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Spacing and Diffraction Patterns

In this project, the goal is to measure how far the spacing is on a CD, DVD, CD-RW, and DVD-R based on its diffraction pattern. In addition, the results will show the differences in spacing based on the amount of data on the disc. A stage made from ordinary household items holds the discs in place while an incident beam from a laser pointer bounces from the surface of the disc. The angles of the diffraction pattern are marked on a piece of card stock. Using a protractor, the measures of the angles are recorded on a data table. The angles calculate the distance of the spacing using the formula: d (distance) = m (order of refracted beam) * ë (wavelength) / (sine of angle of order of refracted beam minus the sine of incident angle). The results of the projects shows that the more data on the disc, the larger the spacing that is present on the disc. The recorded CD showed a larger distance in space than the blank CD-RW. The DVD had even larger spaces than the blank DVD-R. The results showed that the spacing was larger as more data was present on the disc. This project is important to show in order to fit more data on the disc; the spaces must be larger to store more data.