CD

Apparatus

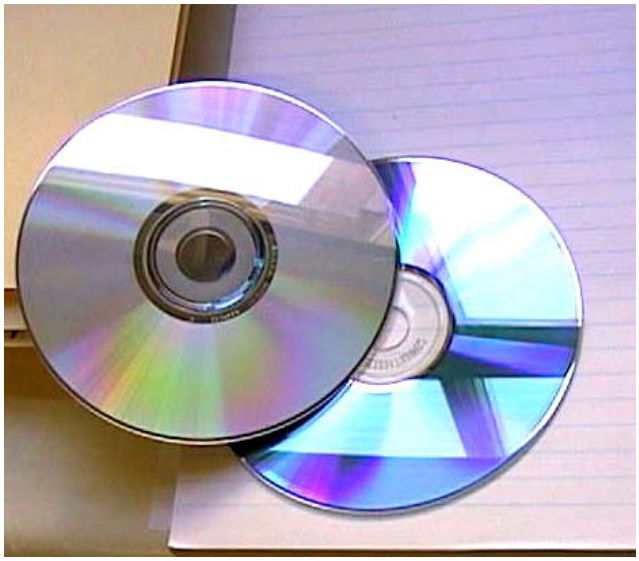
compact discs

Action

The students observe the light reflected from the CDs. They should be able to see colours in the reflections, and explain why they see these colours.

The Physics

Compact discs behave like diffraction gratings. This because the data is stored on a CD using pits, and each pit is around 500 nm wide – within the wavelength range of visible light. When light is incident on the CD it is reflected from the pits and interferes. The intensity of the resultant light depends on the path difference, which is a function of wavelength. Different wavelengths hence give constructive or destructive interference at a given point, giving a particular colour – the colour with a wavelength that interfered constructively.



Accompanying sheet

CD

Hold the CD in your hand and angle it towards and away from the light.

What do you observe?
Explain your observations.