

# NZIP IYL Demo Handout

## Edible Fibre Optic



### Learning objective

To demonstrate the operation of optical fibres, which is based on internal reflection.

### Background

Optical fibres transmit light between the two ends of fibre and are widely known for their usefulness in communication systems. Optical fibres utilize the principle of total internal reflection. Total internal reflection (TIR) is the phenomenon that involves the reflection of all of the incident light off of a boundary.

### Activities

The gelatine serves as the light pipe, directing the light through it. The students can bend the gelatine to observe different angles of refraction.

### Example Questions

1. What is special about a laser beam of light?
2. What are some applications of fibre optics?
3. Compare and contrast fibre optic cables and electrical cables.

### Materials

#### Laser

- Most lasers will work for this.
- Can purchase at LookSharp.
- Can repurpose DVD/Blu Ray lasers.
- Can use standard PowerPoint pointer lasers.

#### Link:

<http://nz.rs-online.com/web/p/laser-pointers/4423508/>

#### Gelatine

- Gelatine and its tastier cousin, jelly, can be bought from all supermarkets

