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Think you know color? Grab some LEDs or gel, and try this chocolatey experiment.



By **WENDY LUEDTKE (HTTPS://BLOG.ETCCONNECT.COM/AUTHOR/WENDY-LUEDTKE)**

12 Dec 2017



Looking for a fun (and tasty) way to explore color? For several years now, I've used candy to help teach color rendering. It's a trick I learned from Terena Wilkens of Gustavus Adolphus College, who presented it at a USITT lecture on teaching color without a light lab.

The setup

Here's how I do the exercise. This method can be performed for a group of up to about 12 students (or as a party trick to amuse the room at your next lighting gathering).



Here's what you'll need:

- **Two packets of your favorite, colorful, sugar-coated chocolate candies.**
  - *Try to buy them in two different stores so that you get two dye batches. Sometimes they're a match, but every once in a while, the difference is just enough to be visible.*
- **One white piece of paper or white paper plate**
- **One black marker**
- **A light source with the ability to make very "pure" red, green and blue.** This can be:
  - An incandescent light source with primary or dark red, green and blue gels
  - An LED fixture with RGB emitters
  - An automated fixture with three colors ready to dial in
- **A room that can be completely darkened**

    - *Turn off all your light-up mobile devices.*
- **Freshly-washed hands** *(you'll probably want to eat those candies later…)*
    - *Terena's more hygienic alternative: distribute fun-size candy packs to students after the lesson is complete, and keep the demo candies for the demos…*

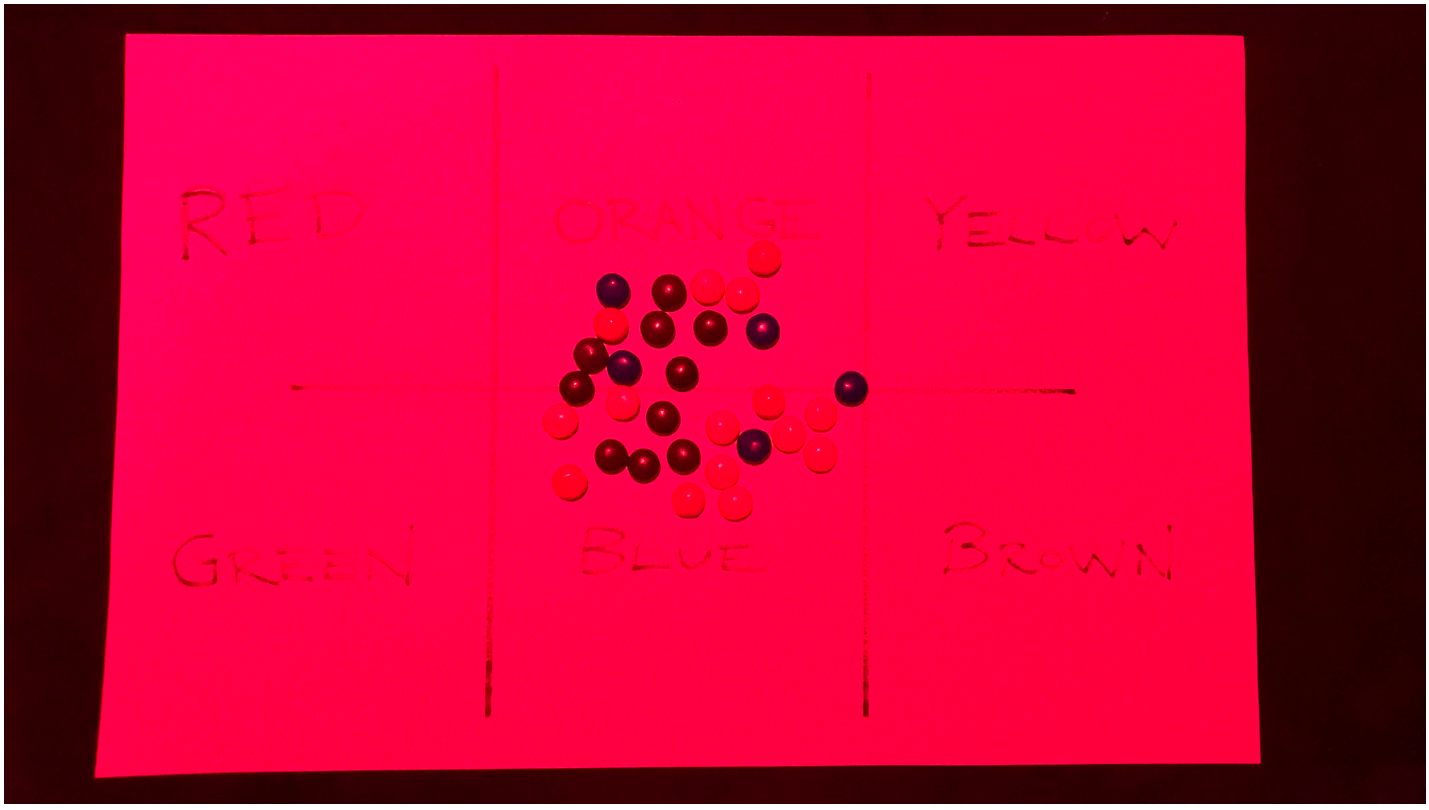
Using the marker, divide your paper or plate into sections – one per candy color. Label each section: red, orange, yellow, green, blue, brown.

Then turn off the lights…and get started.

The experiment

In the darkened room, Turn on just the **red** light.

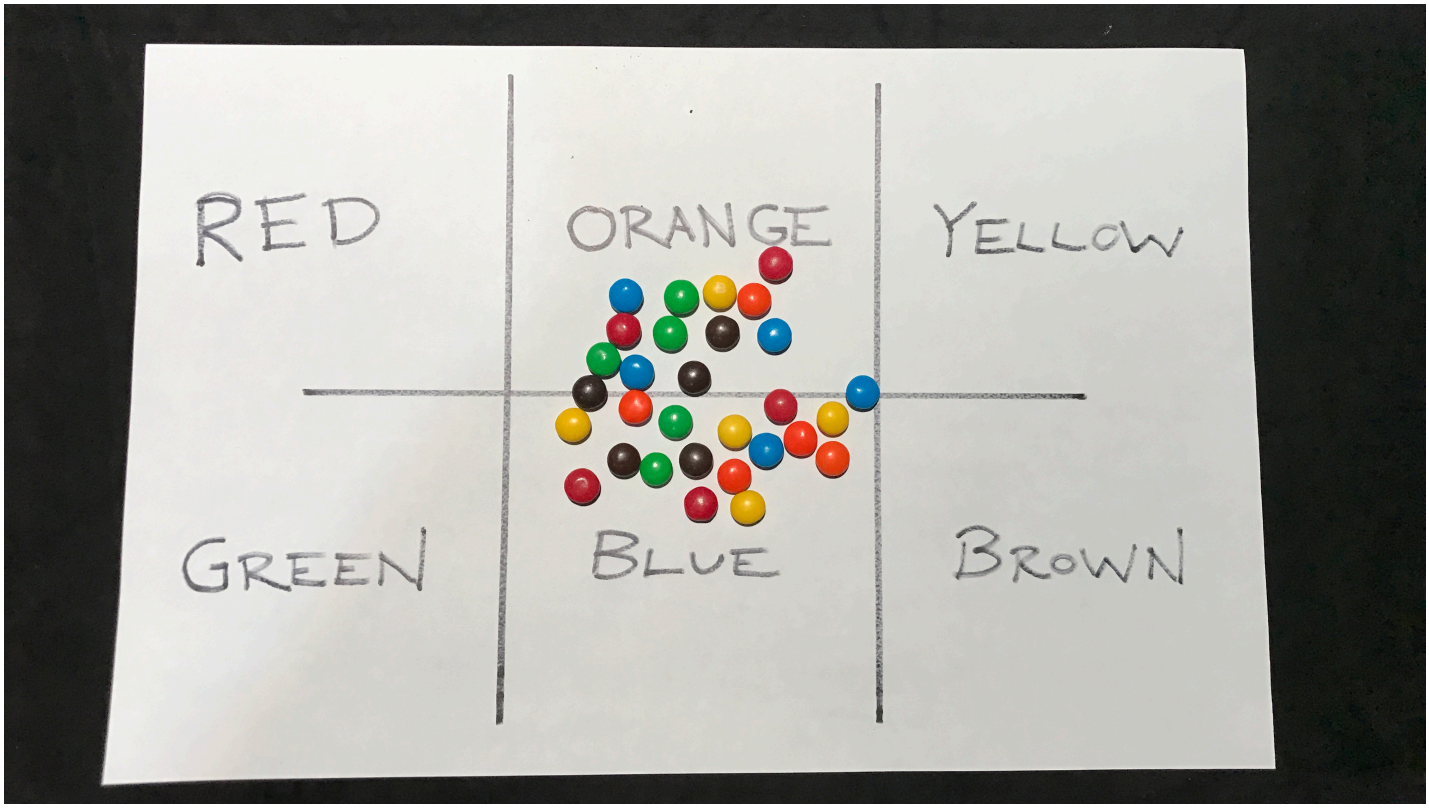
Dump out the candies and try to sort them.



Good luck, kids.

This one is the hardest (even cameras don't like it!)

Make whatever countdown noises you like, then once the group seems to have gotten as far as they're going to get, turn the room lights on.



Discuss what they got right and wrong and why. Go ahead and eat a few chocolates at this point if you're feeling glum about your color-sorting prowess.

Turn the lights back off, add more candy pieces in case anyone counted how many were there of each color. Now repeat with **green** light. Then white lights on and discuss, eat a couple, and repeat by adding more and then using **blue** light.



I do it in this order because I find the red hardest and blue easiest. This gets students thinking about rendering and engaging as a group most quickly and successfully, whether they're novices or MFA candidates.

"What I really enjoy seeing is how the project seems to equalize the students," says Terena. "Those who thought they knew all about color theory- pigment or light- are often the ones that take the longest to grasp the concepts. The quietest person in class is often the one to shine."

Taking it further…

If you repeat the exercise, I suggest fully embracing Terena's suggestion to secretly use holiday mixes. It's pretty fun to sneak in the holiday red/green mix or the fall brown array in one of the blackouts.



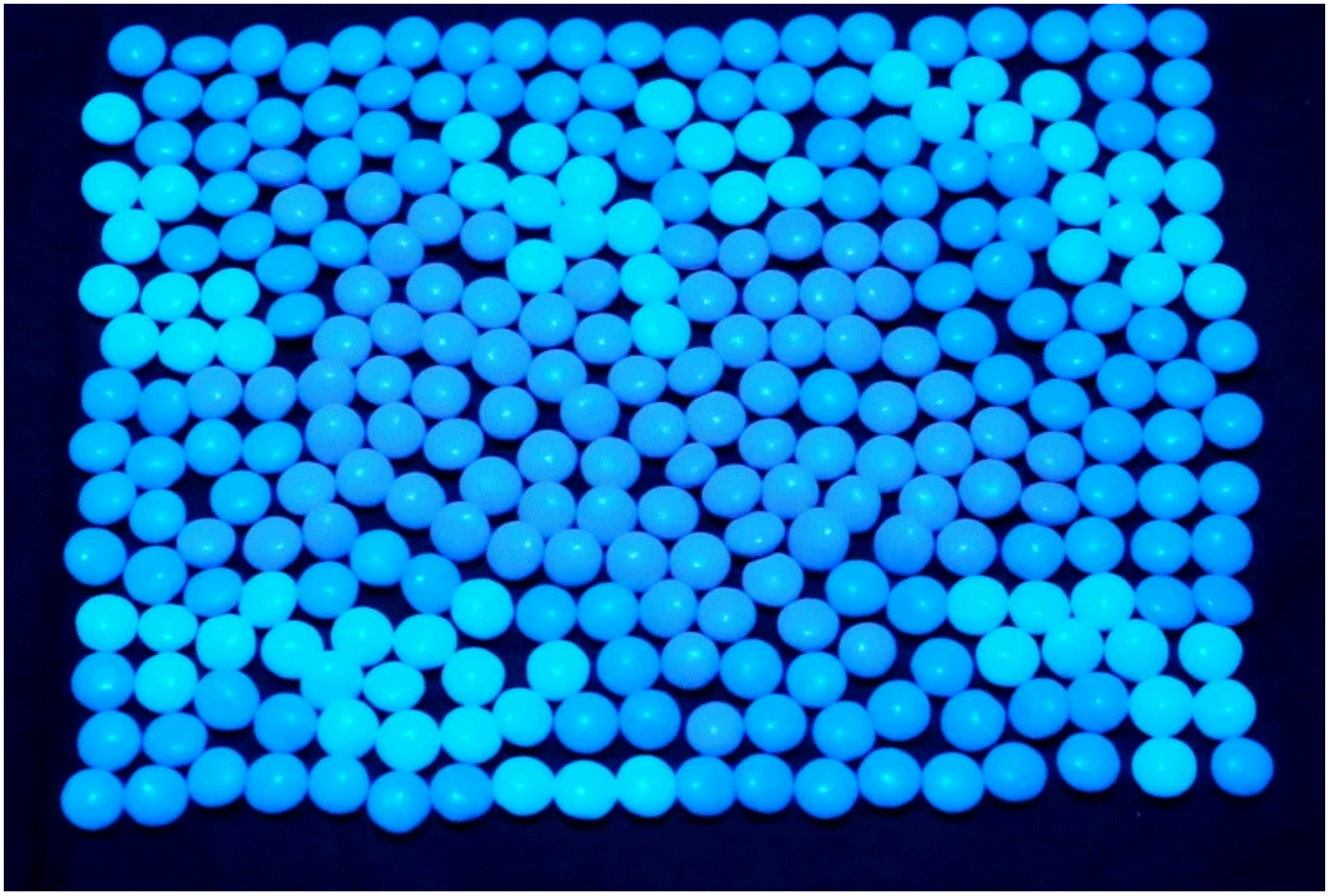
With an extended candy palette, you can also play with additional colors of light to achieve different effects. Throw in some pinks, whites and light blues and see what optical tricks you can play.

We used a seven-color Source Four LED Series 2 Lustr fixture to play with the color array at right. Note how vertical and horizontal stripes appear under different lighing conditions.

Taking it…maybe too far? (nah)

If you have an afternoon to spend, you can even try your hand at some candy-and-lighting mixed-media art!

Fade between cyan and white light to make a flying pig appear and disappear in a cloud-dotted sky:



But don't HOG the M&Ms…

….or get festive with punny, nesting illusions:



We call this trick "A partridge in a pear tree"

Monkey around with other materials

I also find it useful to include scenic and costume designers in the demo. After all, it's their stuff we're lighting up. And nobody wants the director to come and sit down next to them at the tech table because the diva's dress doesn't look right.

Terena uses a second demo to illustrate the effect of lighting on sets and costumes: a piece of fabric on which printed monkeys can be made to appear and disappear using carefully-selected gels.

"The monkey fabric often comes out when we talk the importance of collaboration with other designers," she says. "There is always a set or costume designer in the room who does not like how easily I can mess with their work. Then we talk about how much fun it would be to use this to our advantage!"



Terena explains her process:

> “I put in a gel I know will make the fabric monkey-free. We talk about how the color looks, about what they are seeing — give them a fair shot to say they see monkeys. One student thought they saw dots—but no one believed them!
>
> Then I talk about how a color can alter something that you may or may not want altered — the costume in The Wiz changed colors by using gels to get you from white to blue to green.
>
> Finally, I ask what other colors we might try on this fabric — and when we change colors, it appears completely full of monkeys, and they are all shocked. We then look for other colors to alter it.”

Of course, monkeys are fun, but by no means required. Explore your surroundings for colorful objects, and you, too, can build an amazing demo – and build an important dialogue with your color-conscious colleagues.

Do you have other color demos to share? Let us know in the comments, or email us at blog@etcconnect.com

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WENDY LUEDTKE (HTTPS://BLOG.ETCCONNECT.COM/AUTHOR/WENDY-LUEDTKE)



As ETC's resident color specialist, Wendy focuses across product areas on color exploration, research, science, and standards. Before joining ETC, she

was the color filter product manager at Rosco, a designer for theater, events, and architectural projects, and an adjunct at NYU. Wendy is pretty sure her obsession with color began when her college professor called the color choices in her first show “safe.”

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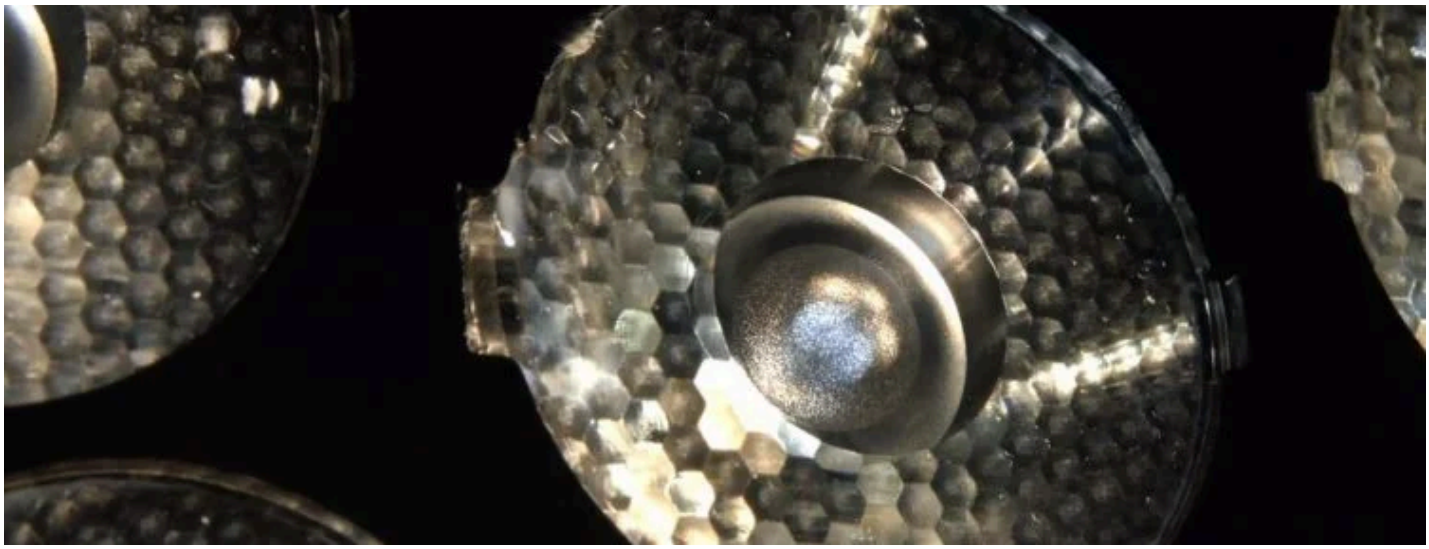
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