

# 3-D Movies

1. Looking at a partner who is also wearing 3-D glasses, describe how your partner's glasses look when you alternately close your eyes. Does the same thing occur if one of you wears the glasses upside-down? Explain in terms of polarization of light.
2. Using your 3-D glasses along with your partner's, make the following sandwich: take a piece of transparent plastic or cellophane and place it between two crossed polarizers. Rotate one of the glasses relative to the plastic. What do you see? This also works with plastic eyeglasses.
3. When the glasses are horizontal, as you would normally wear them, we will define this angle as  $0^\circ$ . Look at a reflection off a shiny, non-metallic surface. Rotate the glasses counterclockwise. Describe any changes in brightness and clarity that you notice and note the angle of these changes.
4. Repeat #3 for any metallic surfaces that might be reflecting. Rotate the glasses counterclockwise. Describe any changes in brightness and clarity that you notice and note the angle of these changes.
5. At a still moment in the movie, look at the picture with one eye and then quickly with just the other. Why are they not the same exact images? Explain the differences and its importance for creating a 3-D image.
6. How does the movie appear if you view it with the glasses upside-down? Relate this to the activity in #1.
7. Look at the projection booth while the movie is going. Alternately close your eyes. Describe what you see.
8. Describe how 3-D movies work using polarization of light concepts.