A Trick of the Light Upper KS2-4
Duration: 1 hour, Max capacity: 30 students

A fantastic and fun introduction to the properties of light and the electromagnetic spectrum. Fascinating exhibits are used to explore reflection, wavelength, phosphorescence, and UV before teams are challenged to apply what they have learned and solve a set of light-related puzzles, get the code to a smoke machine and successfully navigate a laser maze to claim a gold bar.

Key Words

Learning objectives
Understand that light is composed of different colours with different wavelengths
Understand why coloured objects appear different in different coloured light
Recognise that when light hits an object it may be reflected, refracted or absorbed
Use ray models to represent imaging in mirrors
How reflection can be used to create an ‘infinity mirror’
To understand the terms phosphorescence and fluorescence, and how each is produced
Understand why certain materials fluoresce in UV light

Content
Investigate the properties of light using intriguing, purpose-built exhibits, including a phosphorescent ‘freeze your shadow’ screen, coloured visible lights, an ultra-violet chamber, lasers, and an ‘infinity mirror’
Work in teams to complete investigation sheets that consolidate their learning and relate the phenomena to everyday life
Use what they have learned to solve a series of exciting challenges – applying each property of light in turn and working against the clock (and the other teams!)
Each team attempts to retrieve gold bar by navigating the laser maze in the shortest time and without breaking the beams that set off an alarm

Curriculum Links
Transmission of light through materials: absorption, diffuse scattering, and specular reflection
Use of ray model to explain imaging in mirrors
Light transferring energy from source to absorber leading to chemical and electrical effects: Photo-sensitive materials
Colours and the different frequencies of light, white light and prisms: differential colour effects in absorption and diffuse reflection

Potential Hazards and accessibility
The classroom will be darkened, reduced light levels for significant parts of the workshop.
The laser maze uses Class 3 lasers in which the laser is deactivated immediately the beam is interrupted.
UV is damaging to eyes if stared at directly.
A bright camera flash is used for the phosphorescent screen.