Image Formation by Concave Mirrors
## Lesson Notes

Learning Outcomes
- How is an image formed by a concave mirror?
- What are the various characteristics of images formed by a concave mirror?

What is an Image?
- To see an image you must sight along a line at the image location. When you do, light travels from the object to the mirror and then reflects along the line of sight to your eye.
- An **Image** is a replica or representation of the object that is located at the one location in space where it seems to every observer as though the reflected light is coming from.
- The ray diagram shows how this works for a plane mirror.
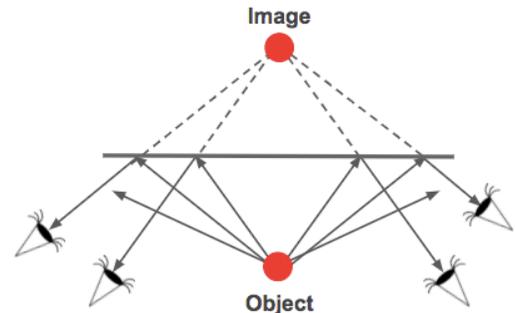
Image Formation for Concave Mirrors
The same principles that apply to plane mirror images also apply to curved mirror images. Each observer sights along a different line of sight to the same image location. When the observer does this, a ray of light travels from the object to the mirror and then reflects along the line of sight to the observer's eye. This is depicted for two different object locations in front of a concave mirror.
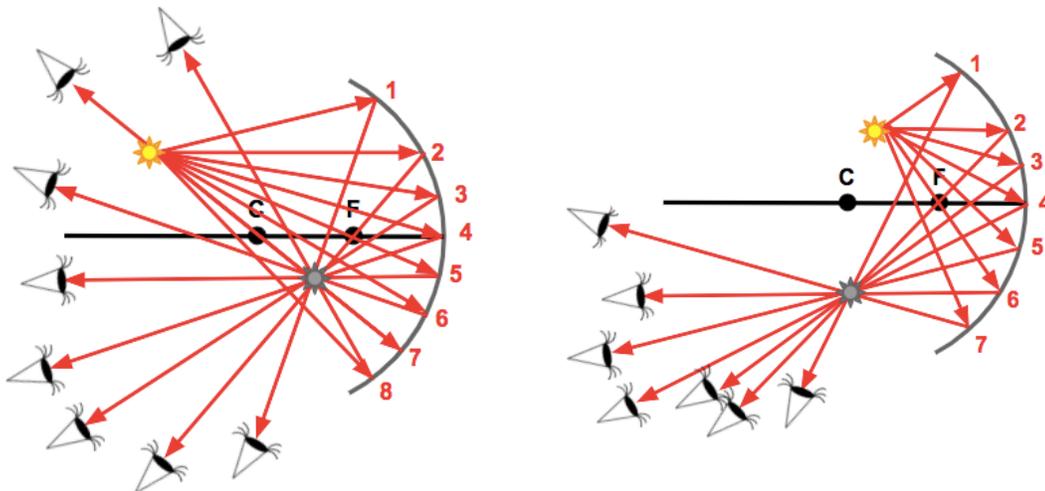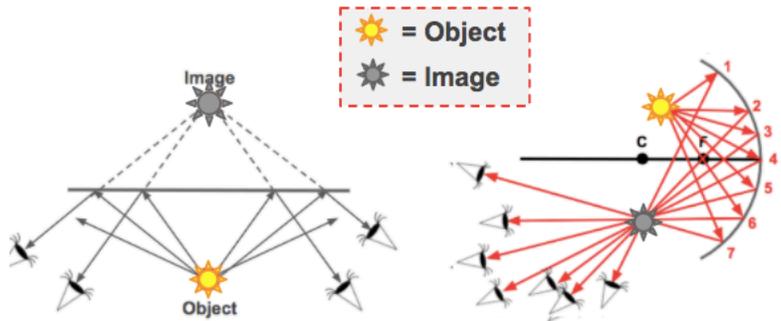
Real vs. Virtual Images for Mirrors

Virtual images are formed when reflected light diverges. Virtual images are located behind the mirror.
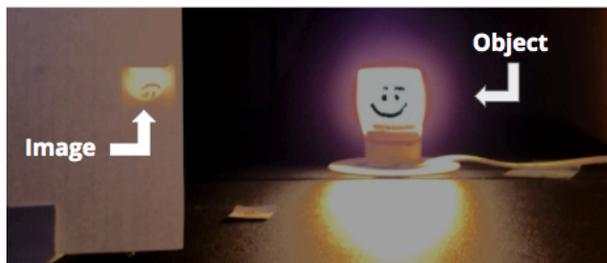
Real images are formed when reflected light converges (comes together) at the image location.

Image Types
Mirror images can be **real** or **virtual** images.

☀ = Object
✦ = Image

Real Image Projection

- Real images can be projected onto a screen or surface.
- Virtual images cannot be projected onto a screen. There is no light present at the virtual image location.

Object

Image

L•O•S•T Art of Image Description

The characteristics of a concave mirror image depends upon where the object is located. You will need to be able to exercise the **L•O•S•T Art of Image Description**.

Location: Beyond C, at C, between C and F, behind mirror

Orientation: Upright (same as object) or Inverted (flipped)

Size: Magnified in size, reduced in size, or same size

Type: Real or Virtual