

## **Unit 12: Ray Optics**

### **Think Sheets**

The Law of Reflection (2 pages)  
Plane Mirror Image Formation (2 pages)  
Drawing Ray Diagrams (2 pages)  
Ray Diagram Applications (2 pages)  
Diffuse vs. Specular Reflection (2 pages)  
Spherical Mirrors (2 pages)  
Ray Diagrams for Concave Mirrors (2 pages)  
Ray Diagrams for Convex Mirrors (1 page)  
Spherical Mirrors: Object-Image Relations (2 pages)  
Refraction (1 page)  
Two Rules ... and Three Ways to Express Them (3 pages)  
Index of Refraction Studies (2 pages)  
Total Internal Reflection (2 pages)  
Lenses (2 pages)  
Ray Diagrams for Converging Lenses (2 pages)  
Ray Diagrams for Diverging Lenses (1 page)

(Each Think Sheet has a corresponding answer key)

### **Student Lab Sheets**

The Law of Reflection  
Images  
Six Foot Person Problem  
Exploring Curved Mirrors  
Finding Smiley  
Introduction to Refraction  
How Much?  
Determining  $n$   
A Critical Lab  
Exploring Lenses  
L•O•S•T Art of Image Description

(Each Student Lab Sheet has a corresponding Teachers Guide with answers)

### **BONUS:**

Slide Deck

AngleslandR.docx (Think Sheet)  
ConcaveMAt2F (.jpg of Concave Mirror Image)  
ConcaveMBetweenFand2F (.jpg of Concave Mirror Image)  
ConcaveMBeyond2F (.jpg of Concave Mirror Image)  
ConcaveMirrorRdgPassage.docx (Reading Passage with Answers)  
DirectionOfBending.docx (Think Sheet)  
DirectionOfBendingAnswers.docx (Answer Key)  
EndOfYear (.png of Demo)  
LensSimn.docx (Simulation Activity)  
LensSimnAnswers.docx (Answer Key)  
PolarCoord\_5degInc.docx (Printable Polar Coordinate Graph Paper)  
Protractors (Protractor)  
Right&WrongReflection.docx (Five Graphics – 4 wrong and 1 correct)  
SineTable (Table of Angle-Sine Values)  
SineTable.xlsx (Spreadsheet)  
SixFootPersonActivity.docx (Think Sheet)  
SnellsLawLabData.xlsx (Spreadsheet for Data Collection)  
TIR\_Rules (Graphic Organizer)  
TIRSimnAnswers.docx (Answer Key)  
TIRSimulation.docx (Simulation Activity)  
TruthHurts (.png of a Demo)