

Name: Lane Francis Date: _____

Student Exploration: Ray Tracing (Lenses)

Vocabulary: concave lens, convex lens, focal point, image, magnification, real image, refraction, virtual image

Prior Knowledge Questions (Do these BEFORE using the Gizmo.)

Agnes is trapped on a desert island with nothing but a magnifying glass. She wants to use the glass to focus sunlight and start a fire. She holds the glass above some dry grass as shown at right.

1. On the diagram, draw the path the Sun rays will likely take from the magnifying glass to the grass.
2. A magnifying glass is an example of a **convex lens**—a lens that curves outward on both sides.

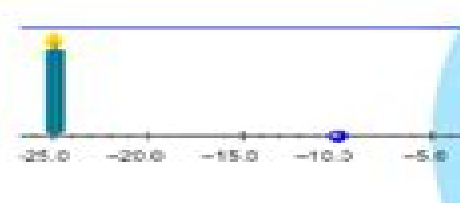


Why is a convex lens useful for starting fires? They would be useful because they can focus all the sunlight on one point of the grass so that part of the grass would be under intense heat which will spread to other parts of the grass.

Gizmo Warm-up

The *Ray Tracing (Lenses)* Gizmo shows light rays passing through a lens. The light rays are bent by **refraction** as they pass through the lens and form a focused **image** to the right of the lens.

To begin, turn on the **Colorize lines** checkbox. Under **Show lines**, turn off the **Central line** and the **Line through focal point** so that only the **Parallel line** is showing.



1. The blue dots in front of and behind the lens are the **focal points** of the lens. Move the candle on the left back and forth and up and down.

What is always true about the light ray that emerges from the right side of the lens?

The light emerging from the right side of the lens always past through the focal point.

2. Turn off the **Parallel line** and turn on the **Line through focal point**. Move the candle. What do you notice about this line?

- The ray passes through the primary focal point of the same side of the candle
- Emergent light ray is parallel to the principal axis

Answers For Ray Tracing Lenses Gizmo

Yi-Tong Ma

A red circular graphic with a gradient, appearing as a semi-circle or a partial circle, located to the right of the author's name.

Answers For Ray Tracing Lenses Gizmo:

Unveiling the Magic of Words: A Overview of "**Answers For Ray Tracing Lenses Gizmo**"

In a global defined by information and interconnectivity, the enchanting power of words has acquired unparalleled significance. Their ability to kindle emotions, provoke contemplation, and ignite transformative change is actually awe-inspiring. Enter the realm of "**Answers For Ray Tracing Lenses Gizmo**," a mesmerizing literary masterpiece penned with a distinguished author, guiding readers on a profound journey to unravel the secrets and potential hidden within every word. In this critique, we shall delve to the book is central themes, examine its distinctive writing style, and assess its profound effect on the souls of its readers.

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