**Optics Chapter 19**

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**Real Images**

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**Virtual Images**

**See** [**https://www.learningctronline.com/courses**](https://www.learningctronline.com/courses) **for Materials and Resources.**

**Topics:**

1. Optics

**Objectives:**

* *Define electromagnetic radiation and recognize the relationship between frequency, wavelength, and the speed of light.*
* *Describe wave-particle duality and classify associated properties of light (photoelectric effect, reflection, refraction, diffraction, and polarization).*
* *Recognize types of reflection of light, the law of reflection, and draw all components of light when it reflects off a reflective surface.*
* *Recognize refraction of light, optical density, index of refraction, identifying all components of light as it refracts while travelling through different media.*
* Name the two major types of mirrors and lenses and describe & draw how light is transmitted through them (object, image, focal point).
* Define polarization and give real life examples of its use.
* Identify and define the parts of the human eye responsible for vision.
* Distinguish between primary additive, primary subtractive, and complementary colors of LIGHT. Be able to define how each color is created.

TAKE NOTE

1. Guided Reading Note-Taking Worksheet (Pearson Text) (1 week)

1. Pearson Concepts in Action Worksheet
2. Lab Reflection & Refraction Formal Lab Report due in 9 days (conclusions)
3. Lab Flat & Spherical Mirrors
4. Lab Lenses
5. Lab Prisms
6. Test Electromagnetic Spectrum & Light
7. Class Song: Let Them Go!
8. Week 30 Devotional (<https://www.learningctronline.com/devotional>)

Pearson Text Chapter 19: Optics pp. 568-597

**Guided Reading Note-Taking Worksheet:**

Complete the worksheet for Chapter 19: Optics (19.1 – 19.4).

**Class Notes: PowerPoint or PDF**

**Homework**:

* 19.4 The Eye and Vision Worksheet (Pearson Concepts in Action)
* *Assignments will be “spot checked” during class or submitted via email.*

**Lab**: Reflection & Refraction Formal Lab Report

* Complete the lab AFTER taking the Chapter 18-19 test.
* This week do the Conclusion section.
* You will submit a Formal Lab Report (following the guidelines in the Lab Report Format Document) within 9 days.

**Lab**: Flat & Spherical Mirrors

* Complete the activities using the worksheet provided.
* Save the documents into your LAB folder in the Physical Science folder on your desktop.

**Lab**: Lenses

* Complete the activities using the worksheet provided.
* Save the documents into your LAB folder in the Physical Science folder on your desktop.

**Lab**: Prisms

* Complete the activities using the worksheet provided.
* Save the documents into your LAB folder in the Physical Science folder on your desktop.
* *Assignments will be “spot checked” during class or submitted via email.*

**TEST:** Light, Color, Optics

1) the academic integrity policy

* Tests must be completed **WITHOUT** referring to books, notes, the internet, people, or any outside resources.
* Students **MAY** use the approved Periodic Tables, approved Reference Tables, or approved equation (formula) sheet (provided by the teacher) along with calculators and scratch paper.
* A guardian should be proctoring the test. Proctoring means to monitor the following:

2) The test is composed of 20 multiple choice questions and some written problems.

* The **multiple-choice test must be taken "in one sitting"**, meaning that once you start the test, you must complete it without interruption. (40 minutes)
* Take a short break (5-10 minutes)
* The **written portion of the test must be taken "in one sitting"**, meaning that once you start the test, you must complete it without interruption. (30 minutes)

3) There is a **90-minute time limit** on this test. Please have the proctor write the time taken at the top of your answer sheet with their signature or initials.

4) Proctors should NOT be reading the test or engaging students during the test.

5) Do NOT use RED font. Black font is best.

Supplemental Resources (Optional)

1. Vocabulary Crossword Chapter 18-19
2. Lenses, Human Eye, Color Practice Quiz
3. 19.1 Mirrors Worksheet (Pearson Concepts in Action)
4. 19.2 Lenses Worksheet (Pearson Concepts in Action)

[**http://somup.com/c0f3oL44Mm**](http://somup.com/c0f3oL44Mm) **Converging (Convex) Lenses** (2:08)

[**http://somup.com/cFf0FsV5Gl**](http://somup.com/cFf0FsV5Gl) **Diverging (Concave) Lenses ctr (1:37)**

[**http://somup.com/cFfhb7VpOt**](http://somup.com/cFfhb7VpOt) **Near Sighted Vision ctr (2:05) What is myopia? How is it corrected?**

[**http://somup.com/cFfO3EVEo7**](http://somup.com/cFfO3EVEo7) **Far Sighted Vision ctr (0:58) ... What is hyperopia? How is it corrected?**

[**https://somup.com/c3QVD2UDdG**](https://somup.com/c3QVD2UDdG) **(5:15) Metaphysic on America’s Got Talent**

<https://screencast-o-matic.com/watch/crnDYGSpdS> (2:19) Color

<https://screencast-o-matic.com/watch/crnDqJSpU8> Primary Additive Colors (3:05) … Red, Green, Blue created every other color.

<http://somup.com/cYhqFijzau> Be Diligent to Enter His Rest Hebrews 4:10-11; Love is Not a Fight (4:39)