

# Day Two: Lighting Design

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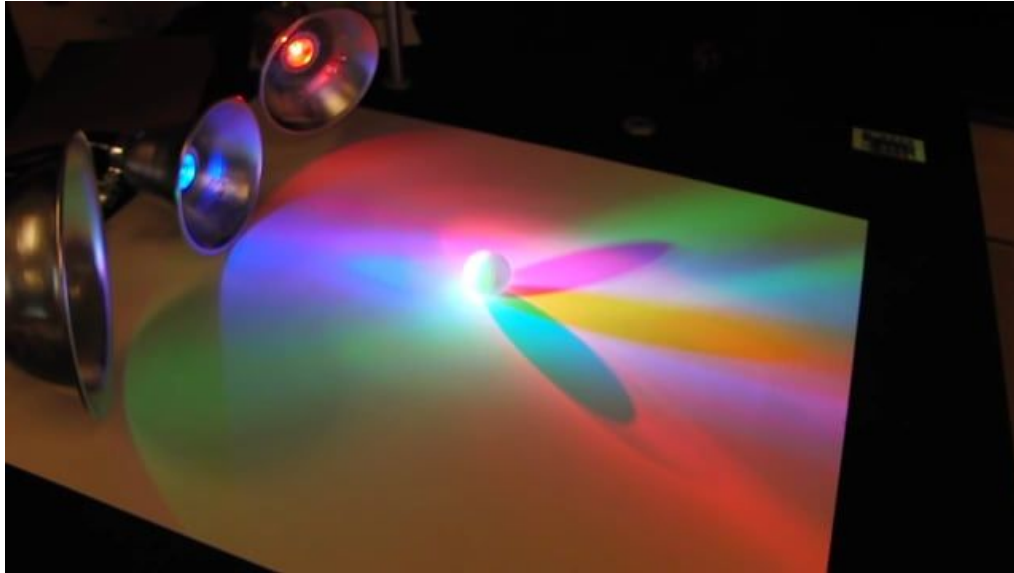
Learning Target: Understanding the basics of color, circuitry and gobos

# Lighting for Stage



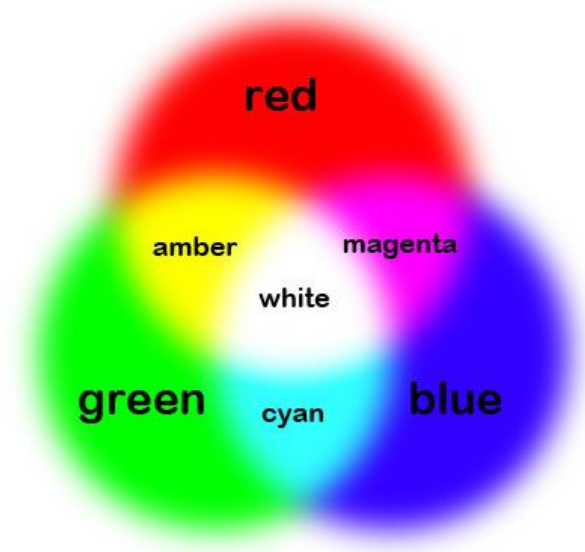
# Color in lighting: Primary colors

- The primary colors in lighting are red, blue and green.
- If shone together at the same intensity, the three create white light.
- Any two of the primary colors mix to form the secondary colors.



# Color in lighting: Secondary colors

- The secondary colors in lighting are magenta, amber (sometimes referred to as a yellow), and cyan.
- Red and blue make magenta. Red and green make amber. Blue and green make cyan.
- If shone together at the same intensity, the three create white light.
- Any primary put together with the secondary made from the other 2 primary colors produce white light. eg. Blue and amber produce white light.



# Color in lighting: Warm and Cool colors

- Every area of the stage needs a warm and a cool color light from the front for each effect (day or night)
- Warm colors are those like red, yellow or amber.
- Cool colors are those like blue green, or purple.
- The combination of shades of amber and blue are best for natural lighting.



# How color works

- White light reflects all color on stage.
- Each color reflects the colors that make it. For example, red reflects red. Blue reflects blue. Amber reflects red and green.
- If a red light shines on a blue object, the object will appear to have no color (black). If a green light shines on an amber object, it will appear green, as the red in the amber will not reflect.



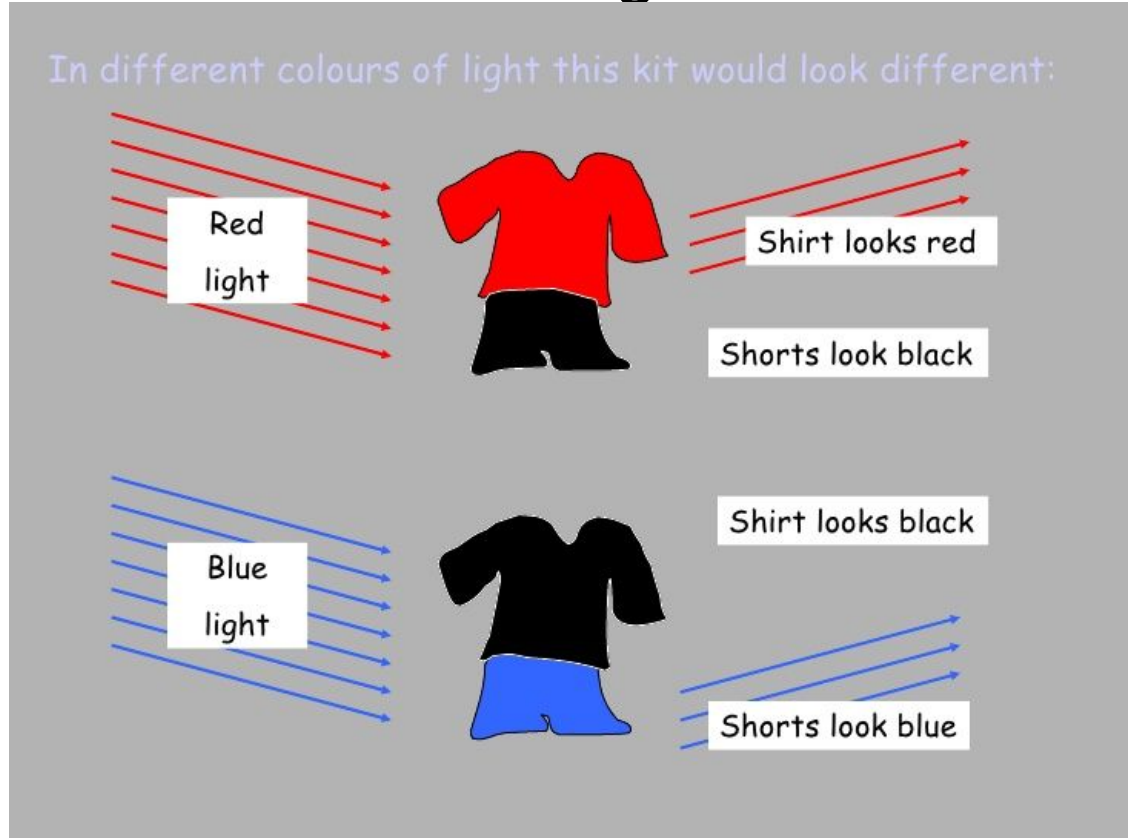
Blue, Red, and Yellow Cubes Under a Standard Desk Lamp Light Source



Blue, Red, and Yellow Cubes Under a Red Lamp

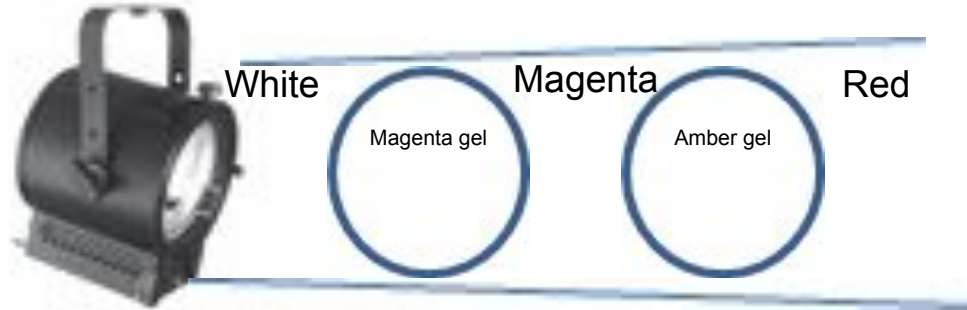
# How lighting color can affect other design colors

Light designers have to understand how their color selections will affect costumes, set, props and any item put on stage.



# Color Filtering

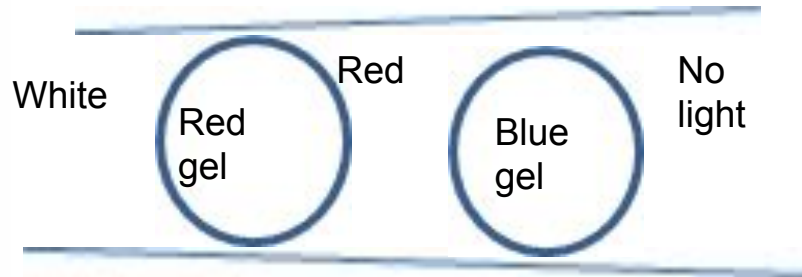
A light with a magenta and amber gel will result in red light. The white light will go to the magenta gel, which will filter out all color except red and blue (what it is comprised of). The amber gel will filter out all but red and green. Green is already filtered out, so red light will be the result.





# Color Filtering

A light with a red and blue gel will produce no useable light. The white light will go to the red gel, which will filter out all color except red. Since there is no red in blue, the blue gel will filter out all of the red light, resulting in no light.



# Activity/Reflection:

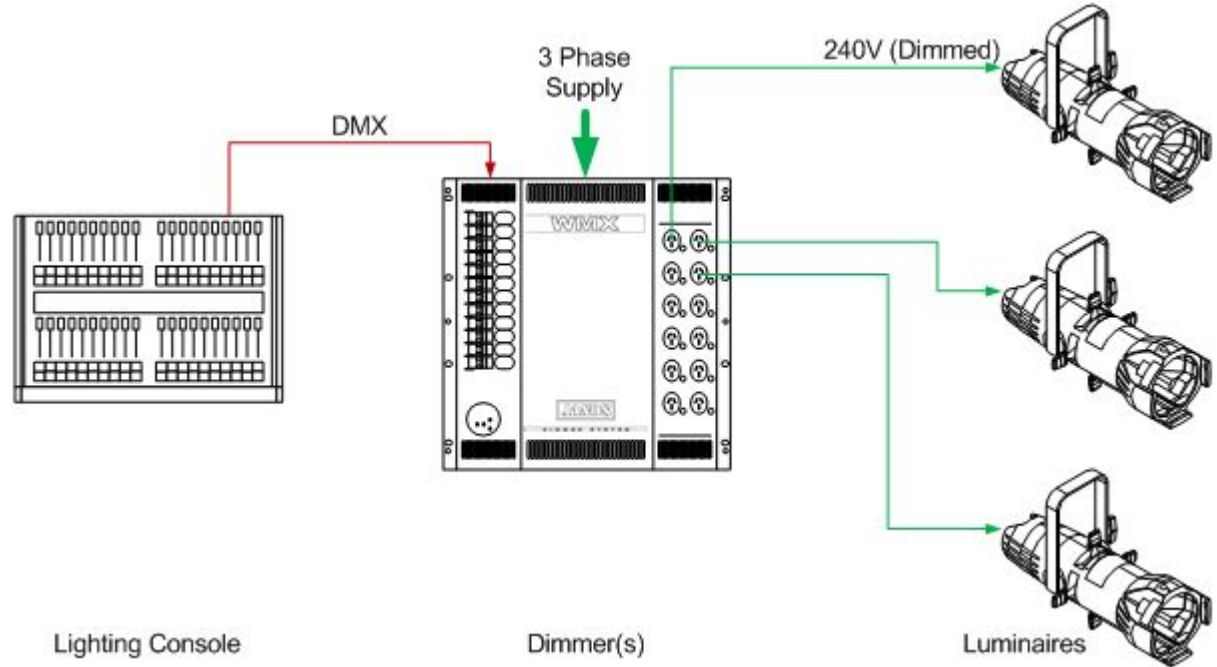
As a lighting designer color is one of your greatest tools! But your head is probably spinning with all this new info....wow... theatre is science too! But have no fear, once you get to actually work with the lights, it is really cool! To see watch this video: [Mixing Light: Science Theatre: 101](#)

After watching the video, write a reflection of who lighting is mixed to create colors?

# Circuits and Dimmers

The Path of the electrical current:

The lighting instruments are plugged into the outlet (circuit). The circuit runs to the dimmer rack which connects each circuit to a specific dimmer, which goes to the control board.



# Circuitry

- A circuit is the complete path of the electrical current.
- A dimmer controls the intensity of the light.
- It may be helpful for you to think of the circuit as an outlet and the dimmer as an on/off switch.
- Each circuit in the theatre will hold 2400 watts. If you overload a circuit, you will either blow a breaker and/or create a fire hazard.
- Any lights placed on the same circuit **MUST** be on the same dimmer. They must be able to go on and off at the same time.

# Gobos

These are examples of metal templates that can be placed in an ERS. The pattern can be shone on a wall or an object the audience can see to create special effects.



879 Laser Lines



880 Bursting Breakup



881 Proverb



882 10 Commandments



883 Barbed Wire



884 Bing Bong



885 Bridge View



886 Dice



887 Nuclear Plant



888 Future



889 Maple Breakup



890 Pagoda



891 Painted Sun



892 Sundial



893 Teardrop Breakup



894 Totem Pole



895 Bay City



896 Japanese Garden



897 Pyramids



898 Jukebox



899 Graduation



900 Pentagon Spin

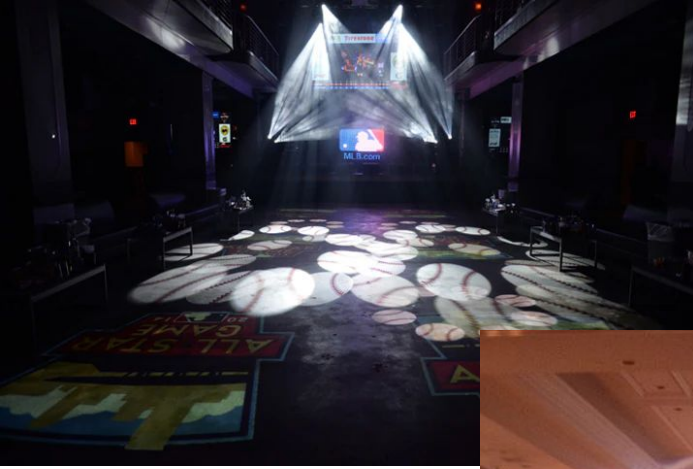


901 Comedy Tragedy



902 Night City

# Gobo examples



# Activity: Make Your Own Gobo

1. What materials would you need to make your own gobo? (Think safety: this would be used in front of a light....do some research to find out.)
2. Now, let's have some fun and make our own design! We will use a heavy paper (paper plate works great) just for the practice (if you answered question one, you know we would NOT use this in front of a light).
3. Draw a circle the size of the ERS you would use (guesstimate).
4. Decide on a design you would like to use someday as a lighting designer.
5. Sketch it out. Remember to stay within your boundaries.
6. If you have available tools, cut it out. Don't cut past your boundaries!
7. If you have a flashlight, check out your design by placing it in front of the light beam in a dark room.