

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Class: \_\_\_\_\_

## What's the Frequency, Roy G. Biv? Wrap-up Worksheet

Today you examined the relationship between wavelength and frequency of light. Fill out this worksheet with the results of your experiments. Each student is responsible for completing this worksheet.



1. Compare the wavelengths and frequencies of the three waves. Write about any patterns you notice in their relationship.

2. Which color has the shortest wavelength?

Which color has the longest wavelength?

3. Which color has the highest frequency?

Which color has the lowest frequency?

4. What is the relationship of the red **wavelength** to the green?

Red to the violet?

5. What is the relationship of the red **frequency** to the green?

Red to the violet?

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6. From your answers to the questions above, name the relationship between **wavelength** and **frequency** in waves that travel at the same velocity like the waves measured in this lab.

7. Remember that velocity = distance / time. What was the velocity of the waves in this lab?

**Note:** the actual velocity of light  $c = 2.99 \times 10^8$  meters per second, but for our purposes in this lab, it will appear only as fast as the Time Keeper is pulling the adding machine tape.

8. Multiply the wavelength of the red wave by its frequency. Do this for the blue and green waves also and write the answers below.

red \_\_\_\_\_

green \_\_\_\_\_

violet \_\_\_\_\_

9. What do you notice about the results?

10. Write a new equation for the velocity of waves in terms of wavelength and frequency instead of distance and time.