

# Optics Study Guide

Name:

Date:

Block:

Create a study guide that includes the major vocabulary and concepts you learn in this unit. Include **definitions, examples, and/or relevant diagrams**. Your study guide can be a rewriting of your notes, a series of questions/answers, a brochure, a mind map showing the connections between concepts, or any other way you can think of. You can create your study guide on a regular sized piece of paper, a large piece of poster paper, or cue cards

## Optics I: A wave is a disturbance or movement that transfers energy through matter or space

Vocabulary	Concepts
<input type="checkbox"/> Wave <input type="checkbox"/> Medium <input type="checkbox"/> Transverse wave <input type="checkbox"/> Compression wave <input type="checkbox"/> Crest <input type="checkbox"/> Trough <input type="checkbox"/> Rest position <input type="checkbox"/> Amplitude <input type="checkbox"/> Wavelength <input type="checkbox"/> Frequency	<input type="checkbox"/> What is a wave? <input type="checkbox"/> What is the difference between a transverse and a compression wave? <input type="checkbox"/> What are the different parts of a wave? <input type="checkbox"/> How do we calculate the frequency of an object moving in a repetitive motion?

## Optics II: Light travels as a wave

Vocabulary	Concepts
<input type="checkbox"/> Wave Model of Light <input type="checkbox"/> Prism <input type="checkbox"/> Visible light <input type="checkbox"/> Electromagnetic spectrum	<input type="checkbox"/> What is the Wave Model of Light? <input type="checkbox"/> What happens when light enters and exits a prism? Why? <input type="checkbox"/> How do we see colour? <input type="checkbox"/> What are the parts of the Electromagnetic spectrum? <input type="checkbox"/> How is the frequency of a wave and its wavelength related?

## Optics III: Light behaves differently when it reaches different objects

Vocabulary	Concepts
<input type="checkbox"/> Opaque <input type="checkbox"/> Translucent <input type="checkbox"/> Transparent	<input type="checkbox"/> How does light behave when it hits an opaque, translucent, or transparent object? <input type="checkbox"/> What is the Ray Model of Light? <input type="checkbox"/> How are shadows formed?

### Optics IV: Law of Reflection

Vocabulary	Concepts
<ul style="list-style-type: none"><li><input type="checkbox"/> Incident ray</li><li><input type="checkbox"/> Reflected ray</li><li><input type="checkbox"/> Normal</li><li><input type="checkbox"/> Angle of incidence (<math>i</math>)</li><li><input type="checkbox"/> Angle of reflection (<math>r</math>)</li></ul>	<ul style="list-style-type: none"><li><input type="checkbox"/> What is the Law of Reflection?</li><li><input type="checkbox"/> Discuss how light behaves when a ray of light hits a plane mirror.</li><li><input type="checkbox"/> How do you determine the angle of reflection of a ray of light when it hits a mirror?</li><li><input type="checkbox"/> How do you accurately measure angles?</li></ul>

### Optics V: Mirrors

Vocabulary	Concepts
<ul style="list-style-type: none"><li><input type="checkbox"/> Concave mirror</li><li><input type="checkbox"/> Plane mirror</li><li><input type="checkbox"/> Convex mirror</li><li><input type="checkbox"/> Focal point</li><li><input type="checkbox"/> Diverge</li><li><input type="checkbox"/> Converge</li></ul>	<ul style="list-style-type: none"><li><input type="checkbox"/> What are the uses of plane mirrors, concave mirrors, and convex mirrors?</li><li><input type="checkbox"/> How does a ray of light behave when it hits a plane mirror, convex mirror, and a concave mirror?</li><li><input type="checkbox"/> What type of image is formed when an object is in front of a plane mirror, convex mirror, and concave mirror?</li></ul>

### Optics VI: Lenses

Vocabulary	Concepts
<ul style="list-style-type: none"><li><input type="checkbox"/> Concave lens</li><li><input type="checkbox"/> Convex lens</li><li><input type="checkbox"/> Refraction</li><li><input type="checkbox"/> Density</li></ul>	<ul style="list-style-type: none"><li><input type="checkbox"/> What are the uses of concave lenses and convex lenses?</li><li><input type="checkbox"/> How does a ray of light behave when it hits a convex lens and a concave lens?</li><li><input type="checkbox"/> What type of image is formed when an object is in front of a convex lens and concave lens?</li><li><input type="checkbox"/> What is the Law of Refraction?</li><li><input type="checkbox"/> How does a ray of light behave when it enters into a different density material?</li></ul>