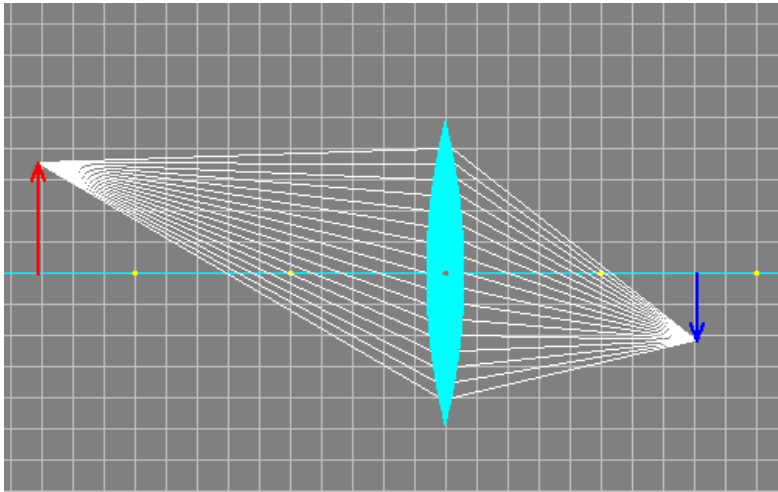


Optics

Physics 11 at Happy Rock
with Mr. Martens

Light travels in predictable ways.



What we will be learning

We will be learning about light and how images form.

By the end of this unit you will **understand that**:

- Light travels in a straight line away from its source.
- Light changes direction in predictable ways.
- It is useful to change the direction light travels.
- Images form where diverging rays are made to converge.
- Our brains assume that light does not change direction.

Key Terms

- ray
- object
- image
- refractive index
- converging
- diverging

What will come next

Our next topic is Kinematics.

We live in a dynamic world where things are always moving and changing. Kinematics is the study of motion. This topic will allow us to make sense of, describe, and predict motion in a very precise way.

I move, therefore I am...

Focus Questions

"Science is simply common sense at its best."

Thomas Huxley



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B	D	A	KNOWING
			I can list the rules of ray drawing. I can list the characteristics of images.
			I can state the laws of reflection. I can distinguish between diffuse and specular reflection.
			I can label the parts of a ray drawing for plane mirrors. I can label the parts of a ray drawing for curved mirrors. I can describe different kinds of curved mirrors.
			I can define the index of refraction. I can describe Snell's Law.
			I can label the parts of a ray drawing for refraction at a plane boundary. I can label the parts of a ray drawing for refraction by a lens.
			I can define critical angle. I can describe total internal reflection.
			I can give examples of common devices that reflect light. I can give examples of common devices that refract light.

B	D	A	DOING
			I can draw labeled ray diagrams showing how images form in a plane mirror. I describe the characteristics of images formed in a plane mirror.
			I can experimentally distinguish between converging and diverging mirrors. I can experimentally find the focal length of a converging mirror.
			I can locate and describe the image formed by a curved mirror: ⇒ using a scaled ray diagram ⇒ using the mirror equation
			I can solve problems using: ⇒ The definition of index of refraction ⇒ Snell's Law
			I can experimentally distinguish between converging and diverging lenses. I can experimentally find the focal length of a thin converging lens.
			I can locate and describe the image formed by a thin lens: ⇒ using a scaled ray diagram ⇒ using the mirror equation