

Optical Innovations Programme

Designing and creating our own lenses

Breakdown of sessions for the workshop:

Session 1: What is Light?

Learning opportunities include:

- Light is a form of energy called electro-magnetic radiation
- It is made up of visible and invisible light
- That light travels in straight lines
- How fast light travels

Session 2: Controlling Light

Learning opportunities include:

- Three ways to control light: Block it, Reflection, Refraction (Lenses)
- What is Optics?
- Waves and photons

Session 3: What are Lenses?

Learning opportunities include:

- What are lenses?
- Convex, Concave
- Simple, complex lenses
- Magnifying glass
- Interchangeable lenses

Session 4: Optical Engineers

Learning opportunities include:

- Who are they?
- What do they do?
- Range of products they work on
- Careers info

Session 5: Lens Design

Learning opportunities include:

- Materials decisions
- Structural Design
- Lens to mount interfaces
- Mounting prisms and mirrors
- Assembly/alignment

Session 6: How to Design a Lens

Learning opportunities include:

- Problem definition
- Pre-design

Session 7: Think about it

Learning opportunities include:

- Starting point selection
- Initial analysis

Session 8: Design it

Learning opportunities include:

- Optimization
- Final analysis
- Prepare for Fabrication

Session 9: Make It 1

Learning opportunities include:

- Fabrication

Session 10: Make It 2

Learning opportunities include:

- Fabrication
- Evaluation