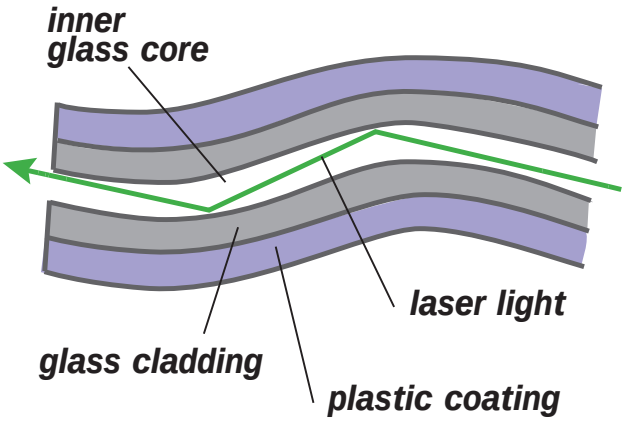
# Optical Fibre

**Optical fibre is made up of an inner "core" of glass surrounded by a "cladding" of slightly different glass. This is then covered with a plastic coating to make it easier to handle.**




**The light travels down the inside core of the fibre. Whenever the light goes towards the edge of the core, it gets reflected back by the cladding. This is called total internal reflection. The light is trapped and cannot escape until it reaches the end of the fibre.**

**2 kg of optical fibre can carry as much information as 8 tonnes of copper wire.**

At Questacon a powerful laser is housed in a safe room and is used to illuminate a hologram 25 metres away. The optical fibre used in this exhibit was provided by *Australian Photonics.* It is the latest technology and the light loses hardly any energy as it is guided along the fibre.

Optical fibre statistics

- core diameter is 3 millionths of a metre (3µm)
- cladding diameter is 125 millionths of a metre (125µm)
- plastic coating is 250 millionths of a metre (250µm)

A human hair is about 80 millionths of a metre across, (80µm)