lighting**
- **Visibility**- what do we want to see and when do we want to see it.
- **Motivation** - why have I chosen to use a certain technique.
- **Composition** - framing the stage and set understanding space areas and moods. Knowing how to light the actor, so to ground them using light tricks.
- **Mood** - Evoking feelings an emotion connecting the audience to the narrative

- Lighting design is a matter of choice, what is the best way to use my tools to create the illusion needed for the narrative
- Objects of prime interest must be clearly distinct from and somewhat brighter than the background against which they stand.
- Starting point
- Define the acting area, always know the blocking, the script, and the set design then make your plan.
- Set up lighting fixtures so to achieve the desired visibility of the actors form and to make sure the actor appears separate and stands out from the scenery.
- Ask myself do I want a warm light or a cold light, this can be adjusted by playing with colour temperatures/colour correction
- Front light - highlights eyes, teeth and makes objects look flat, by viewing the mouth easily helps the audience to understand the narrative. The front light is not the most interesting of illuminations.
- Top light - or known as the God light which is from above creates shadow on the face it can be dramatic and interesting. stylisation can be played with using the God light, it's great to help define shape and form.
- Backlight - can be used at an angle or behind to shape the performer or object helping to create depth and perspective on stage.
- Floor light - can give interesting abstract magical qualities

Be a designer!!

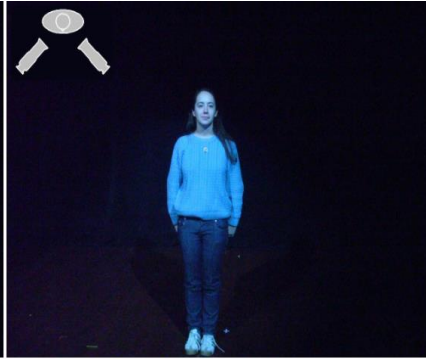
- **The controllable function**
 - **Intensity** - High bright, low-level light
 - **Distribution** - placement of correct amount
 - **Colour** - changing light, saturate the correct light
 - **Movement** - how we change from a scene or timing of story line, this is how we use lighting to edit.
-
- A few methods of lighting the stage are all based on the general principles of illumination
 - Stanley McCandless - lighting designer
 - Stanley McCandless – Lighting Designer(A Method of Lighting the Stage) – شرکت فام نگار مهر (famnegar.com)
 - Adolphe Appia - Lighting designer that started the beginning movement of manipulating light.
 - www.britannica.com/biography/Adolphe-Appia
 - **Things to remember**
 - There must be enough light to perceive colour, texture and some amount of texture and detail.
 - The light must be directed as necessary to perceive form and shape
 - Nine times out of ten the most important thing on the stage is the performer
 - I must check my light is right
 - Ask myself can I create a shadow?
 - Is the position of my angle correct?

McCandless Lighting - Bing images





#3: 45°SL



#4: 45°SL / 45°SR -- Identical Colors



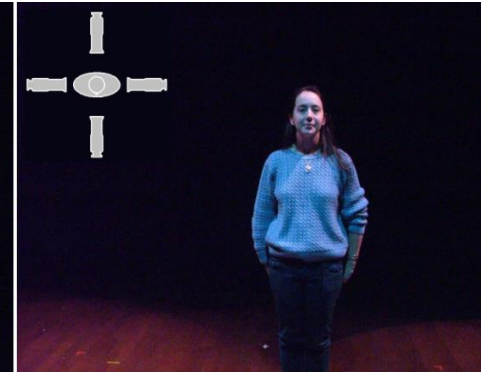
#5: 45°SL / 45°SR -- Different Colors



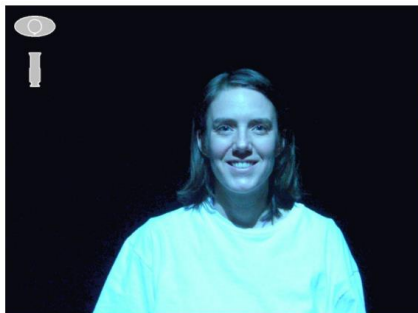
#6: 90°SL / 90°SR



#9: Straight US



#10: Straight DS / 90°SL / 90°SR / Straight US



#1: 45°Up / Straight DS (Blue)



#2: 45°Up / Straight DS (Pink)

Stage Lighting for
Students
(stagelightingprimer.com)



#7: Shinbuster from SL



#8: Shinbusters from SL and SR

Things to remember !!

- There must be enough light to perceive colour, texture and some amount of texture and detail.
- The light must be directed as necessary to perceive form and shape
- Nine times out of ten the most important thing on the stage is the performer
- I must check my light is right
- Ask myself can I create a shadow?
- Is the position of my angle, correct?
- From of all the lighting positions mentioned, the back and front would be the least used positions.
- Using different lighting positions gives you a wide range of tools to use when designing light to tell the narrative.
- Objects can be lit to feel closer or far away, and silhouettes can be created to highlight objects adding emphasis to their importance in the narrative
- To create a silhouette of a performer you will need to light the scenery behind them
- Make sure to ask for the things you want to create and achieve your set design with. Always explain to the lighting designer what you're trying to achieve, communication is key when designing with others. Considering light is important in every set design it can make or break your design outcome.

Colour

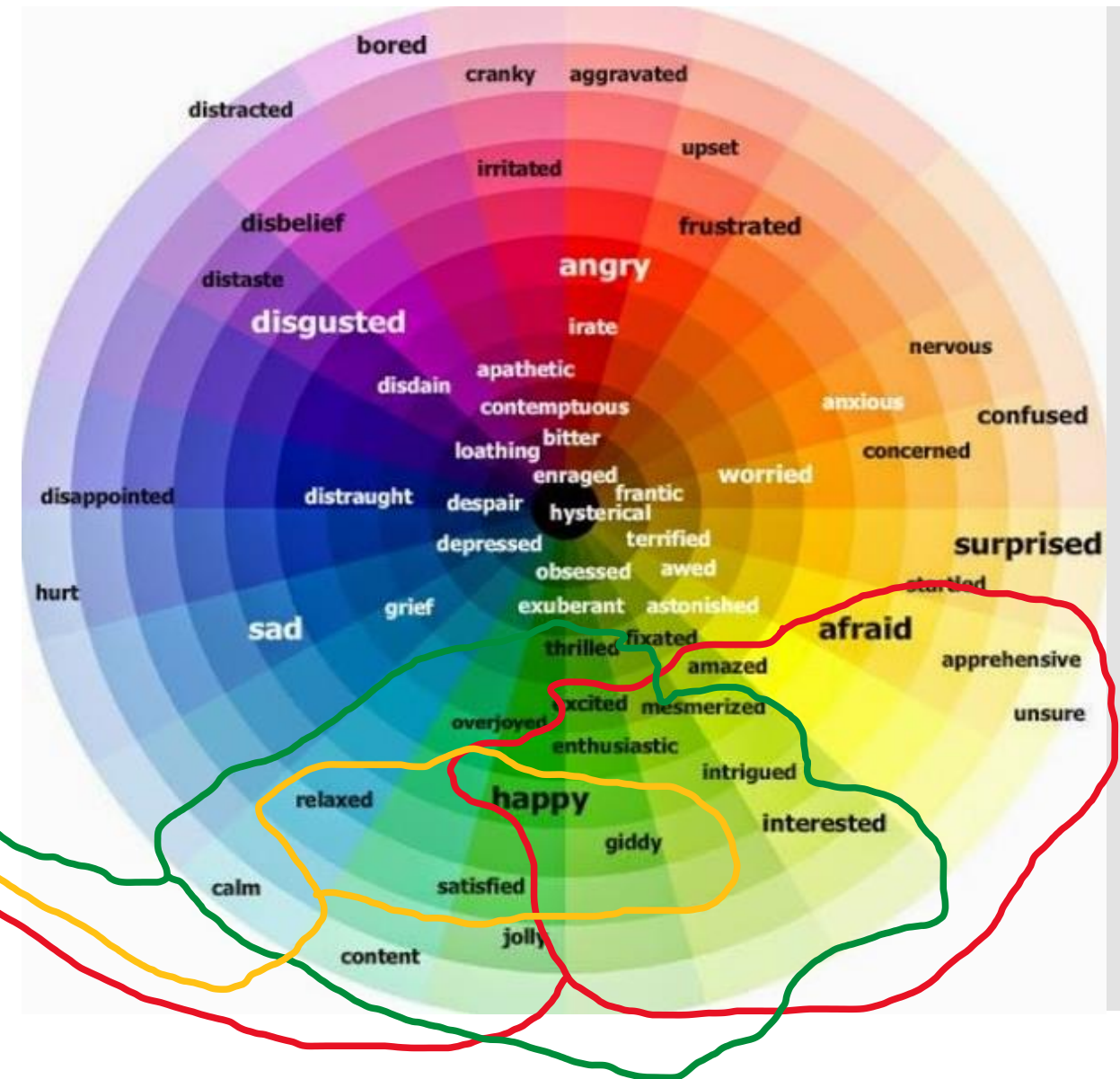
colour - there are endless choices when it comes to colour, but choosing the right colour is important, finding the right mood to create the atmosphere when serving the narrative. Reds give us intense, brilliant, dry, hot, fire, heat, blood, danger and represent important anniversaries like Valentine's Day, Mother's Day. We associate certain colours to certain things in our lives. The advertising companies use powerful, striking colour to catch our attention as consumers. Creating a mood board to collect colours will help the creative process in finding the correct colours needed for the story. Greens can represent the natural world, tranquility, health, happiness. Yellow makes us feel uneasy afraid, but Blues can make us sad, cold, or dark. We can then play with the hue of the colour to help find the right outcome.

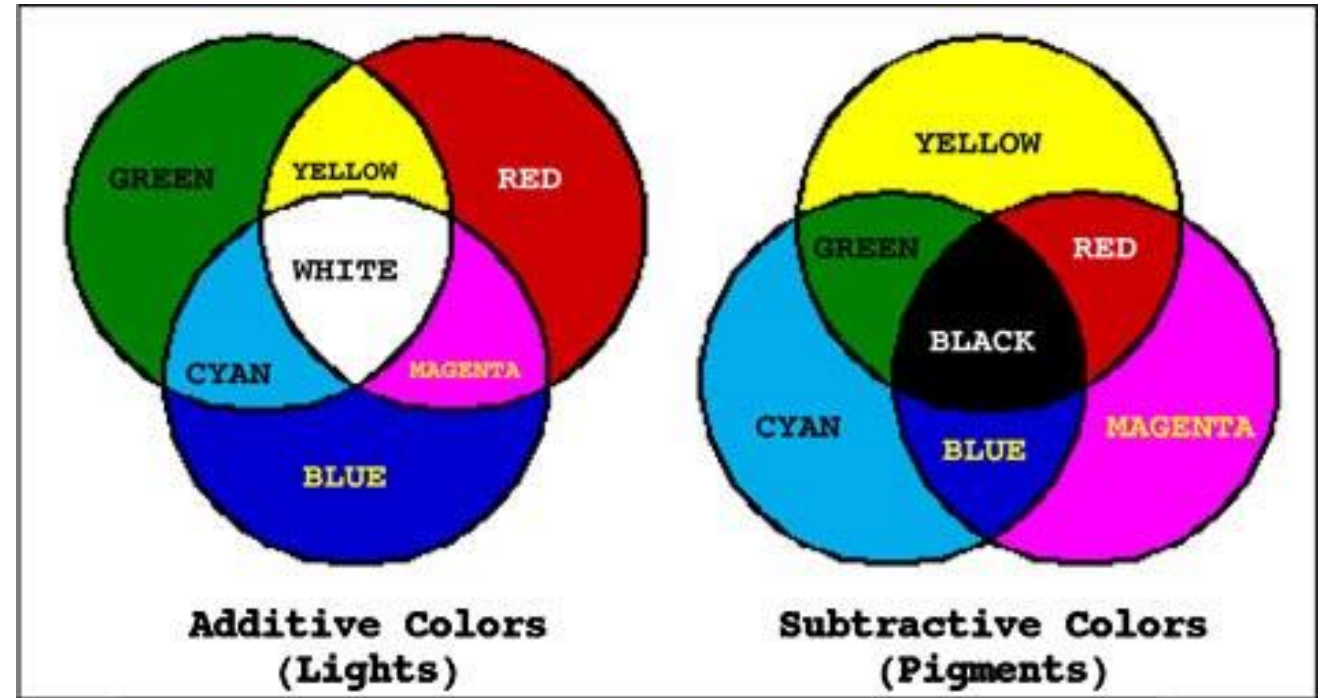
Examples of emotions might be melancholy, solitude, lost, lonely, fulfilment, anguish, jealousy, rage, bitterness, and joyful. Understanding the different emotions and colours that represent them is a way a lighting designer can create atmosphere and emotion.

Task - In lesson we listened to a piece of music to try and understand what emotion it evokes, I felt alone, and the movement provoked memories as I thought of the seasons, the music as it built created a lot of emotion.

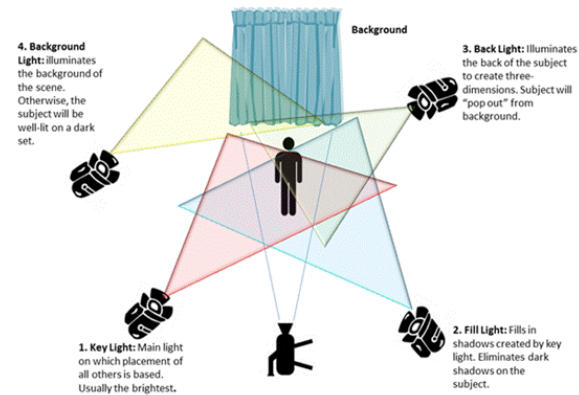
Task - Chose a colour to represent start of uni, now and future self

Task - choose a piece of music and use lighting to represent my journey so far through my first year at university. we are allowed to use props and video making programmes to build this project, we have a couple of evenings to produce this work for a presentation shared over zoom with the rest of our class.





Basic 4-Point Lighting



Composition, what is it?

Lighting Composition is creating attention to view the right thing on stage, so to serve the story. Gently guiding the audiences focus.



What tricks can we use to create composition

- Contrast through colour , draws the eye to an object.
- Strong colour can draw the eye to the focal point
- Isolation using light is also a way of commanding attention, by lighting the important person or prop and blacking out the rest of the stage space.
- The other way to draw attention would be to highlight using light on the background of the protagonist or object, making them silhouetted against the light .
- Placement and central focus can be obtained by lighting design. knowing if the middle or where the point of interest is and directing the light to emphasise the maximum point, so the audience can view and obtain the information needed to lead the story.
- Convergence is the focal point going into the distance to help give the illusion of distance. Lines of light can give structure to lead the eye(structure of convergence is created)
- Balance and weight is also important to composition, lighting needs balance to create an even picture. Equal quality of light to create its own harmony relevant to the scene created to tell the story.

More tricks

Composition

- Placement can mean giving space around the object or actor, understanding and considering the environment so to create light or darkness helping to correctly enhance. (Understanding negative and positive space)
- Negative dark space can give primary attention to the light space.
- Structure can be created by positioning lights in specific places to emphasise the composition.
- Rhythm is also something to be considered, repeated pattern in composition, repetitive shapes using static beam light or striking energy rhythms using a down light repeatably are all are very effective ways of making rhythm.
- Harmony is always needed and by using light design, with continuity of colour and hues, tones that work well with the stage design you will be able to keep harmony, create the visual experience and enhance the show.
- Emphasis can be obtained through contrast of light and shadows, by lighting up the face and creating darkness over the body and space around, will emphasise the face telling the audience their expression and words are important.
- Direction of light should always be considered when designing lighting, the direction can give energy and excitement to a scene depending on how it is used.
- Most things in life work best in threes and this also goes for lighting, three objects balance each other creating a better composition.

Overview

Goals of lighting

Lighting designers' job

Basics of lights

- Goals- To be seen and direct audiences focus
- Setting – location- where is the story set ? What season is it ? what time of day is it? what environment is it?
- Creating mood and atmosphere is important we must understand the score or script to support the theme with the correct mood.
- Lighting designers job consists of reading the script or a score. They must attend rehearsals , coordinating ideas with the production team and director to find the right vision for the narrative and have a good understanding on who's doing what where and when.
- Then it's time for the lighting designer to create a lighting plan, they use this to communicate to the rest of the production team and their lighting team what and where lights will go. This also involves creating a lighting cue and coordinates the implementation through the chief LX.
- Basic lights tools to remember when creating lighting design are focus angle, intensity, quality, colour and movement.



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Projection



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Over the years of projection there has been many different designs

The magic Lantern,(entertainment/ educational toy)

Large format projector (Gunther schneider used this type)

https://de.zxc.wiki/wiki/Günther_Schneider-SiemssenSlide

projectors, popular in the 80s(compact new tech)

Caracal projector (not very bright , must get slides in order)

Overhead projector(used in schools , use acetate over light box)

CRT projector (can colour mix on screen not projector)They got hot.

Digital Projector, light processing , resolution nor great at beginning, DPL chipped mid 80s, mirrors reflect light source.

Theatres have large projectors mounted from ceiling

Distance and position is important to get right when projecting your image

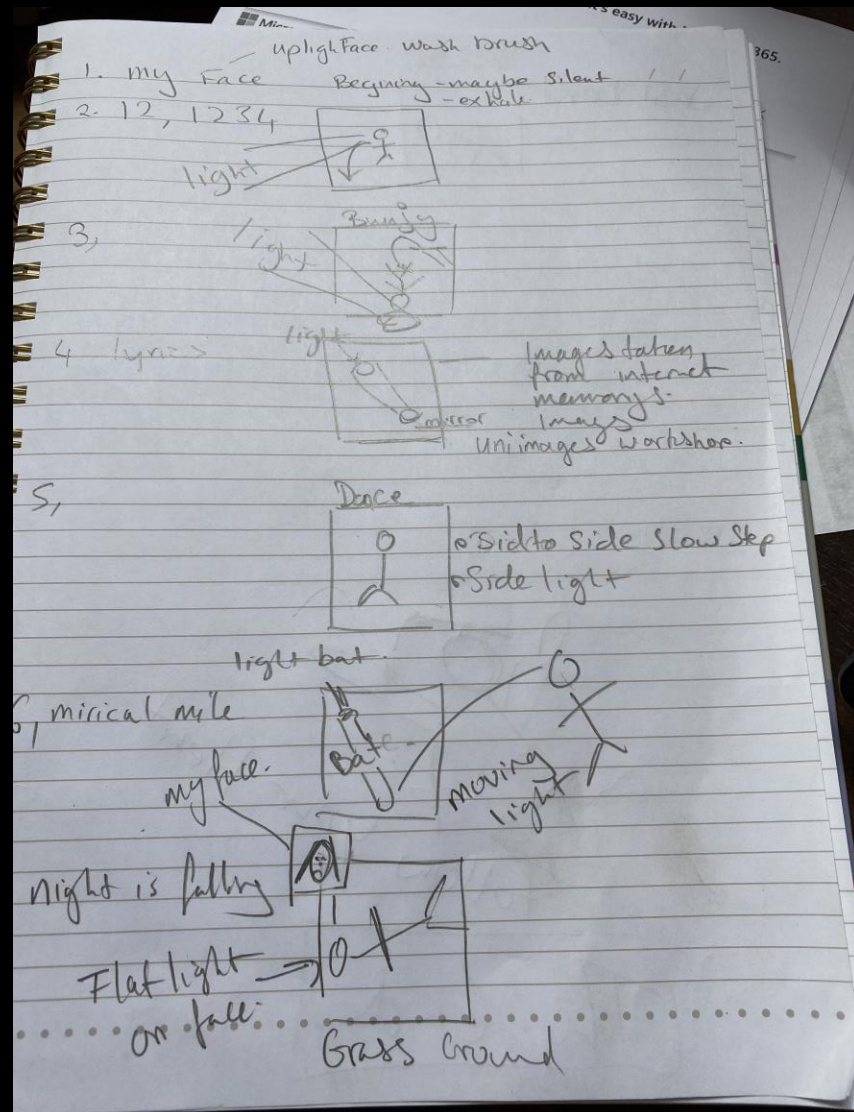
Floor mount = Front projection

Theatre = ceiling mount

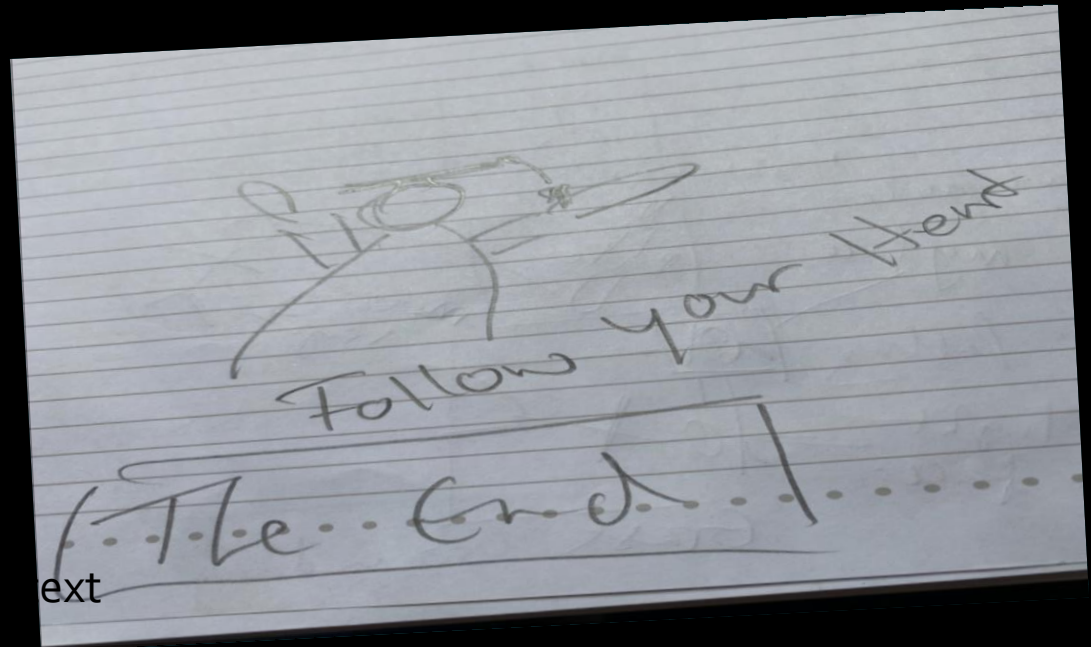
Back projection= floor from behind translucent screen, shines from behind

Keystone = project shape or angle on surface

Surface= backdrop, screens etc. using mapping to fit space if needed



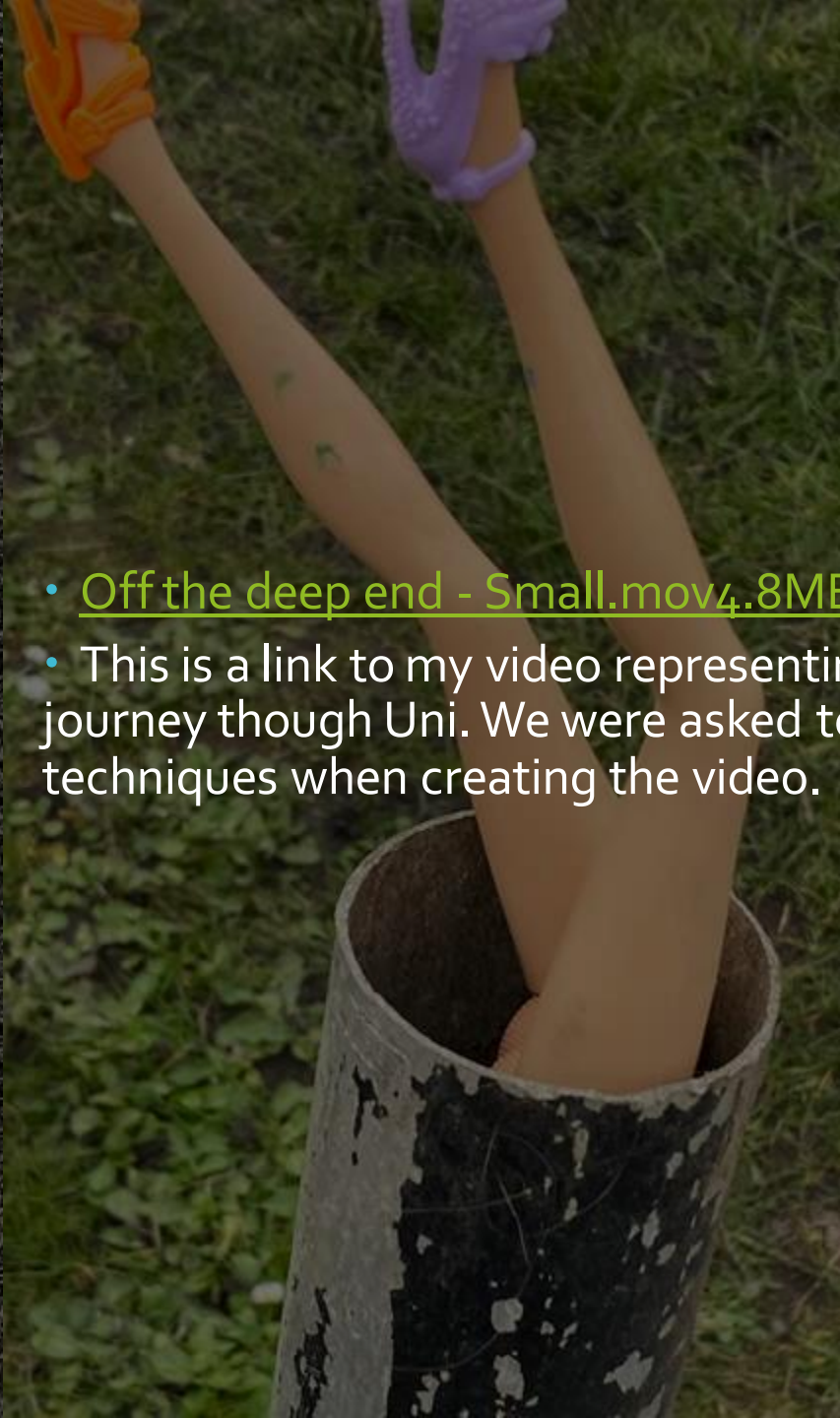
to ext



I have decided to use a song called; You Get What You Give. I have chosen this song because I feel it can represent me and my musical era. The message of the song is inspiring with its momentum power, showing how I want to apply myself through Uni.



Short film by me

- 
- [Off the deep end - Small.mov4.8MB](#)
 - This is a link to my video representing my start and journey though Uni. We were asked to use lighting techniques when creating the video.

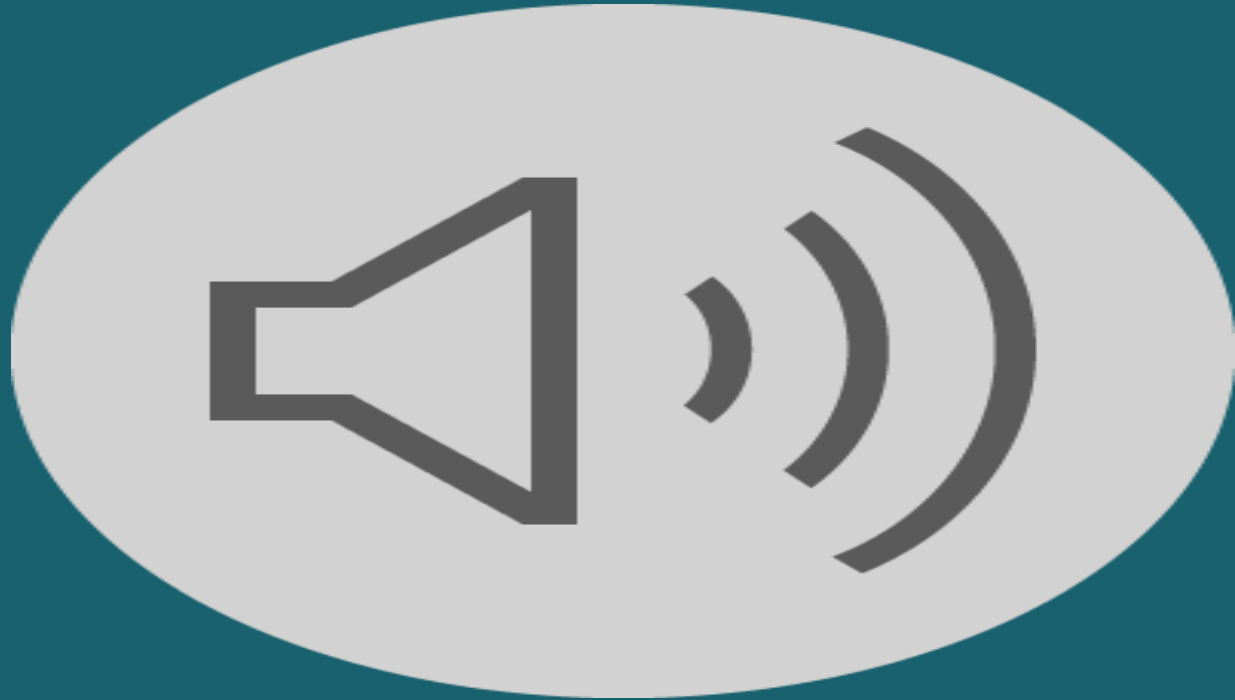


Music choice for MacBeth project

Name of track :Follow Me

Writer of track: Karl Thomas

Band : Shock One



The reason I have chosen this track is because I feel it has the strength and power to represent to narrative in Macbeth. I also like the thought of taking an old story and adding modern music to give that juxtaposing in time. The message behind the story could have been written in any time as it's that classic rags to riches plot.

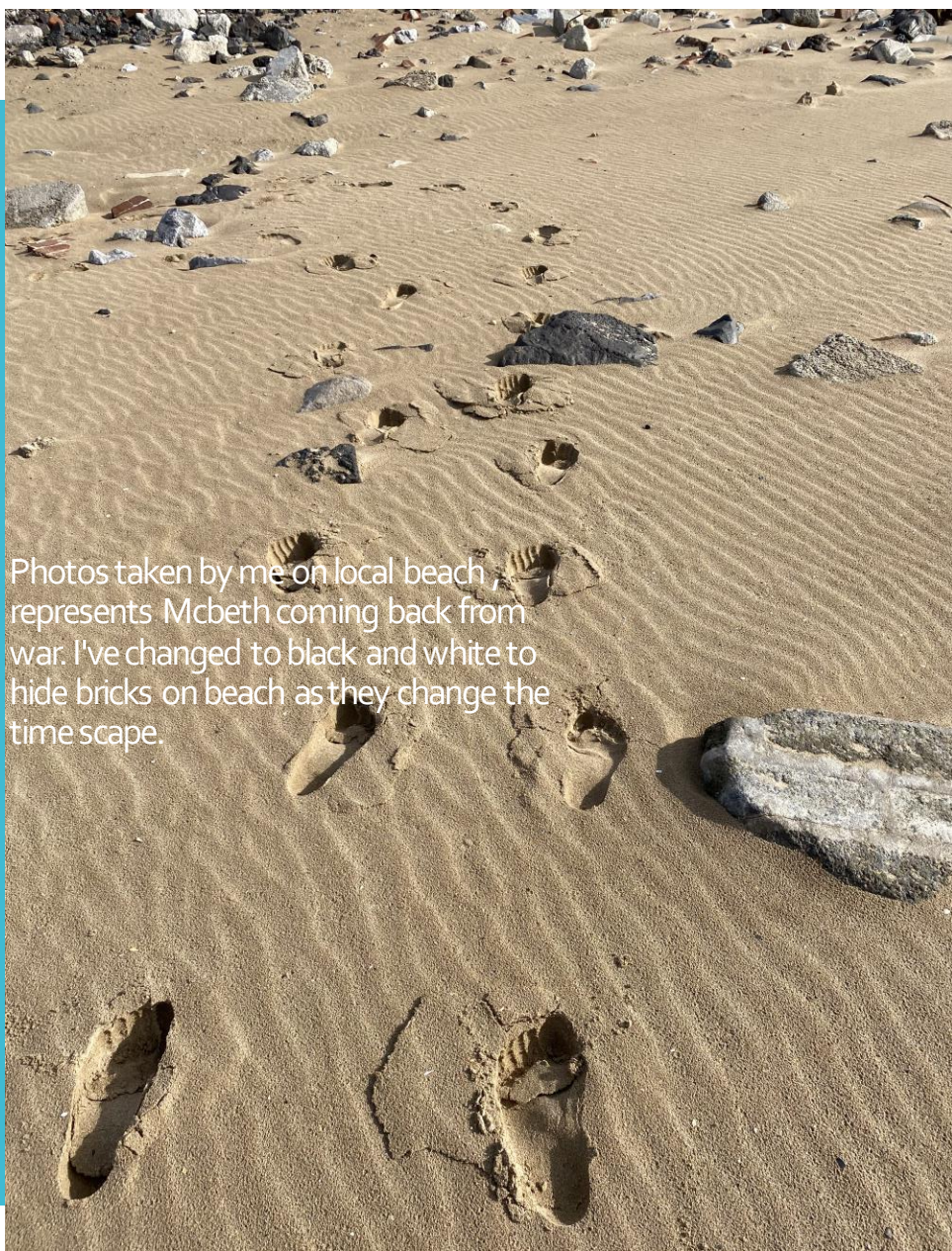




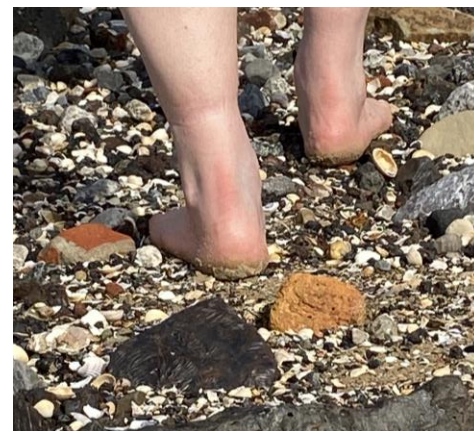
Experiment with colour, hues & tone

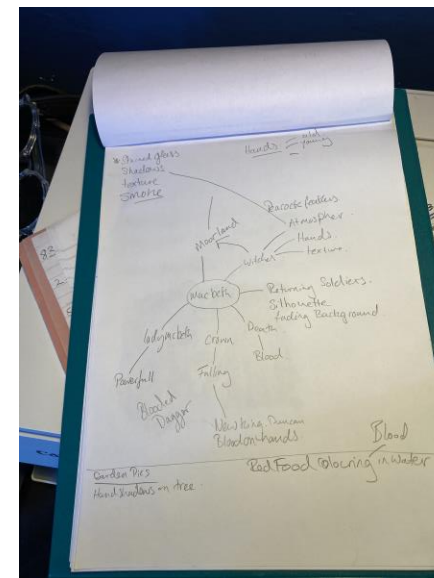
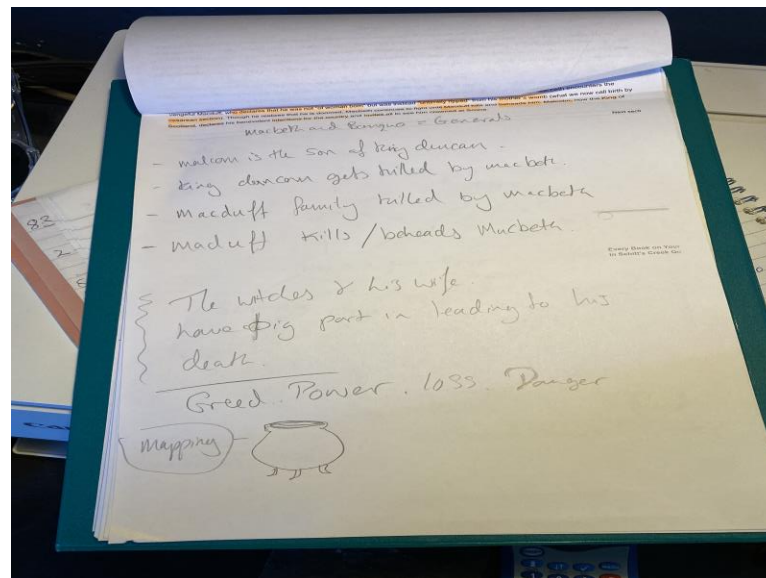
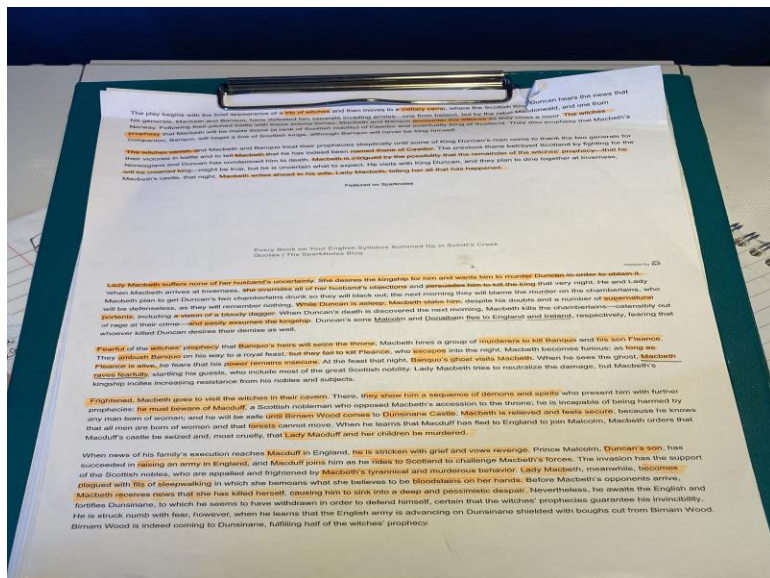




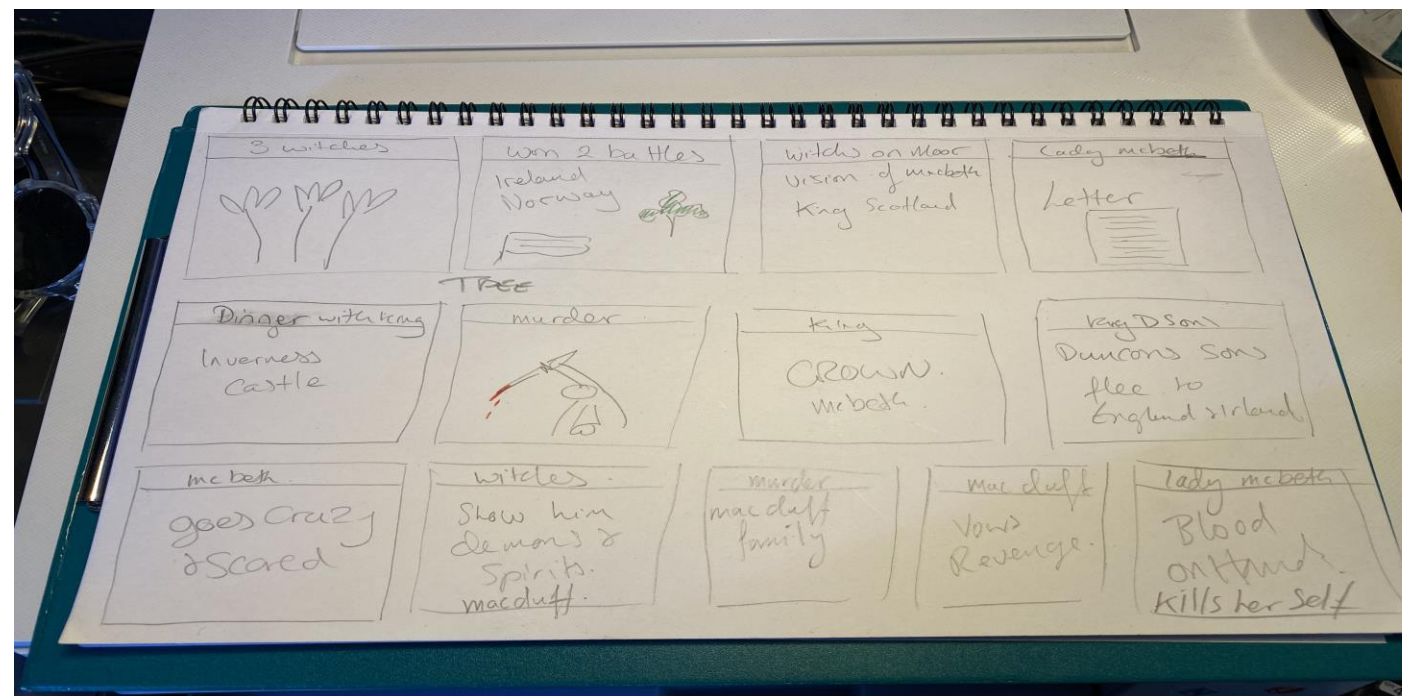
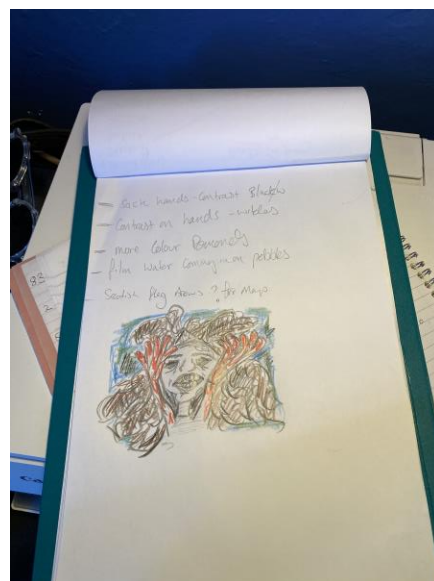


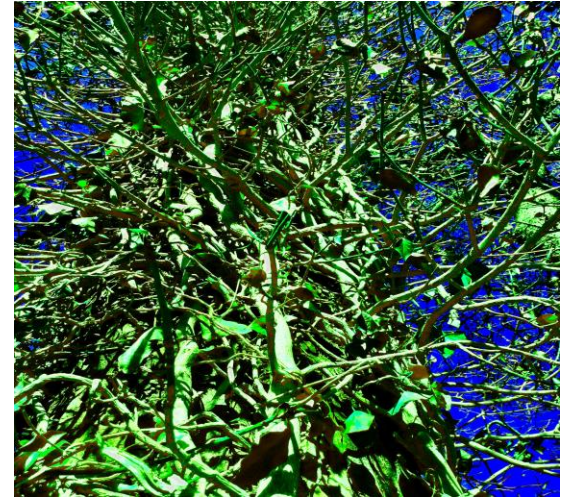
Photos taken by me on local beach ,
represents Mcbeth coming back from
war. I've changed to black and white to
hide bricks on beach as they change the
time scape.





Planning out work



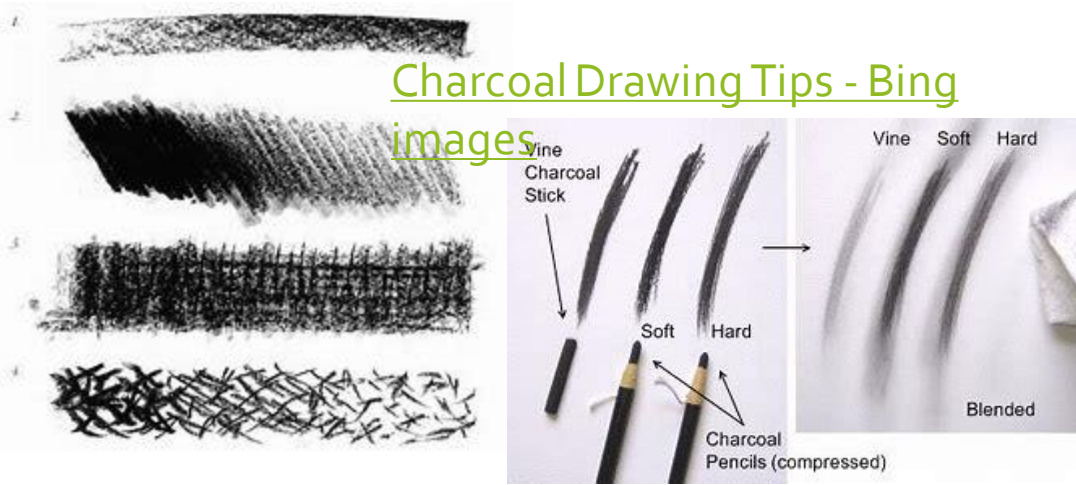




MILITARY COSTUMES OF THE 15TH CENTURY.
a alamy stock photo



Charcoal Drawing Tips - Bing images



dark art charcoal drawings - Bing images



Modern Charcoal Drawings - Bing images



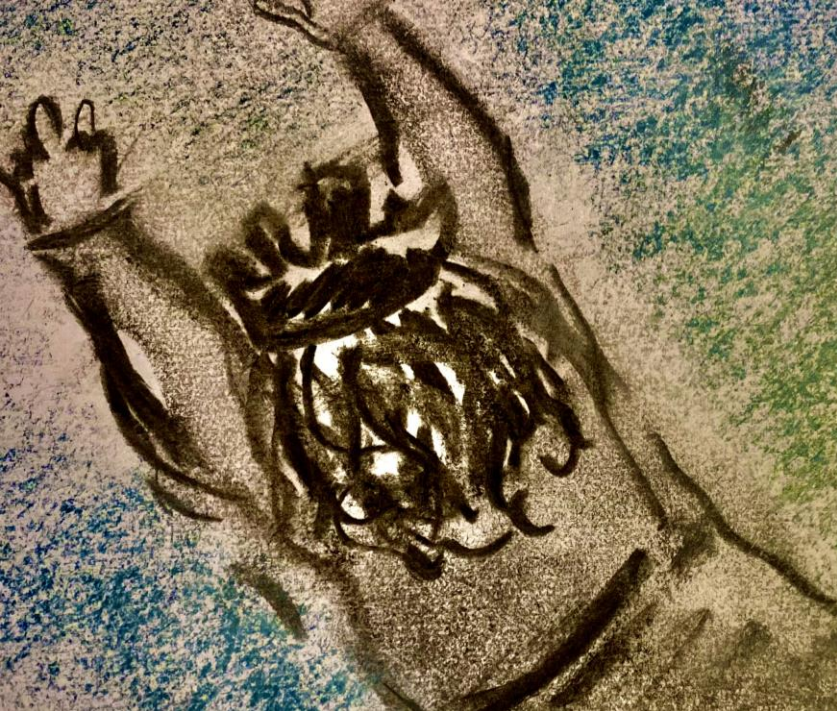


Fear and despair images from
a google search

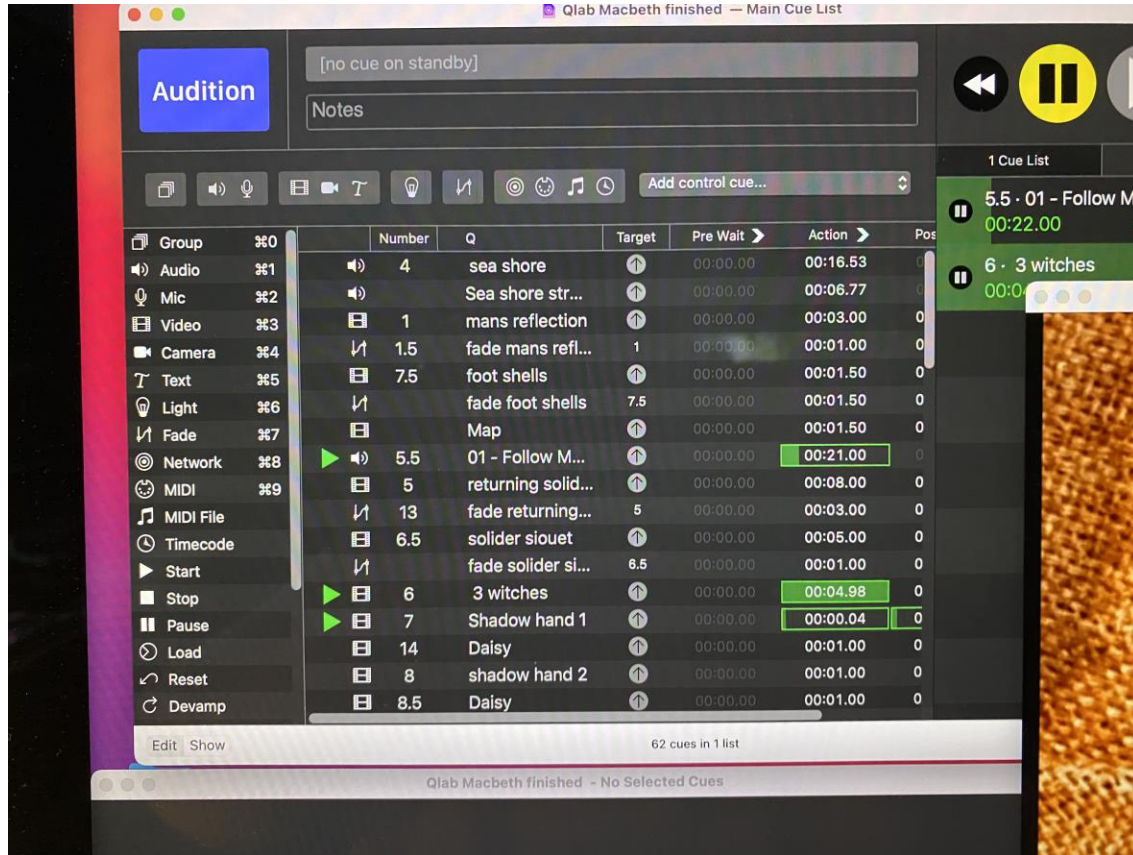


Sketch by
me, crazy
women
with blood
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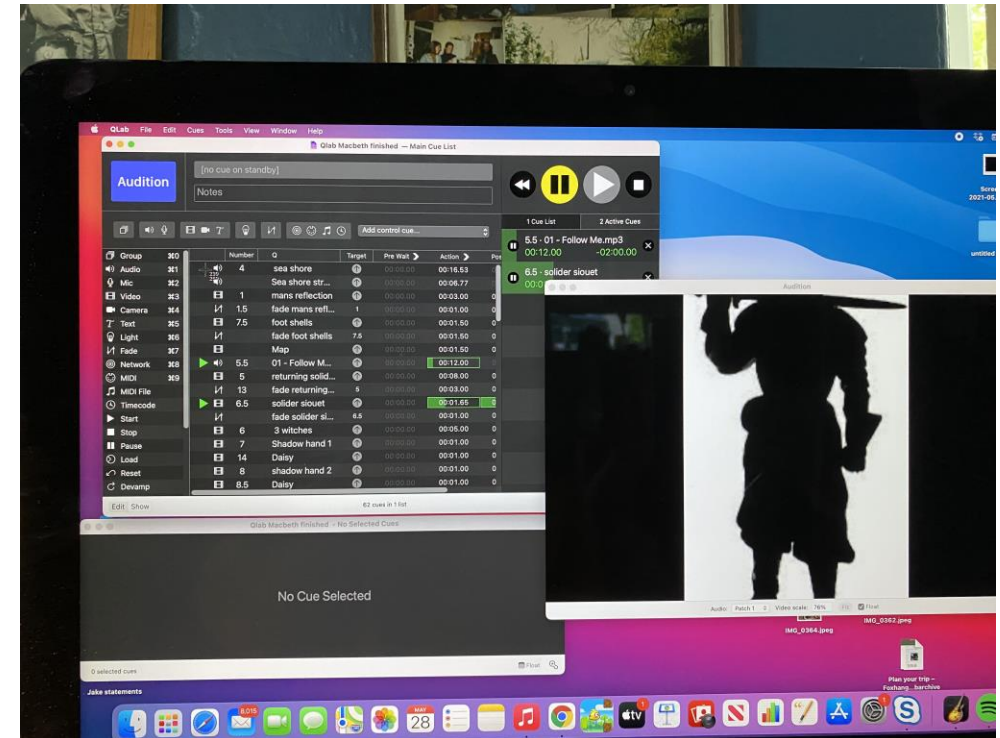


My charcoal and chalk drawings



Used Qlab to time images to music , I did this by playing with the individual timings of each image

I experimented with the fade a few times where it was relevant to the story and music



I felt it important to time and use repetitive images, this helps the story build to the music

Sound

With Ian Barnard

(Sound Designer/sound engenieer for theatre
and corporate events)



Introduction to sound

- What is sound design and how is it used ?
- [See With Your Ears: Spielberg And Sound Design - YouTube](#)
- Sound is vibrations moving through the air, creating sound waves.
- We can use sound to help tell the story in film, theatre etc.
- By using sound effects, we can give life to the story
- When creating sound for stage we use a sound system
- Sound designer is very much part of the production team
- The sound department works alongside all the other departments to help tell the story
- In theatre, the head of the sound department is called the sound designer
- Sound controls everything, any small change to the sound design can completely change the narrative.

Sound effects

A spot effect must happen for the story to move on this could be a gunshot sound before an actor can fall. a spot effect guides us through the play helping us get a sense of the story. We can create simple sound effects using our voices or even tapping a surface to mimic a sound. Sound effects used to be created live alongside a performance, the sound person would have a selection of objects for example coconuts creating a sound of hooves or a model of a door to shut to recreate a door shutting they may also put shoes on their hands tapping the soles on a surface to sound like somebody walking. These were all very low-tech ways of simulating a sound. in the very early days sound production team would create wind by using a wind machine this consisted of a mechanical wheel turning creating the sound. Thunder could be simulated by cannonball's being rolled down alleyways in an auditorium, you can still see this today in the old Vic in Bristol. These were all genius inventions to help create sounds in a time before electric. In 1809 the phonograph was used to create sound of a crying baby. Technology has progressed we can now use computers to loop sounds and create complicated sequences. To help the audience understand a location or time, we use scenic sound. If working on a certain we need to understand what sounds may have occurred at that time to suit the scene of the play. Most of us may not realise our subconscious hearing but as a sound designer this is what you must tune into. the designer must find the sound effects to suit for example what sound would you hear on an old-fashioned sailing ship? The answer is the sound of ropes and rigging swaying against the wind waves crashing sails whipping. if we recreate these sounds along with the images it gives a fuller experience for the audience. The sound designer can really give depth to the imagination by using sound effects. Storytelling sound, this is where a sound pushes the story along and sets the scene giving us the full understanding of environment. When we listen to a torpedo being launched and then it hitting a ship, we then understand what has happened moving the story along. We also recognise what a sonar ping is, and this helps us identify that it is a submarine. With emotional music to create the mood and the cheering of men as another sound effect we get a fuller picture through sound of what might be happening. The sound designer is telling you what where when who and how is happening in the story. this is communication to your ears. Sound design is a complicated job, the human brain naturally filters out noise when we are in our everyday spaces without us noticing. When creating sound for Theatre and film the sound designer must filter out sound/ noises so we can still understand what's happening. Unnatural sounds can be created to evoke emotion using juxtapositioned sound two images, can make us question and affect our emotion. Different sounds can be played with to represent different characters in a performance this happens in Hamilton the gunshot sounds change in the middle to tell the audience how to feel out certain character and their personality.

Being responsible with sound is important it's not just about turning the volume up

When creating sounds, we need it to move along smoothly to help the audience get ready for shocks large jumps and possible upsetting moments .

always remember each show has its own style and language we must read and analyse the scripts understand the time period and create the right location spot effects needed. Understand the emotions of all the characters and how to portray that with sound.

The sound is always created before tech rehearsal

to help find the time period and location analysing the script and if we need extra information, we would ask the director.

When analysing the script it's good to collect descriptive words about where the story is set to help us build a picture to collect sounds.

We also use sound to help the transition from one place in a story to the next this helps the audience move through the narrative.

it is common for sound designers to create spreadsheets on Maps to help them queue their sound.

Naturalistic sounds are sounds that are as real as possible.

Breakout Task -read script

- In the lesson we are asked to analyse a script and pick out descriptive clues in the story. We can then understand how we could use sounds of objects to help tell the narrative.
- Some of the descriptive words: plates, doorbell, door opens, steps, footsteps, plates moving, baby crying, chairs being moved, baby cries louder.
- Different emotions create different sounds
- When the baby cries louder it creates tension in the play.
- When working in theatre there are natural footsteps but if creating footsteps within radio you would have to replicate the footsteps for radio.
- Radio sound design needs the designer to create the tension of the story as there are no visuals.
- Using everyday sounds like a kettle boiling or the bubbles boiling faster and then the sound of the whistle can create tension to a story, this effects the audiences' emotions.

Jobs in the sound department

- The Sound designers' job is to design
- they then hand work too the production sound engineer
- the production sound engineer hands work to the next in charge which is sound number 1 (mixer)
- Sound number 1 looks after the creative process element of the manual control . Their job is a bit like a chef they create the same outcome with different ingredients, every performance on different nights can create problems for the sound but they must always make this show sound the same every night.
- under sound number 1 is sound #2 they all work as a team making sure the actors and their mics are working.
- The team will have crew and riggers to help set up the sound.

How can we find sounds ?

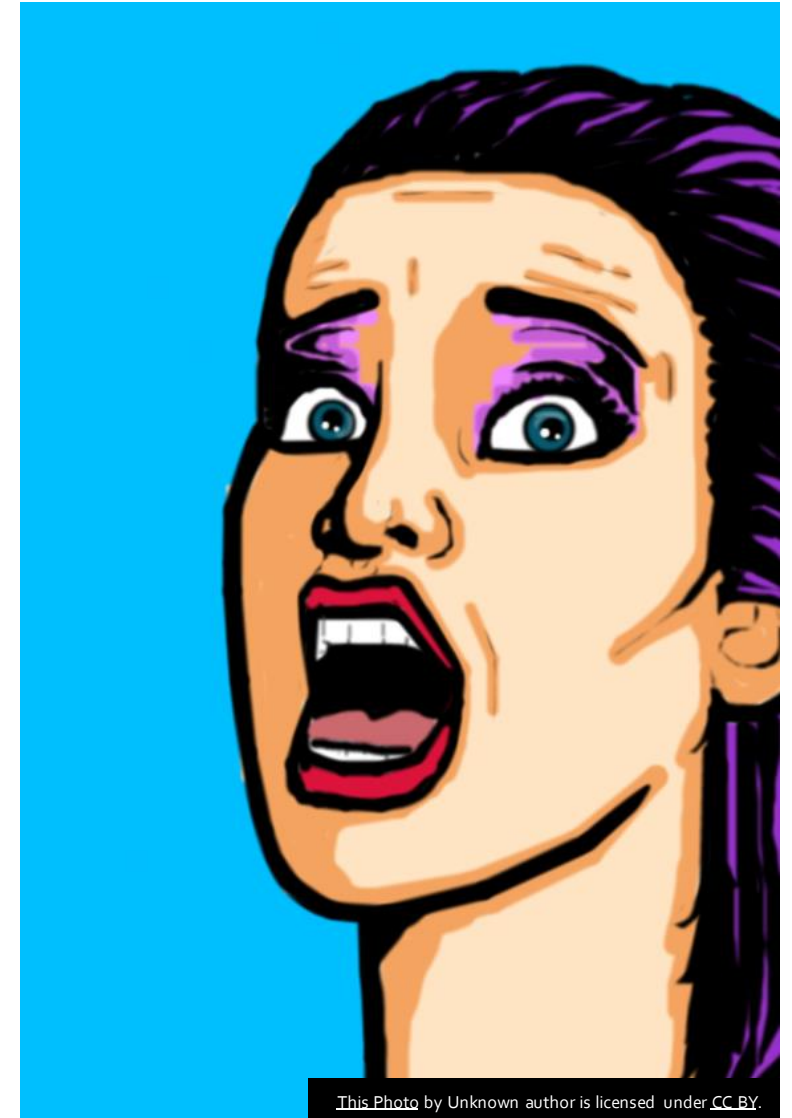
- We can start by recording our own sounds this will help you create a Bank of unique sounds, and you will then own them.
- there is many different levels of recording equipment the basic recording equipment everyone has is a phone you can also buy professional equipment some being more expensive than others
- depending on the sound recording you may need to think about if you need specialist equipment regarding volume something very loud or something very quiet.
- always think about the environment you're recording in if you're inside the walls he create echo sounds and acoustics that you may not want for your sound effect
- Insulating a space can stop the sound bouncing around the room a simple way of doing this is using egg boxes carpets on the hard surface
- Sound is important it must sound right when sound interacts with its environment it changes
- always listen out for background noises and make the decision on whether to keep it or whether you need to remove it for your sound effect
- when using microphones if it's closed the further away the more background noise or echo you will get in your recordings
- not all microphones are the same remember Omni directional microphones pick up from all directions and cardio pick up well from the front

Recording tips

- When recording outside we can sometimes pick up the sound of the wind on our sound effects we can use shotguns outside or mikes with round discs to stop the air from hitting the mic. always protect the Mike from the wind.
- A good tip to remember is to take photos when recording sound so you can remember what sound was from where
- Vibrations from a moving hand holding a phone can affect your recordings you can get mic stands to stop this from happening
- If recording using a mobile phone outside using your body to protect it from the wind can help
- If using voice member on your phone always press the highest quality
- Phones will always try to auto correct your recordings
- A good tip is always to record more than you need, for example, if you need one minute of sound record 10 this means you will have more to play with when you get back to the studio. Also record notes about the sound before you record the sound then you will keep a log of everything.
- Keep organised, planning is key
- Sometimes the sound person will be asked to record an actor's voice in a play so they can play it to the audience, giving time for the actor to have a costume change.(clever tricks to make you think the actor is present)

More tips

- In lessons, we were told about a sound person recording helicopter sound effects where they would record buttons, switches and all sorts of mechanical sounds you would find inside a working helicopter this then took four weeks to collate the sounds.
- Even though it's taken four weeks for the sound engineer to record he will then own those recordings and be able to sell on as a library of sounds.
- The BBC has a large library collection of sound effects these consist of simple everyday sounds which are free to use. Sounds like foxes crying and crow noise are often taken from their library of sound.
- [The Wilhelm Scream: Why This Sound Effect Is Used In So Many Films \(allthatsinteresting.com\)](https://allthatsinteresting.com/wilhelm-scream)
- (The Wilhelm Scream)
- (Vidumsky, 2012) This well-known sound effect we all recognise in action and animation films for over 60 years.
- Free sounds can also be found on the website freesound.org but be aware not all the sounds on free websites are of good quality.



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Legal stuff

- When you record your own sound effects you own them
- If using somebody else's you will need to gain permission
- When using somebody else's you must credit that person for using their sound
- Always credit sounds from websites even if they have been obtained for free
- Sound effects libraries give you the option to buy the right to use once you've done this you can use it in any way you want
- When working with in house music in commercial theatre settings there are different rules depending on how it's used.
- Always check with the producer it's their responsibility to find out these things

Audacity programme

- www.audacityteam.org is an audio software that runs for Windows PC Mac.
- This website can be used to cut and shape sound. If you've recorded sound that needs a bad sound moving from it, you can use this programme to do so. when cutting out sounds always remember to re match up the sound.
- Crossfade- this is when one file blends into a new file.
- Editing sound is a little bit like editing film, files can fade into each other and creating loops is something that can be created on audacity
- a looping sound, a sound that goes around can be rhythmic giving a feeling of staticness.
- a recording of the sea crashing in on a loop would sound natural or the rain falling on a pane of glass, these are familiar sounds that loop. there would be no need to record hours of these sounds you could just record a short section and loop it

Creative tools

- Using frequency can create interesting sounds for example if you were to record a piano and then reversed the sound, you could then use the outcome sound to create atmosphere. That sound could then also be manipulated by stretching it backwards or forwards creating a new sound.
- This would be how you build a pallet of sound
- Layering sound is something that will create more interest in a performance you could do this by having different sound effects coming from different speakers around the performance area giving a richer experience to the audience. This is particularly exciting when working with theatre sound.

sound

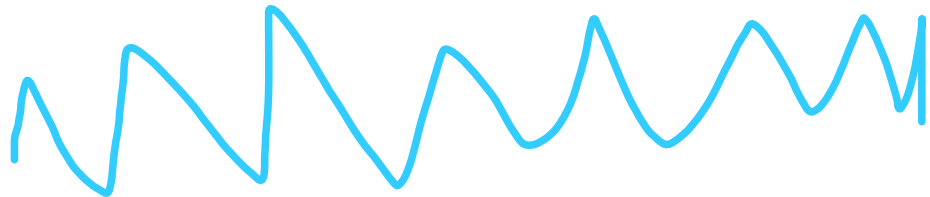


- Sound waves are created by vibrations in the air quiet sound will not make much air pressure, but louder sounds create larger air pressure. when you stand by a large speaker system you can feel the air pressure moving when large sounds are played through the speakers
- Volume is the size of the wobble
- Frequency is the times per second
- Humans can hear 20 megahertz a second (wobbles per second)
- The ear hears by vibrations hitting small bones and hairs in the inner ear

Low



High



Take the sound and convert it to electricity
sending it through a mixer then through
the amplifier and out of the speaker where
the sound is changed back from electricity
into sound



Source

mixer

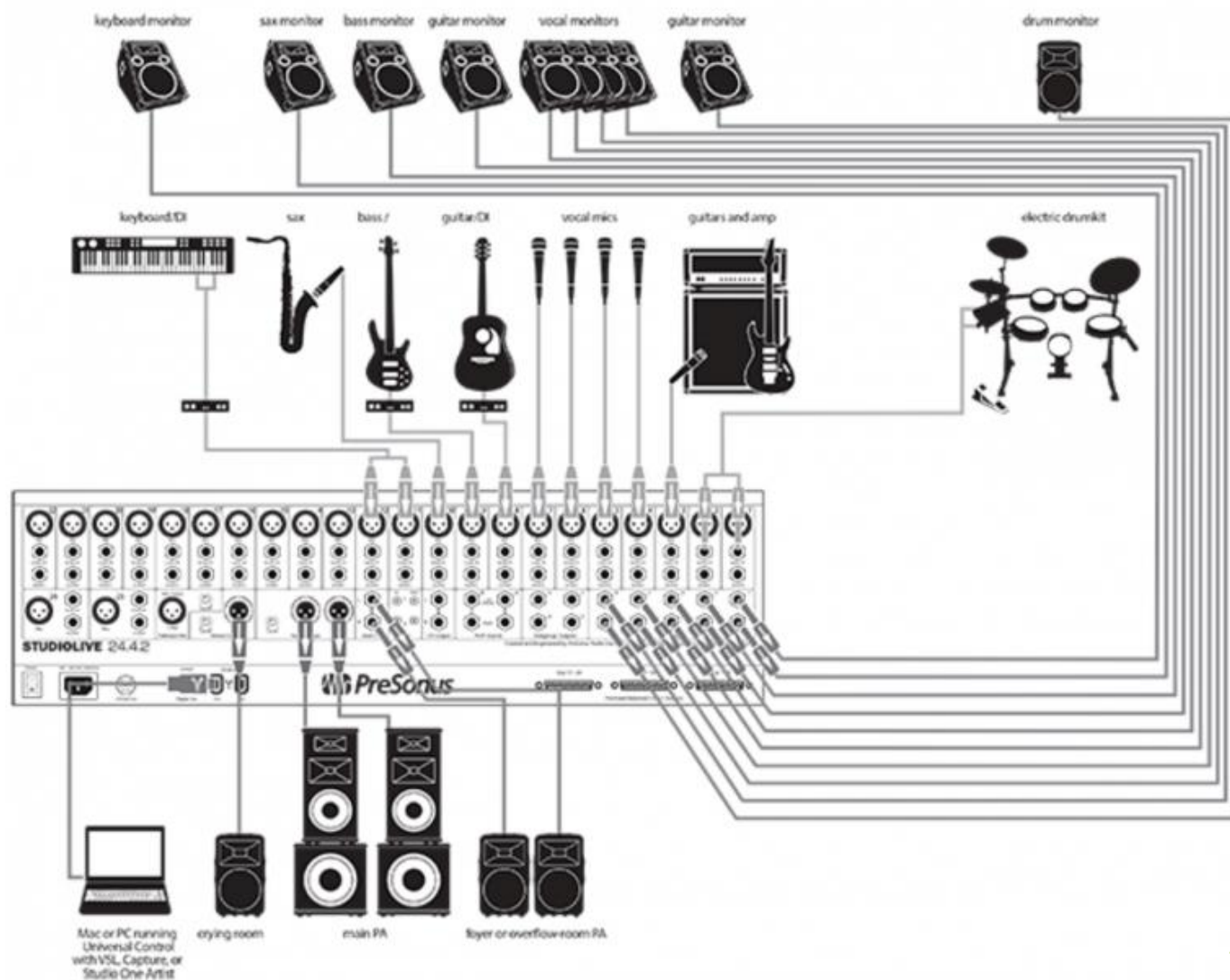


Amplifier

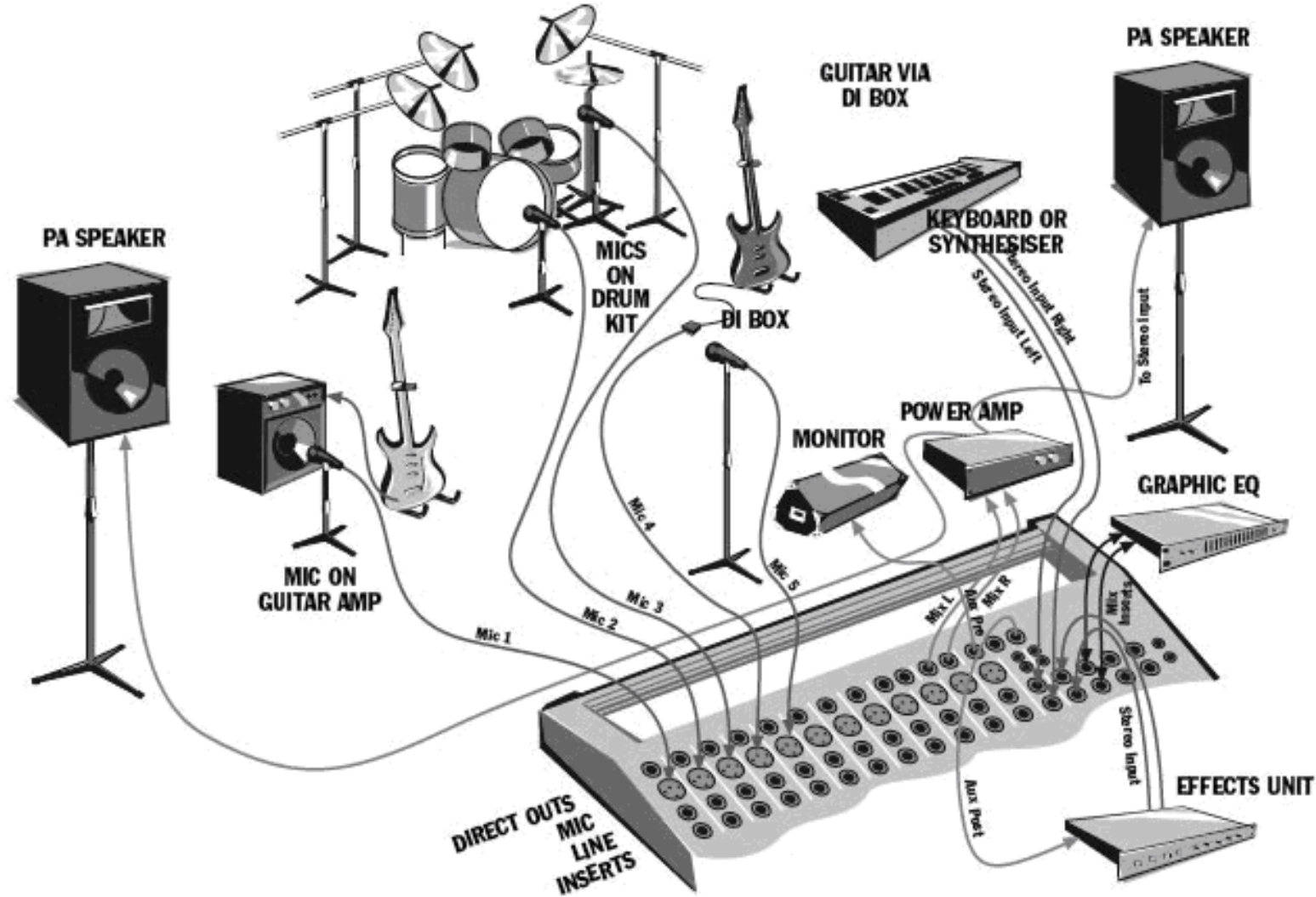
speaker



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[The-Mixer-768x613.png](#)
(768x613) (tataylino.com)



Audio-Tutorial-Tahoe-Production-House.png
(667x450)
(tahoeproductionhouse.com)

microphones

a microphone takes electricity into sound, this is created when the diaphragm inside the microphone vibrates a coil wire making electricity

two different types of mikes a dynamic and condenser microphone

a condenser mic is a capacitor this means it stores electric energy. To make this mic work you need to plug electric into it, we use phantom power, and this is 48v standard.

Phantom power from a mixing desk will power the condenser mic

Never plug a mobile into a mixing desk, phantom power can damage it.

Speakers and mics give feedback if too close together, feedback is a high-pitched sound.

Dynamic



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condenser



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Radio mics

- A radio mic is a battery powered mic, battery is hidden on the person and connects to a hidden microphone on their person.
- Cabled mics sound better than radio mics so run a cable if you can, this will all depend on what type of show is being performed. in a very active energetic show it would be more appropriate to use radio mics on the individual actors or singers.
- When using a radio mic make sure you use the same manufacturer brand of receiver.
- Remember to design the appropriate radio mic to the needs of the sound. If the show has lots of music the sound quality of the mic will be important but sometimes the look of a show is more important so you may need to choose a mic for visual reasons.
- Radio mics can be disguised into costume and wigs etc to suit the needs of the design.
- Attaching a radio mic to someones face gives a good clean sound when they move it moves with them.
- In film it's normally hidden in clothing
- Remember that different parts of the body create different sounds when attaching a radio mic the chest vibrates giving deeper sounds, cheekbones vibrate giving therefore, placement of the mic is important.

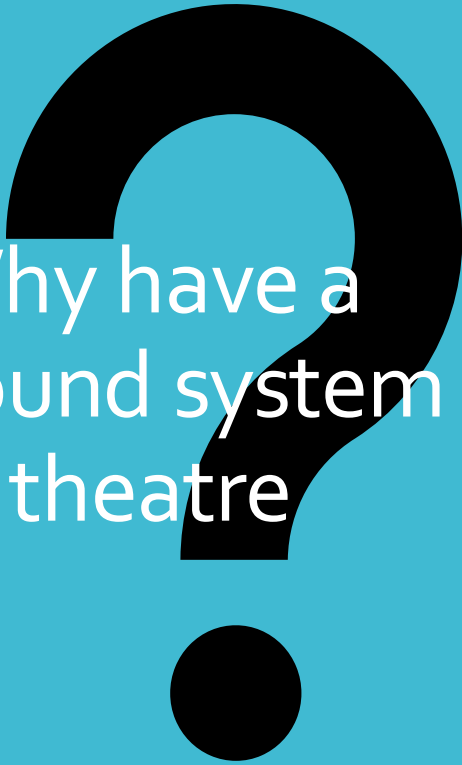
Radio mic licences

- A radio mic uses frequencies you must use a licenced frequency when using radio mics.
- Licencing in UK is controlled by the PMS.
- [Apply for a PMSE licence - Ofcom](#)
- Orange you paid the government / Ofcom
- Grey channel 38 is free most people will use this frequency
- Black channel 70 is used for the professionals' services ,keep off this channel.
- The reason we have licences **pull?** the frequency is to control the airwaves from being crossed signalled.



Designing a sound system

- Always use a good quality mic
- Depending on the size of your show and what elements there are this will guide your size of mixing desk. How much sound input will the show need and how much sound output will the show need.
- Don't use equipment for the sake of it, ask yourself do we need a microphone for a certain element?
- A microphone is used to project sound to the back of an auditorium, this could be a whisper. Pre microphones this would not have been possible.
- Humans can determine a direction of sound this comes from our survival skills. making sure sound is coming from the right direction in an auditorium is very important to the overall experience of the show. If this is not done correctly it can give an uneasy feeling to our natural instincts. Make sure the speaker is where you want the sound to come from for example if a telephone rings on stage you would want the sound to come from there not somewhere else. Small hidden speakers can be added to props to create the correct sound direction.
- Modern theatre sound systems are one of the most complicated sound systems of the world.



Why have a sound system in theatre

Why??

- We create sound systems for the theatre to give the audience a greater experience in enjoying the narrative
- The sound designer thinks of the audience, deciding what they want the audience to hear
- We must consider volume when designing a show, it must be appropriate to suit the needs of the show

Speaker spec !!

- Sound comes from a speaker at a right angle knowing this helps us understand how the sound will travel through a room when we design the sound to fit the space.
- We put the speakers in the correct space to project the sound around the room if not done correctly we can lose sound. Using 90-degree triangles to represent the sound we can map out an auditorium to see where the dead space may be.
- The closer the speaker to the stage the better the sound. This is not always the case; some think the set designers like this when designing the space.



more

- Add images of auditorium mapping showing egg shape
- People in the egg shape can hear everything from both sides
- Sitting at the front of an auditorium doesn't give you the best sound as they miss the speaker triangle. The best seats to buy in an auditorium are in the centre
- Sound engineers will need to use front fill speakers to project better sound to the front seats.
- The sound engineer may need to add delay speakers to make sure the sound is distributed evenly on time, so the audience don't hear time delays in the sound.
- Remember the direction of speaker is linked to their placement understanding the volume needed for the story making sure the audience has even coverage of sound there is no delay.
- Air temperature and humidity can change the pa's sound quality always do sound tests before the performance.
- The **presidents?precedence effect?** is the same sound from two places it tricks us to join sound up so we can think it's all from the same place.
- Good sound design will make the audience believe that what they're seeing is correct because of the sound
- Front filler speakers on stage are used to help orchestras hear themselves



Sound team schedule



Sound focus finding quiet time to check the sound system and quality

the sound team will ask for quiet time this is normally done in a lunch break when no one is using the space

The engineers will play a well-known song on loop, so they can test whether the sound is being correctly distributed for best optimum sound.

They need complete silence for this process they use high and low frequencies and naturally by ear workout the delay times

They check the balance is right and play around with the sound until it is right.

Sound checks are given by two people with mics and any instruments using mics making sure all levels are right.

The second check that is given is when everyone is together, the band and the singers

The sound designer will plot the sound effects with the director

I took that surround sound is used in a theatre and they do not use stereo sound as it is too complicated a sound

Q lab is a computer programme that is industry standard it works on a Mac and can be used to cue sounds

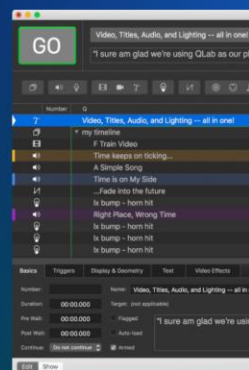


Qlab

Effortlessly sync your audio, video, and light cues together

QLab makes it simple to create intricate designs of light, sound, and video. When you're done designing, run the whole show just by pressing the "GO" button.

GO



- By dragging sounds into queue lab you create a playlist of queues
- Q lab needs to use sound card to connect to lots of speaker's outputs
- The free copy of qulub only gives you the option to use two outputs
- Q lab can be used to create layers by sending different sounds to different speakers and then playing them simultaneously
- We can use a fader to create sounds getting louder or quieter
- Remember to stop sounds on time, for example, a telephone ringing timing is everything when you want the audience to trust the sounds