

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.