Light and its characteristics - lab report example

Science, Physics

Light and Its Characteristics

The paper “ Light and Its Characteristics" is a great version of a lab report on physics. This experiment simply had to do with the ultimate tests regarding the geometric laws as they interact with lenses, mirrors, and prisms. This simply had to do with the aspects of both reflection and refraction of light that has got various applicable uses. As the sub-field of physics, optics essentially focuses on the entire study of light and its characteristics. It has yet proved its significance to several conceptual biological areas that includes; vision, botany, neurobiology ecology, and even the molecular biology (Geometric Optics, 1987). The utilization of optical concepts has since evolved to a greater extent as far as the use of microscopes is concerned. This laboratory experiment worked towards exploring the general behavior of both lenses and lights. The experimental results and analysis were basically arrived at as follows, but with the constant focal point of 6. 5 cm:

Results:

Angle of Refraction (θr) Angle of Incidence (θi):

5 2

10 4

20 14

30 23

45 38

Graphical Presentation of the attained Results: (θi) against (θr)

Discussion and Conclusions:

The entire experimental results indicate that there is a correlation between the angle of incidence, the angle of refraction, as well as the focal point. On the other hand, there is also a slight variation between the object distance and the focal length. The correlation between the angle of reflection and the angle of incidence is largely determined by the focal length and the object distance. From the above graphical presentation, there is a clear indication that increase in the angle of incidence simply leads to a consequent increase in the angle of reflection, under a constant focal length (Geometric Optics, 2010)

This is the basic reason why this concept is often applied in various optical fields since it is practical in nature.

The figure below tends to summarize such sort of correlations as per the lab experiment:

Ray 1 basically shows that any ray that bypasses the lens and is parallel to the lens' axis often passes through the other lens's focal point. On the other hand, ray 2 shows that any form of ray that bypasses the lens's optical center often remains un-deflected. This hence brings out the aspect of Snell's law that indicates that $n1\sin\theta i = n2\sin\theta r$ (Geometric Optics, 2010)