

# RGB Snap Lights & Spinner

P2-9440



## BACKGROUND:

Snap the red, blue, and green light sticks and attach them to the axle. Dim the lights, turn the crank, and observe a circle of white light.

## CONTENTS:

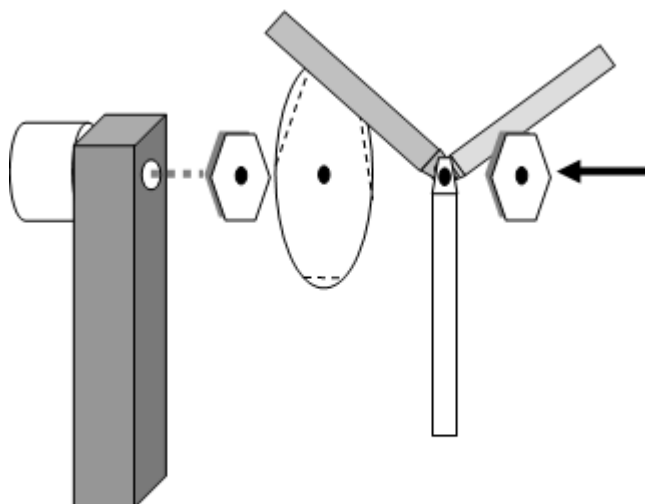
- Hand-crank Spinner base
- Chemiluminescent Light Sticks: Red, Blue, Green
- Black electrical tape
- **Note about Light Sticks:** These light sticks will glow for 8-12 hours and should last through the school day. To extend their life as long as possible, keep them cool (in a refrigerator or ice chest) between demonstrations.

## ASSEMBLY INSTRUCTIONS AND BASIC OPERATION:

1. Place the spinner on its back (crank side down).
2. Remove the small nut from the front of the bolt. Leave the rest of the assembly intact.

3. Make sure that the following parts are on the bolt and in this order, starting from the blue stand:

- a. Thin ring fitted around small inner ring (greased).
- b. Hexagonal nut loosely against thin ring.
- c. 2.5" metal positioning plate against hexagonal nut, bending out toward you.



4. Unwrap the red, blue, and green light sticks.
5. Arrange the sticks on the bolt so the sticks are resting in the indentations in the positioning plate.
6. Tightly attach the second hexagonal nut. Turn the back of the bolt (on the crank side) clockwise to tighten the front nut. Reposition the light sticks into the indentations if they move.
7. If the assembly does not turn smoothly, with needle-nose pliers, reach behind the large washer and loosen the hexagonal nut (turn counter-clockwise) up to a half-turn. This will allow the assembly to spin as well as further tighten the light stick assembly.
8. Stand the spinner on its base. Turn the crank. If the assembly does not spin smoothly, loosen the hexagonal nut another half-turn.
9. Snap each of the sticks to begin the chemical reaction, and shake the entire assembly to thoroughly mix the chemicals.
10. Hold the base steady with one hand while you turn the crank with the other hand. Viewers should observe a white circle!
11. **Safety caution:** Observe the spinning motion only from the front or back, never from the side.

## TROUBLESHOOTING:

Variations among light sticks may cause the resulting color to have a greenish or pinkish (but, interestingly, probably never bluish) hue. If this occurs, modify the brightest stick by wrapping it in a single layer of waxed paper or adding strips of slightly translucent tape.

## SUBTRACTING COLORS:

Add a unique dimension to this classic demonstration by using black electrical tape.

1. Begin with the basic color addition demonstration.
2. About 1" from the free end, wrap the Blue light stick with a small strip of tape. Spin again to see a band of yellow about 1" from the edge of the circle. (White - Blue → Yellow. Blue and yellow are complimentary colors that add to produce white.)
3. About 2" from the free end, wrap the Green light stick with tape. Ask students to predict what will result. Spin to see a band of magenta about 2" from the edge of the circle. (White - Green → Magenta.)
4. About 3" from the free end, wrap the Red light stick with tape. Predict. Spin and see a band of cyan. (White - Red → Cyan.)
5. With practice, it is possible to create a circular rainbow using this method. Ask students to devise a plan for the placement of tape to do this demonstration. (You will cover half of the Blue stick near the free end, half of the Red stick near the attached end, and the Green stick on both ends, leaving it clear in the middle.)

## RELATED PRODUCTS:

**Replacement Light Sticks** (set of 3) (P2-9445). Red, green and blue.

**Light Box and Optical Set** (P2-9561). Complete set allows each student group to experiment with color, reflection, and refraction.

**Spectrum Demonstration Kit** (33-0200). Use this kit to turn your overhead projector into a giant spectroscope that the whole class can see. Demonstrate spectrum and color addition and subtraction.

