

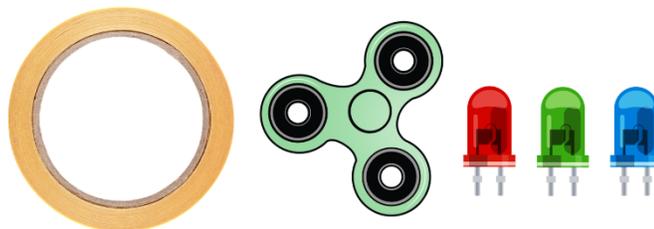
9C – LIGHT ENERGY

INQUIRY

What color lights produce the most energy?

MATERIALS

- Glow-in-the-dark object
- Tape
- LED light source with red, green and blue LEDs



BACKGROUND

Engineers use the properties of light to create many things that benefit society. Light energy is the only form of energy that we can actually see directly. It is formed through chemical, radiation, and mechanical means. Light energy can also be converted into other forms of energy. Most colors of light can be made by mixing together just three colors—red, blue and green.

Glow-in-the-dark objects, also called phosphors, radiate visible light after being energized. They need to be exposed to light that has enough energy to be stored. Phosphors then slowly release their stored energy over time. As they release the energy, they emit small amounts of light, which we see as an object glowing.

SAFETY

Follow these important safety precautions in addition to your regular classroom procedures.

- Use caution when looking directly into the light.

PROCEDURE

1. Put two pieces of tape about 6 cm away from each other.
2. Place the glow-in-the-dark object on one piece of tape and the red LED on the other.
3. Turn on the red LED. Turn off the classroom lights. After 2 minutes, turn off the LED. Record your observations in Table 1 on your answer sheet.
4. Turn the LED back on for an additional 3 minutes, turn off the LED and observe. Record your observations in Table 1.
5. Wait a few minutes to allow all glowing, if any, to stop.
6. Repeat steps 2-5 with the green LED.
7. Repeat steps 2-5 with the blue LED.
8. Clean up according to the teacher's instructions.

 **ANALYSIS** 

Complete the analysis on your answer sheet.

 **QUESTIONS** 

Answer the questions on your answer sheet.