

## **EXPERIMENT: RAINBOW SHADOWS**

Shadows are always black... Right?

Wrong. With colored light bulbs and a dark room, you can make shadows in any color of the rainbow.

**You will need:**

a **red** bulb, a **green** bulb, and a **blue** bulb

a dark room

three flashlights or short lamps that can use the bulbs

a blank wall for casting shadows

something to cast a shadow (like your hand)

an assistant to help with the flashlights

You can find the bulbs at a hardware store.

1. Pick your favorite of the three colors and shine it around a bit. See how normal things look different in this strange light.
2. Shine all three lights in the same spot. What color do you see?
3. Make the three circles of light overlap. On the back of this page, draw a diagram showing the **colors** you see. Leave room for another diagram!
4. Make shadows in each of these colors:  
**red, blue, green, purple, yellow, black**
5. Can you make a shadow in brown? Explain why or why not.
6. Try to make **shadows** in as many colors as you can *at the same time*. On the back of this page, draw a diagram of how you did it.
7. On the back of this page, explain whether any of your observations surprised you. Did any of them seem to contradict the rules you learned? If so, how could you explain this? (For instance, the blue light bulb might also give a bit of yellow light.)