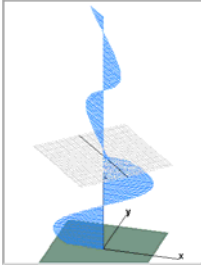


Worksheet for Exploration 39.2: Polarizers



This animation shows a traveling wave incident on a polarizer. The direction of the polarizer is indicated by the black line. Click-drag to the right or left to rotate about the z axis. Click-drag up or down to rotate in the xy plane. [Restart](#).

- a. Since the light is linearly polarized along the x axis, explain why, when the light is incident on a polarizing film that allows light polarized along the y axis, this light does not pass through.

- b. Suppose this light is incident on a polarizing film polarized along a plane 45° from the x axis. What do you predict will happen? After making your prediction, [try it](#).

- c. Notice that for (b), the amplitude of the wave passing through the polarizing film is reduced since only the waves with components in the direction of the polarizing film pass through. Now, suppose the light is incident first on the polarizing film of (b) and then on the film of (a). What do you predict will happen? After making your prediction, [try it](#).

- d. Explain what you see with two polarizing films set up in this way. This explains why, sometimes, two polarizing films let more light through than just one.