

# RAFT IDEAS

**Topics:** Waves, Light Reflection, Images

## Materials List

- ✓ 2 CD jewel cases
- ✓ Mylar
- ✓ Cardboard
- ✓ Double-stick tape

This activity can be used to teach:

- Reflection (CA Science Standards: Grade 3, 2.b; Grade 7, 6.f and 6.g)

## Infinity Mirror

And the Image Gets Smaller, Smaller, Smaller...



This very simple version of an infinity mirror is easy to make and illustrates the principle of the reflection of light.

### Assembly

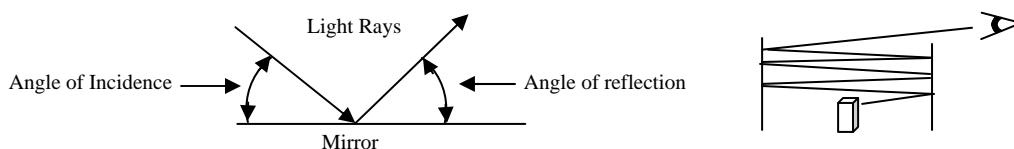
1. Cut two pieces of Mylar to the same dimensions as the CD cases.
2. Cut two pieces of cardboard to the same size.
3. Attach the Mylar to the cardboard with double-stick tape. Important: keep the Mylar as flat as possible! Reflective surfaces should be kept as clean as possible. Wipe the surface with a dry cloth, if necessary.
4. Attach each piece of the Mylar-covered cardboard to an outer face of a jewel case so that it will stand independently when opened to an angle.

### To Do and Notice

1. Orient the mirrors facing each other, about 30 cm (1 ft) apart.
2. Place an object in between the mirrors and look over the top of one mirror at the other mirror. Notice that there is a repeating pattern in the orientation and spacing of the images. Objects with contrasting colors on their front and back sides show this well.
3. Ask the students to describe as accurately as they can the patterns they observe. They might notice that images from the front and back sides of the object alternate with each other. If the object is closer to one mirror than the other, they might notice that the successive reflections alternate from being closer together and then further apart.

### The Science Behind the Activity

When a light ray, from a light source or reflected from an illuminated object, strikes one of the mirrors, the light ray is reflected in accordance with the Law of Reflection: the **angle of incidence = the angle of reflection** (see below)



The reflected image then reflects off the second mirror back toward the first, and so on to infinity, assuming the mirrors are perfectly parallel. The fine details of the pattern can be altered by distortions in the Mylar, small variations in the angle of the mirrors, and by the view point from which the pattern is observed.

**Web Resources** (Visit [www.raft.net/more](http://www.raft.net/more) for how-to videos and more ideas!)

- Reflection activities - <http://www.exploratorium.edu/snacks/iconreflection.html>