Lighting, Sound & SFX - Unit 3

Content Area: **Theater**
Course(s):
Time Period: **September**
Length: **2**
Status: **Published**

Targeted Standards

VPA.1.1.12.C.1	Analyze examples of theatre's influence on history and history's influence on theatre in Western and non-Western theatre traditions.
VPA.1.1.12.C.3	Apply the basic physical and chemical properties (e.g., light, electricity, color, paint, scenic construction, costumes, makeup, and audio components) inherent in technical theatre to safely implement theatre design.
VPA.1.1.12.C.CS3	Theatre production is an art, but it is also a science requiring knowledge of safety procedures, materials, technology, and construction techniques.
VPA.1.4.12.B.1	Formulate criteria for arts evaluation using the principles of positive critique and observation of the elements of art and principles of design, and use the criteria to evaluate works of dance, music, theatre, visual, and multimedia artwork from diverse cultural contexts and historical eras.

Rationale & Transfer Goals

Students will gain practical knowledge on how special effects are created and utilized in theatre. Using their newly acquired skills students will create their own special effects for Costumes, Make-Up, Lighting, Sound, Magic, etc. to be used in a production.

Enduring Understandings - What are the most essential conclusions that students should be guided towards throughout this unit?

- Theatre artists rely on intuition, curiosity, and critical inquiry.
- Theatre artists work to discover different ways of communicating meaning.
- Theatre artists refine their work and practice their craft through rehearsal.
- Theatre artists allow awareness of interrelationships between self and others to influence and inform their work.
- Theatre artists critically inquire into the ways others have thought about and created drama processes

and productions to inform their own work.

Essential Questions - What are the questions that will guide critical thinking about the content in this unit? Essential Questions should be thought starters toward the enduring understandings.

- What happens when theatre artists use their imaginations and/or learned theatre skills while engaging in creative exploration and inquiry?
- How, when, and why do theatre artists' choices change?
- How do theatre artists transform and edit their initial ideas?
- What happens when theatre artists foster understanding between self and others through critical awareness, social responsibility, and the exploration of empathy?
- What happens when theatre artists allow an understanding of themselves and the world to inform perceptions about theatre and the purpose of their work?

Content/Objectives

Content - What students will know

- How to assess a safe working environment.
- How to safely and properly use lighting instruments.
- Group work
- How to identify the materials necessary for job completion.
- ETC Ion Xe lighting console
- Design, Implement, Program, and run a light plot

Skills - What students will be able to do

- Demonstrate safe and proper use of tools and equipment
- Identify and follow safety procedures for hands on experiences
- Understand how to work individually and cooperatively with others to accomplish a task
- Identify and apply various lighting instruments
- Use technology in various situations.

- Design, Implement, Program, and run a light plot

Instructional Activites

Activities/Strategies - How we teach content and skills

Demonstrate proper lighting install.

Design and install individual lighting plot.

Program and execute lighting cues

Hands-on experiences using ETClighting console and EOS software.

Evidence (Assessments) - How we know students have learned

- Teacher observation

  Peer critiques

  Self analysis and evaluation

  Performance/Presentation

Spiraling Focus from Previous Units

Content or Skill for this Unit

Demonstrate safe and proper use of tools and equipment

Identify and follow safety procedures for hands on experiences and construction

Understand how to work cooperatively with others to accomplish a task

Identify and apply various construction techniques.

Use technology in various situations.

Spiral Focus from Previous Unit

Tech Theater Unit 2 - Design

Instructional Activity

Research Technology and Theatrical special effects through history.

Teacher demonstrations

Hands on experiences in designing and creating individual special effects.

Career Readiness, Life Literacies & Key Skills

9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).
9.4.12.CI.2	Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).
9.4.12.CT.1	Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).
9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).

Key Resources

Theatre: Art in Action, National Textbook Company/Contemporary Publishing Group, Inc. 1999

ETC Stage Lighting Design: An Introduction Educators PDF

ETC Ion Xe lighting Console in LHS Theatre

LHS Tech Theatre Laptops with EOS Software

Interdisciplinary Connections

SCI.HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.

Intersections of History

Black: Important persons of this demographic in the industry. Example: Lyndon Barrois

Hispanic: Important persons of this demographic in the industry. Example: Uriel Gomez

Women: Important persons of this demographic in the industry. Example: Audrea Topps Harjo

LGBTQ: Important persons of this demographic in the industry. Example: Skylar Fox

Important Vocabulary

BLEED THROUGH

Transformation from a scene downstage of a gauze to another scene upstage, by slowly crossfading lighting from downstage to upstage. If a gauze is lit steeply, or from the sides, it will appear solid. If this light is turned off and light added to the set upstage of it, it will disappear.

BOMB TANK

Metal bin or box covered with fine mesh in which Theatrical Maroons can be safely detonated.

See also PYROTECHNICS.

COLOURED SMOKE

Pyro: Coloured Smoke (Le Maitre)Pyrotechnic device, produced by Le Maitre, which is available as a cartridge which plugs into a flash pot, and when detonated, produces an intense cloud of coloured smoke. Care must be taken as the smoke contains a pigment which can stain light coloured objects or costumes.

EMERGENCY STOP

Emergency Stop button on Impresario automation control deskAlso known as E-STOP, all scenic automation or powered flying systems have an emergency stop facility built into them. The pressing of any e-stop button in the system will immediately halt any movement and prevent any further movement until the system is reset.

FLASH BOX

Flash Pods for use with the Pyroflash system (Le Maitre)A small box containing the socket into which a pyro

cartridge is plugged. Also known as a flash pod or firing pod.

German: Startbox

FLASH POT

A generic term for a pyrotechnic device consisting of a small cylindrical container into which pyrotechnic powder has been loaded. At the bottom of the container is an electric match or igniter which, when a large enough electrical current flows through it, produces a spark which ignites the powder. Many companies (such as Le Maitre and Theatre Effects) produce cartridge flash pots which are pre-loaded and sealed, reducing the likelihood of incorrect usage.

FLYING HARNESS

Worn by actors who have to 'fly' as part of the action of the play (typically in Peter Pan or pantomimes). The flying harness is expertly fitted to the actor, and is fully tested and certified as safe before use by professionals. Cables attach to the harness normally at the hip, or the middle of the back, via a quick release locking snap hook mechanism. There are companies who specialize in this sort of wire work, and there's no excuse for not using the professionals at all times.

GAUZE

Cloth with a relatively coarse weave. Used unpainted to diffuse a scene played behind it. When painted, a gauze is opaque when lit obliquely from the front and becomes transparent when the scene behind it is lit . Many different types of gauze are available;

Sharkstooth gauze is the most effective for transformations, because it is the most opaque.

Vision gauze is used for diffusing a scene and for supporting cut cloths.

HoloGauze™ is a metallised gauze optimized for front projection holographic illusions.

Also known as a Scrim, American Mesh.

Gobelin Fabric is used for tapestry making and has a less coarse weave than theatrical gauze, but will work for smaller shows.

Voile / Net curtain material will work well and takes projection very well (as the thread is much finer than cotton gauze).

Holo-Gauze

See also Lighting With A Gauze / Scrim

KABUKI DROP

Method for dropping a cloth from a flying bar. It consists of a bar which attaches to a standard flying bar, and is able to spin around. The bar has prongs welded to it on which the drop is hung (drop has grommet holes in the top which hook onto the prongs). Normally these prongs are above horizontal, so the drop stays hung. On cue, the pole is rotated so that the prongs point downwards, and the drop consequently falls.

KIRBY WIRE

Wire used to fly an actor.

Named after George Kirby, who devised the first pendulum artiste flying system (in 1898). His company Kirby's Flying Ballet is still supplying flying equipment now.

MAROON

An electrically detonated pyrotechnic device giving the effect of a loud explosion. Made from gunpowder encased in stout cardboard or string. Must be used within a metal bomb tank. Originally developed in the second half of the 19th century to simulate the sound of cannon, it was often used to call out the volunteer lifeboat crew in an emergency.

PERFORMER FLYING

A manual or electrically driven system for lifting performers off the stage and allowing spectacular stunts and aerial sequences to be performed.

PYROFLASH

Pyroflash System Controller (Le Maitre)A range of pyrotechnic cartridges, firing pods and controllers used to create pyrotechnic effects in semi-professional situations, made by Le Maitre.

PYROTECHNICS

(often shortened to just 'Pyro') Chemical explosive or flammable firework effects with a manual detonation. Usually electrically fired with special designed fail-safe equipment.

There are many different variations of pyrotechnic effects available. The categories are as follows:

Theatrical Flash - a flash and a cloud of smoke

Maroon: produces a very loud bang. Must only be detonated inside a bomb tank covered with a protective mesh.

Gerb: version of the Roman Candle firework, throwing a shower of sparks into the air. Possibly named from the French 'Gerbe' meaning a sheaf of wheat, due to it's shape.

All pyrotechnics should be used with close reference to local licensing laws, and the manufacturers instructions. Professional advice should be sought before the first use of effects.

Some territories only permit licensed pyrotechnicians to use these devices.

The word originates from the Greek for fire, pyr.

ROBOTIC

Pyrotechnic effect that produces a flash, short burst of sparks and a small cloud of smoke. Can be used to simulate an electrical fault.

SILVER JET

Pyro: Silver Jet (Le Maitre)Pyrotechnic cartridge produced by Le Maitre, which produces a bright shower of sparks in a fountain. This is a type of GERB.

SMOKE COOKIE

A pyrotechnic product which produces a cloud of real smoke when set alight.

Also known as a Smoke Pellet.

SPARK PRODUCING DEVICE (SPD)

Pyrotechnic effect that creates a focussed burst of sparks from a small tube.

THEATRICAL FLASH

Pyro: Theatrical Flash Large (Le Maitre)Pyrotechnic cartridge produced by Le Maitre, which produces a bright white flash, a small bang, and a large mushroom of smoke.

TRANSFORMATION

An instant scene change, often effected by exploiting the varying transparency of gauze under different lighting conditions.

See also Lighting With A Gauze / Scrim

ULTRA-VIOLET (UV)

UV Cannon by Prolight Concepts, UKShort wavelength source of light at the end of the visible light electromagnetic spectrum which causes specially treated materials to fluoresce on an otherwise blackened stage. Used for special effect and for lighting onstage technical areas (eg Fly Floors). Ultraviolet sources designed for stage use are known as Black Light sources and have all harmful radiations filtered out. They produce UV-A radiation, which is also present in sunlight, and is invisible to the naked eye; in black light sources, the amount of UVA is far lower than you'd experience outside. UV-B radiation is far more harmful, and is not present in black light sources.