

Direct Application Overview

Imaging Partnership is pleased to offer a service to Key Stage 4 and Key Stage 5 students that brings the subjects taught in Science and Maths at KS 5 level that crossover with optical careers.

Areas included involve:

- Lifestyle, Health and Risk
- Genes and Health
- Biodiversity and Natural Resources
- Infection, Immunity and Forensics

Applications of photonics are ubiquitous. Included are all areas from everyday life to the most advanced science, e.g. light detection, telecommunications, information processing, lighting, metrology, spectroscopy, holography, medicine (surgery, vision correction, endoscopy, health monitoring), military technology, laser material processing, visual art, biophotonics, agriculture, and robotics.

The potential applications of photonics are virtually unlimited and include chemical synthesis, medical diagnostics, on-chip data communication, laser defense, and fusion energy, to name several interesting additional examples.

Direct application subjects include –

- Consumer equipment: barcode scanner, printer, CD/DVD/Blu-ray devices, remote control devices
- Telecommunications: optical fiber communications, optical down converter to microwave
- Medicine: correction of poor eyesight, laser surgery, surgical endoscopy, tattoo removal
- Industrial manufacturing: the use of lasers for welding, drilling, cutting, and various methods of surface modification
- Construction: laser leveling, laser range finding, smart structures
- Aviation: photonic gyroscopes lacking mobile parts
- Military: IR sensors, command and control, navigation, search and rescue, mine laying and detection
- Entertainment: laser shows, beam effects, holographic art
- Information processing
- Metrology: time and frequency measurements, range finding
- Photonic computing: clock distribution and communication between computers, printed circuit boards, or within optoelectronic integrated circuits; in the future: quantum computing