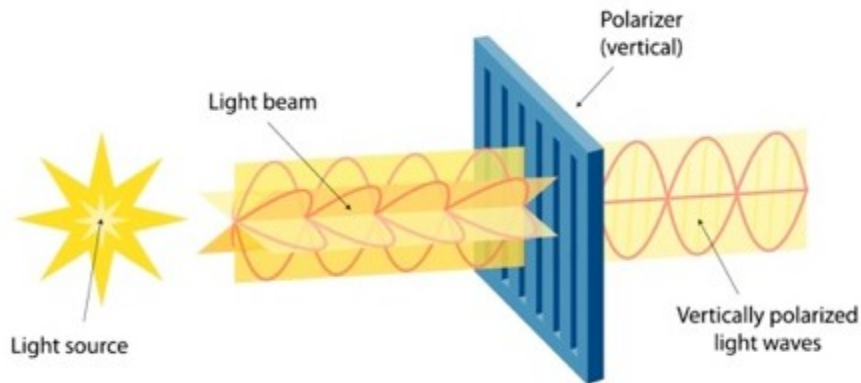


# The Polarization of Light

## SPH4U

The direction of the variation of the \_\_\_\_\_ of an electromagnetic wave may be in \_\_\_\_\_ perpendicular to the propagation.

However, the variation may be in a \_\_\_\_\_ direction. In this case, light is said to be \_\_\_\_\_.



Unpolarized light passed through a polarizing filter has \_\_\_\_\_:

However, already polarized light passed through a polarizing filter may be \_\_\_\_\_ (if the filter is in the \_\_\_\_\_ direction) or \_\_\_\_\_ (if the filter is at \_\_\_\_\_).

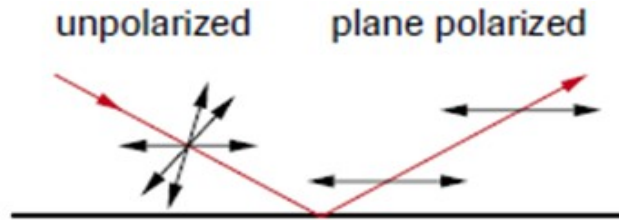
So the intensity of light passed through \_\_\_\_\_ is \_\_\_\_\_-dependent:

Light may be polarized by \_\_\_\_\_ in certain materials (e.g., \_\_\_\_\_ crystal).

This is called \_\_\_\_\_ refraction because the \_\_\_\_\_ depends on the polarization and the light will travel \_\_\_\_\_.

Light may also be polarized by \_\_\_\_\_ from non-metallic surfaces.

The polarization will be \_\_\_\_\_.



The amount of polarization will depend on the \_\_\_\_\_ of incidence and will be 100% if the \_\_\_\_\_.

This angle is called \_\_\_\_\_.

Sketch:

Example: What is Brewster's angle for water ( $n = 1.33$ )?

Many \_\_\_\_\_ have \_\_\_\_\_ polarizing filters to remove \_\_\_\_\_ reflected from horizontal surfaces.

Light can also be polarized by \_\_\_\_\_ in the atmosphere, so polarizing lenses can also reduce scattered light and improve contrasts in the sky in photographs.