

## SHADOWS

**Activity 1: Watch the first video, listen carefully and fill the gaps below.**

We have red, green, and blue lights. Why are these shadows not red, green, and \_\_\_\_\_ ? We have our three lights, red, and green, and blue shining on the board. It looks \_\_\_\_\_. When I put the pencil in and cast shadows, the \_\_\_\_\_ are yellow, magenta in the middle, and cyan. To understand how that happens, we can turn off the lights one at a time, so that only the red light \_\_\_\_\_ on the board making it red. Now when I cast a shadow, it's a \_\_\_\_\_ shadow, it's the one place on the \_\_\_\_\_ where there is no \_\_\_\_\_. So we can think of the shadow as \_\_\_\_\_ red light from the board, in the position of the \_\_\_\_\_. To understand our \_\_\_\_\_ shadows, I'm going to start by turning off the green light. This leaves a red light, separated from a blue light by about eight inches. That'll be important to understand the shadows. When the red light and the blue light shine on the board they \_\_\_\_\_ off the board and you see a magenta colour. When I make my shadow, I see \_\_\_\_\_ different shadows. The light from the red light goes in a \_\_\_\_\_ line and it makes a shadow here. Watch that shadow as I \_\_\_\_\_ the red light on and off. So this is the shadow of the red light. And over here, this is the shadow from the blue light. The blue light is in a different position so it fills in the shadow from the red light. And the red light \_\_\_\_\_ the shadow from the blue light. That's why we have red and blue shadows in a \_\_\_\_\_ board.

**Activity 2: Watch the second video, listen carefully and fill the gaps below.**

The important concept to understand the colored shadows is that light \_\_\_\_\_ in straight \_\_\_\_\_. I'm gonna show that using this ruler. I'm gonna put the one end of the ruler at the center of the red \_\_\_\_\_. It shows the light traveling along one \_\_\_\_\_ to the screen. Of course, light from the red bulb hits everywhere on the \_\_\_\_\_ traveling in straight lines, however along this path, if I put the pencil there, the pencil blocks the light traveling in a straight line \_\_\_\_\_ the ruler, and makes a shadow on the wall. However, light from the \_\_\_\_\_ bulb also travels in \_\_\_\_\_ lines, and its straight line misses the pencil, and fills in the \_\_\_\_\_ from the red light.