

Name _____

HOW TO "LIGHT UP" YOUR LIFE

More than 300 years ago our good friend and fellow scientist Sir Isaac Newton passed sunlight through a glass prism. Even though the sun's light appears to us as yellowish-white, Newton discovered that rays from the sun could be dissected into the colors of the rainbow. With an instrument called a SPECTROSCOPE, we are going to observe the SPECTRA (series of colors) given off by several different light sources. By the end of this lab you folks will be SPECTRAL ANALYSIS EXPERTS that will be able to impress the livin' heck out of your families and friends. As usual, our buddy Marvin Miscue has gotten himself into trouble again. After you read the OBJECTIVES and do the lab, you're going to have to help the peer guy out. OK? GET TO WORK!!!

OBJECTIVES

1. To discover that different types of lights give off different SPECTRA.
2. To see how knowledge of SPECTRA can be useful in everyday life.

YOU'RE ON THE RIGHT TRACK WHEN YOU CAN...

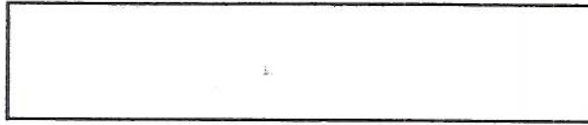
- 1a. Draw the SPECTRA you see through your spectroscope of a light bulb, hydrogen, neon, air, helium, nitrogen, mercury, & sodium.
- 2a. List examples of how different types of lights are used for different purposes.
 - b. Figure out what elements are used in a fluorescent light tube.
 - c. Help Marvin Miscue figure out what kind of light bulb he needs to buy for his laboratory.

Directions

1. This is going to be a "sit at your desk and observe" lab, but I promise it won't be boring. First, I'm going to give each of you a SPECTROSCOPE. Then, we are going to look at several different light sources. With your colored pencils, draw the spectra you see for each light source. GET READY, GET SET...GO!

Light bulb

Now, wasn't that an absolute BLAST??? If you thought that was fun, just wait 'til you try this: I'm going to show you the SPECTRUM from a fluorescent light tube. Draw what you see.



Compare the spectrum you drew for fluorescent light with your drawings on the previous page. What elements are contained in a fluorescent light bulb? How do you know?

Do you think scientists could ever use SPECTRA to figure out composition of objects? Give me a few examples. (HINT*** How do we know that the sun is made out of helium?)

What kind of spectrum would you expect the sun to give off???

Give four examples of how different types of lights are used for different purposes. What types of lights do you see in a bar, in a classroom, on a street, in a house???

What are different kinds of lights used for different purposes? EXPLAIN

Well sports fans, Marvin Miscue has another problem. You see, he has 5 lights in his laboratory, Yesterday one of them burned out. When poor Marv went down to the ACME Hardware Store to buy a new one, he was chocked to see they carried a jillion different types. He didn't know whether to buy neon, nitrogen, or just a regular old G.E. bulb. How could you help Marvin figure out which type of light tube he needs for his laboratory. With only 4 lights left in his laboratory, Marvin Miscue will really "be in the dark" until YOU can help him. LIST YOUR STEPS IN HELPING MARVIN WITH HIS LIGHT PROBLEM.

