

Lighting Design

This unit is dedicated to high school theater students and will be geared towards theatrical lighting and lighting design. Students will learn the different aspects of lighting in theater as well as designing their own scenes. They will learn what goes into lighting design, mathematics and terminology in lighting, and allow them to access the board so that they can learn how it works. The unit provides lessons as well as hands-on experience for students to not only learn about lighting but become pre-professional lighting designers themselves.

1. The unit will begin with a basic rundown of what lighting is. This lesson will include different fixtures as well as any terminology that is used in lighting for a show.
2. The next lesson will go over colors and how they are used in lighting. This is important because the way that colors mix in lighting is very different from the way they mix in paint, and students need to understand that difference before they begin to design their own shows. They also need to know how to use color as representation in a show. Once they understand how color can be used in lighting to represent different things, such as setting as well as mood, they will further understand how to properly use color in their own designs.
3. Students should also be given the opportunity to use the lighting board themselves so that they can understand what goes into lighting a show. It's one thing to tell them what to do, it's another to allow them to do it themselves. Especially for students who are better learners hands-on than visually, this will ensure that each student knows exactly what they are doing in case they ever have to light their own show.
4. Alongside learning how to use the board, students should also become accustomed with hanging lights so that they understand what goes in to lighting an area. This lesson and using the board can either be combined into one lesson, or they can be reversed if the teacher deems it necessary for either to happen. Teaching the students how to properly hang and focus lights will show them the safe way to make sure that a stage is a space where no accidents will occur with the lights. Making sure that the fixtures are securely

attached to the battens is extremely important, since a fallen fixture could result in major injury or death. Teaching them how to focus the lights is also important to the look of a show, so that it looks as pristine and neat as possible.

5. Once students understand how to hang and focus lights, as well as how to use the board, they will be tasked with choosing photos and recreating the lighting in the picture. This allows students to take what they've learned thus far and use it all in a constructive manner. They can work as a team to collaborate on a final product, and this can allow any student, regardless of their focus in theater, to work with other students that might not be within the same focus.
6. After they finish this, the teacher can show students the more difficult side of lighting by showing them Vectorworks. Vectorworks is an app that lighting designers use to design their light plots to fit the space that they have to use while keeping it on a scale. If the students have their own laptops they can download it themselves, or the teacher can show it to them on a projector. Once they know about Vectorworks they will know how to make proper keys for their light plots and light plots in general. They will also know how to set up a basic design for the stage and its set pieces.
7. The last thing that students will need to do for this unit is design their own scene from a show. The scene can be from any show the teacher chooses, but for the purposes of this unit proposal we will use scenes from *Almost, Maine*. The students will be assigned a scene and have the task of designing the lighting for the scene. The teacher can dictate the specific guidelines for the scene based on what show they choose, but the guidelines in the lesson plan below can also be used. This project will tie everything that the students have learned in this unit together to properly showcase every aspect of lighting.

Lesson Plans:

1. **Title:** What is Lighting?

Objective: Students will understand the basic terminology of lighting in the theater

Procedure:

- Explain the different lighting fixtures used in the space (fresnels, ellipsoidal reflector, PAR lights, strip lights, house lights, LED stage lights, spotlights, intelligent lighting)
- Explain the currents (direct vs. alternating) and circuits (series vs. parallel) and circuit breakers
- Explain voltage and the different equations to find voltage

Purpose: Students will be able to use this knowledge to create lighting designs for scenes as well as understand the fundamentals behind lighting.

UBD/UDL: This lesson was planned using UBD as a reference point. The final project was the initial starting point for this unit proposal. Working backwards from there I had to figure out where I wanted to start in order to make sure that the students would have all of the information that they need to understand lighting. During this lesson, I would also like to introduce the final project briefly so that the goal of the unit is defined at the beginning of the unit. This lesson can also incorporate UDL because it does not necessarily need to be the teacher standing in front of the class and lecturing at them. The teacher can use diagrams as well as hands-on lighting fixtures to show the students exactly what they are talking about.

Standards:

- HS Proficient TH:Cr2-I - Investigate the collaborative nature of the actor, director, playwright, and designers and explore their interdependent roles in a drama/theatre work.

2. **Title:** Lighting and Color

Objective: Students will understand the differences in color in lighting fixtures

Procedure:

- Discuss the additive color theory - the mixture of red, green, and blue lighting to create every other color
- Discuss gels for light sources (fresnels) and show students a colored gel swatch to allow them to see what gels are and how they are numbered

- Discuss the effects of color on actors and their clothes - how some colors can wash actors out based on their skin tones
- Ask students to associate colors with specific moods prompted
 - If the scene is somber, what color lighting would you use?
 - If the scene contains death, what color lighting would you use?
 - If the scene takes place early in the morning, what color lighting would you use? ETC.

Purpose: Students will be able to use the color theories to light their own scenes at the end of the unit.

UBD/UDL: This lesson incorporates UDL because on top of the teacher giving the students papers and a presentation on the different types of color in lighting design, the students will be able to see the lights in action as well as look at the different types of gels that can be used on lighting fixtures. They will have access to text as well as hands-on learning. Students will also be prompted to think about different aspects of lighting and color, as well as the meaning behind each. For more visual learners, they will be able to actually see everything in effect, and for other students they will have the chance to use their hands to understand what they are learning.

Standards:

- 7 TH:Pr5.1.7 - Choose a variety of technical elements that can be applied to a design in a drama/theatre work.
- HS Proficient TH:Re8.1.I - Justify personal aesthetics, preferences, and beliefs through participation in and observation of a drama/theatre work.

3. **Title:** Using the Board

Objective: Students will learn the different functions of a lighting board

Procedure:

- Take students to the area where the lighting board is kept and teach students the functions on the board
- Discuss what channels and dimmers are
- Teach the students how to program cues into the board

- Allow each student a few minutes to mess around with the functions on the board, then ask them to record a cue into the system

Purpose: Students will understand how to use the board so that they can light shows in the future, as well as understand the terminology that a lighting designer might ask them about.

UBD/UDL: This lesson was planned keeping UDL in mind for students that learn by doing. The best way to understand lighting design is to actually do it. By allowing students to use the board, they can understand exactly what elements go into lighting a show. They are able to look at the board and learn from the teacher which buttons to press to perform a certain function, how to record cues, and how to make certain lights do special effects, if there are any special lights in the space. I also used UBD because in order for the students to complete the final project, they need to understand exactly what channels and cues are, so that they are able to complete their light plots and cue sheets. This can also be reviewed during the hand and focus lesson, making sure that students are able to remember what they learned.

Standards:

- HS Accomplished TH:Cr1.1.II - Understand and apply technology to design solutions for a drama/theatre work.
- 7 TH:Pr5.1.7 - Choose a variety of technical elements that can be applied to a design in a drama/theatre work.
- 8 TH:Re9.1.8 - Apply the production elements used in a drama/theatre work to assess aesthetic choices.

4. **Title:** Hang and Focus

Objective: Students will learn how to properly hang fixtures and focus them

Procedure:

- Show students how to hang and focus a couple of lighting fixtures
- Then, allow each student the opportunity to hang a fixture, focus it, and take it down again

- Each student should be comfortable on ladders - if they are not, they can simply show the teacher how they would do each step from the ground with an unhung fixture

Purpose: Students will understand how to properly hang lights for a production and focus them for a lighting designer.

UBD/UDL: This lesson was planned with UDL in mind, giving opportunity to all of the students. For those who do not feel comfortable going up ladders, they are still able to learn how to hang and focus a light without stepping outside of their comfort zone. This lesson provides students with hands-on learning in lighting, as they will learn how to properly put up and take down lighting fixtures. Smaller students will also have the option to learn how to hang lights from the floor, so they will not have to take a heavy fixture up a ladder that they might not be able to carry. This lesson is completely dependent on what kind of students a teacher has and their limitations. This lesson also requires the teacher to be a coach of understanding, making sure that *every* student is comfortable with the knowledge of how to hang lights, so that they can be operated safely. The teacher also needs to be extremely alert of what is going on, since ladders and heavy, expensive lights will be involved. The teacher will have to focus their attention on both making sure the students are safe and that they are learning.

Standards:

- HS Accomplished TH:Cr1.1.II - Understand and apply technology to design solutions for a drama/theatre work.
- 7 TH:Cr2-7 - Demonstrate mutual respect for self and others and their roles in preparing or devising drama/theatre work.
- HS Accomplished TH:Pr5.1.II - Apply technical elements and research to create a design that communicates the concept of a drama/theatre production.

5. **Title:** Photo Reproduction Project

Objective: Students will look at a staged photo and attempt to recreate the lighting on the stage.

Procedure:

- The teacher will put students into groups, and assign groups photos of lighting
- The students will have to try to recreate the lighting used in the image
- Students should take a picture of the finished product so that it can be compared with the original image
- Each group will be assigned two images to recreate

Purpose: This will teach students the proper way to mix color in lighting to be able to recreate designs that they may like.

UBD/UDL: This lesson incorporates UDL for students who work better in groups than by themselves, as well as for both technical students and performance students. This project bridges the gap between the two and encompasses all aspects of theater. The students will have to work together on this and recreate an image that they see. The project requires some research prior to beginning, as students will need to look into the creation of the original photo if possible, as well as what type of lighting was used in the original so that it can be recreated as best as possible.

Standards:

- HS Proficient TH: Cr1.1.I - Apply basic research to construct ideas about the visual composition of a drama/theatre work.
- HS Proficient TH:Cr2-I - Investigate the collaborative nature of the actor, director, playwright, and designers and explore their interdependent roles in a drama/theatre work.
- 7 TH:Pr5.1.7 - Choose a variety of technical elements that can be applied to a design in a drama/theatre work.
- HS Proficient TH:Re8.1.I - Justify personal aesthetics, preferences, and beliefs through participation in and observation of a drama/theatre work.
- 8 TH:Re9.1.8 - Apply the production elements used in a drama/theatre work to assess aesthetic choices.
- HS Accomplished TH:Cr1.1.II - Understand and apply technology to design solutions for a drama/theatre work.

6. **Title:** Vectorworks

Objective: Students will understand the basics of Vectorworks

Procedure:

- Have the students download Vectorworks onto their laptops/set up Vectorworks on a projector if students do not have laptops
- Show students how to create lighting fixtures, shapes, and sync the fixtures to channels, groups, etc.
 - Teacher should have a good understanding of vectorworks
- If time permits, allow the students to use the rest of the time to create their own basic lighting plot

Purpose: Students will understand Vectorworks so they will be able to use it if they design a show or need to make a light plot in the future.

UBD/UDL: This lesson was planned using UBD, as Vectorworks will allow students to be well taught in designing light plots and using a key with all of the fixtures they wish to use. This is a key factor in their final project, since they will either be using Vectorworks or hand-drawing their lighting plots. These designs will be based off of the symbols and plot that they will see from the demonstration of Vectorworks. This also incorporates UDL because it is not geared towards students of a specific learning class. While Vectorworks can be difficult to understand, once students fully grasp the basics of Vectorworks it is a website that all students can use.

Standards:

- HS Accomplished TH:Cr1.1.II - Understand and apply technology to design solutions for a drama/theatre work.
- 7 TH:Pr5.1.7 - Choose a variety of technical elements that can be applied to a design in a drama/theatre work.

7. **Title:** In Class Final Preparation

Objective: Students will have a full understanding of everything they need to prepare for the final project

Procedure:

- Explain to students how to design a scene from a show

- Show students how to create a light plot, design concept, and cue sheet
- Give students a scene from a show and have them research the show for 15-20 minutes
 - This will allow the students to understand the background of the show (when and where it takes place, which will impact the lighting they choose)
 - They may work in groups
 - From this research, have them write their scene analysis, which should be a short summary of the scene as well as their interpretation of the scene
- Have the students work together to create a light plot
 - Make sure that in this light plot there is a key with each lighting fixture that they plan to use, as well as a description of which channels what fixtures will be on
- Then, have them work on their design concept
 - This should be an explanation of the set and lighting that they wish to use for the scene (including each lighting fixture they want to use and why)
- If they have time, have them start to create a cue sheet for their scene
 - Their cue sheet should include:
 - i. Cue number
 - ii. Time duration (how long it takes to switch between cues)
 - iii. Action of the light (lights up/down on stage, color change, etc.)
 - iv. What prompts the cue (the “cue line” or cue action)
 - v. Page number in the script where the cue takes place

Purpose: This will gear students towards their final project so they will understand everything that they have to do for it.

UBD/UDL: This lesson was planned using UBD, as it directly incorporates everything they will need to know for the final project. I felt it necessary to make sure that the teacher takes a day to show the students exactly what they want their students to turn in at the end of the unit. This lesson will allow students to be fully prepared for the final,

making sure that all of the points are taught to them that they will need to hit when they work on their finals. It also incorporates UDL, as it allows students more than one way to do the project as well as allowing them to make creative choices that they want to make, while giving them some guidelines to make sure that they are still learning something from the process.

Standards:

- HS Proficient TH: Cr1.1.I - Apply basic research to construct ideas about the visual composition of a drama/theatre work.
- HS Accomplished TH:Cr2-II - Cooperate as a creative team to make interpretive choices for a drama/theatre work.
- HS Proficient TH:Cr3.1.I - Refine technical design choices to support the story and emotional impact of a devised or scripted drama/ theatre work.
- HS Proficient TH.Re9.1.I - Consider the aesthetics of the production elements in a drama/theatre work.
- HS Accomplished TH:Cn11.2.II - Formulate creative choices for a devised or scripted drama/theatre work based on theatre research about the selected topic

8. **Title:** Final Project - Design a Scene

Objective: Students will be able to effectively design a scene from a play of their choice

Procedure:

- Students will each be assigned a scene from *Almost, Maine* (or any other play), either in small groups or individually depending on class size
- Students will create a scene analysis, design concept, cue sheet, and research images for the scene
 - Each scene must have at least five lighting cues and incorporate at least five lighting fixtures of the students' choice
- Students will then hand-draw a lighting plot for the scene, including any set pieces that will be used during the scene
 - If any students would prefer to use Vectorworks, they may do so
- Students will present the entire package to the class

Purpose: Students will better understand all aspects of the unit and effectively tie them all together into one final project

UBD/UDL: I have incorporated UDL into this by letting the students have complete creative freedom in how they present their final projects. They are able to present in whatever format they feel will best represent their finals. It also incorporates UBD as it reveals students' understanding through their performance. Students should be able to explain, interpret, apply, and self-assess by the end of this project.

- HS Proficient TH: Cr1.1.I - Apply basic research to construct ideas about the visual composition of a drama/theatre work.
- HS Accomplished TH:Cr2-II - Cooperate as a creative team to make interpretive choices for a drama/theatre work.
- HS Proficient TH:Cr3.1.I - Refine technical design choices to support the story and emotional impact of a devised or scripted drama/ theatre work.
- HS Proficient TH.Re9.1.I - Consider the aesthetics of the production elements in a drama/theatre work.
- HS Accomplished TH:Cn11.2.II - Formulate creative choices for a devised or scripted drama/theatre work based on theatre research about the selected topic