

How a CD works

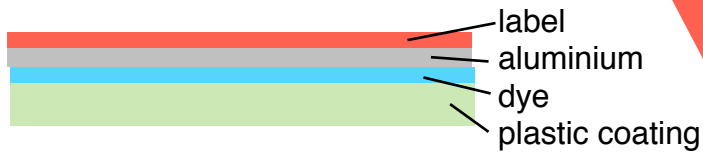
The Fizzics Organisation

magnified track

1 The CD track is a very fine **spiral** several miles long, starting at the centre and spiraling outwards.



2 If the track is magnified it is possible to see **minute pits and bumps** in the aluminium. When CDs are mass produced the pits and bumps are made by a metal stamp. It is these that encode the data or sound in binary code.



6 In the CDs you burn at home a high powered laser changes the nature of a dye layer in front of the reflective aluminium layer to make bits of it dark. These act in the same way as the bumps on the commercial CD, absorbing the laser beam. Where the dye layer is clear the laser reflects back from the shiny aluminium behind

3 The aluminium is covered by a protective coating.



Laser beam

Sensor

5 Light hitting the bumps is not reflected into the optical sensor. A 0 is recorded



Laser beam

Sensor

4 As the laser tracks around the spiral the light reflected from the hollows is detected in the photo cell and records a 1



Plastic coating

Aluminium

Acrylic

Label



A detailed account of the stages of making and reading a CD also available at:
<http://www.howstuffworks.com/cd.htm>