

Physics 4D: Electromagnetic Waves, Optics, and Special Relativity

Week 1: Maxwell's Equations and Electromagnetic Waves

SLINKY
WAVE MACHINE

Week 2: Reflection

BLACKBOARD OPTICS
LIGHT PIPE
THE MIRAGE
IMAGE OF LIGHTBULB

Week 3: Refraction, Lenses & Optical Instruments

BLACKBOARD OPTICS
REFLECTION/REFRACTION TANK
RAINBOW PROJECTOR

Week 4: Lenses & Optical Instruments

BLACKBOARD OPTICS
EYE MODEL

Week 5: Wave Nature of Light: Interference

LASER INTERFERENCE
NEWTON'S RINGS

Week 6: Diffraction and Polarization

LASER DIFFRACTION
RALEIGH LIMIT
POLAROIDS
MICROWAVE OPTICS
PHOTOELASTIC STRESS

Week 7-10: Special Relativity

SPARK CHAMBER