



Smart Light

Use your smart phone to program a light bulb to do amazing things! The energy-efficient FLUX Smart LED Light Bulb lasts for up to 20,000 hours and can be controlled from your iPhone or Android. The bulb can respond to music, be used as an alarm clock, and has a palette of over 16 million colors! By simply using the FLUX app on your phone, this revolutionary light bulb has endless environmentally-friendly programming capabilities.

TEKS:

6.2B: The student is expected to design and implement experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology.

TA.1C: Creativity and innovation. The student uses creative thinking and innovative processes to construct knowledge and develop digital products. The student is expected to explore virtual environments, simulations, models, and programming languages to enhance learning.

Materials:

- 1 FLUX LED Smart Light Bulb (<https://www.fluxsmartlighting.com/>)
- 1 FLUX power cord
- 1 Smartphone (iPhone or Android)

How To:

1. Download the FLUX app for iPhone or Android on your smartphone:
iPhone: <https://itunes.apple.com/us/app/flux-bluetooth/id1050558235?mt=8&ign-mpt=uo%3D4>
Android: <https://play.google.com/store/apps/details?id=com.Westwingx.LEDBluetoothFlux>
2. Once the app has been downloaded, screw the FLUX light bulb into the power cord.
3. AFTER attaching the light bulb to the power cord, plug the cord into a power outlet and turn the bulb on using the switch on the cord.
4. Open the FLUX app on your smartphone and pair your plugged-in bulb with the app. (Note: The FLUX bulb must be turned ON for this to work!)
5. Once paired, feel free to give your light bulb a fun name, and then open the app to begin programming!
6. Complete CHALLENGE #1 and CHALLENGE #2 below.

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CHALLENGE #1: THE COLOR CHALLENGE!

- Using the settings in your FLUX app, discover how to make the light bulb change colors!
- Once you have successfully figured out how to change the color of your bulb, try and make the following colors:
 1. **HOT PINK**
 2. **DARK GREEN**
 3. **SKY BLUE**
 4. **BURNT ORANGE**
 5. **CHRISTMAS RED**
 6. **YOUR FAVORITE COLOR**
- Once you have successfully made all 6 colors, try to change the BRIGHTNESS (there is more than one way to do this) of the bulb and see how it affects the way the colors look.
- **EXTRA COLOR CHALLENGE:** Use the FLUX app to make the light bulb shine the color of your shirt! (HINT: Look for a “CAMERA” function in the FLUX app.)

CHALLENGE #2: THE SOUND CHALLENGE!

- Use the FLUX app to make the light bulb play along to your favorite songs!
 - Open the “MUSIC” tab of the FLUX app and connect it to the music that you already have on your phone.
 - Select your favorite song and watch what happens to your light bulb.
 - NOTE: If you don’t have any music downloaded on your phone, this app can also be linked to Pandora or Spotify!
 - **EXTRA SOUND CHALLENGE:** Use the FLUX app to make the bulb light up when you clap your hands. Then see what happens when you say your name, or sing a song!
7. Once you have successfully completed CHALLENGE #1 and CHALLENGE #2, discover all of the amazing things the FLUX Smart LED Light Bulb can do! Check out the pre-programmed lighting under the FUNCTIONS tab, set light-based timers and alarms, and even program more than one bulb to make your own custom light show!

STEM Explanation:

Programming is an important part of our lives. It is what makes our computers, our electronics, the appliances in our houses, and even stoplights on the street work! It is a way for us to communicate with electronic things to tell them what to do. If we don’t tell a computer (or a light bulb in this case) what to do, it won’t do anything! In the FLUX app, you are able to give your light bulb directions about what color to shine or when to shine. How does the light bulb receive these instructions? It connects to your phone using Bluetooth. Bluetooth enables the FLUX light bulb to communicate with radio waves rather than a wire, allowing it to receive communication from your phone from a short distance away. If you get really far away, you won’t be able to change the color of your light! Bluetooth is also used in many cars to talk on the phone hands-free, and is the science behind wireless headphones.

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Career Connection:

Lighting engineers use the principles of electrical engineering to design, develop, test, and supervise the manufacture of lighting equipment for consumer, business, and industry use. Lighting engineers, and the companies that employ them, are focused on the development of energy-efficient lighting.

Resources:

<http://bluetoothlightbulb.com/>

<https://www.fluxsmartlighting.com/>

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