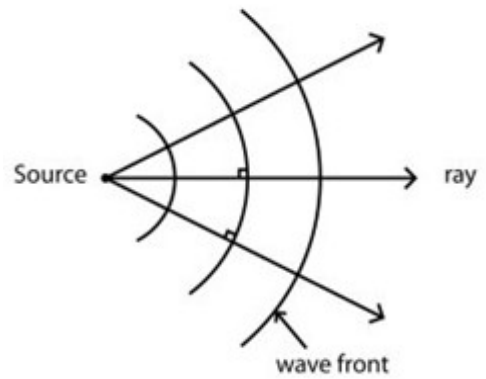


## Light Waves in 2D SPH4U

To represent waves in 2D, we draw the \_\_\_\_\_:  
lines \_\_\_\_\_ of the waves.

Wave fronts are always \_\_\_\_\_ to the \_\_\_\_\_  
showing the direction of propagation.



When determining how a wave will propagate (where to draw the next wave front), we often refer to \_\_\_\_\_:

*“Every point on a wave front can be considered as a \_\_\_\_\_ of tiny  
\_\_\_\_\_ that spread out in front of the wave at the same speed as the wave.  
The surface \_\_\_\_\_ tangent to these wavelets is the new wave front.”*

When a wave passes into another medium (\_\_\_\_\_),  
the wave will change \_\_\_\_\_.

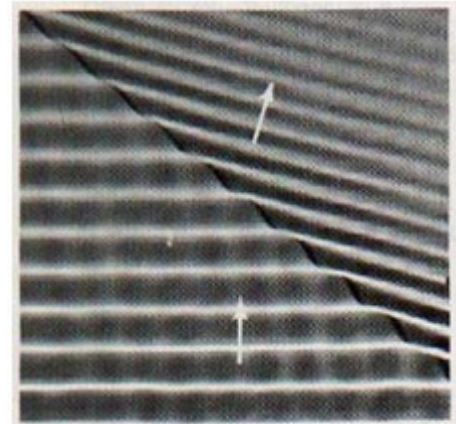
Since the \_\_\_\_\_ of the wave’s arrival  
\_\_\_\_\_, the \_\_\_\_\_  
and therefore the \_\_\_\_\_ of the wave fronts  
\_\_\_\_\_.

If the wave fronts are at an \_\_\_\_\_ with the boundary, the  
wave will \_\_\_\_\_.

At \_\_\_\_\_, some light will be  
\_\_\_\_\_.

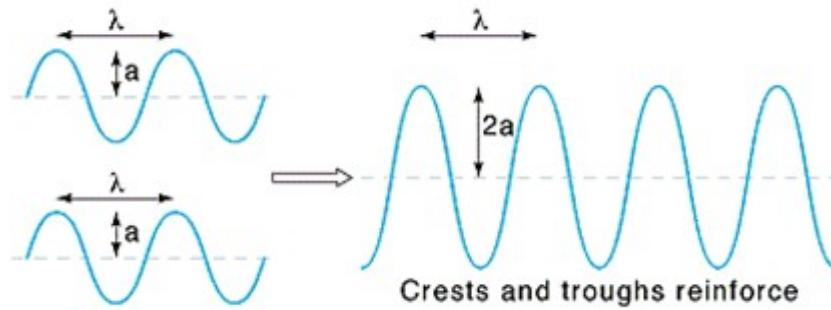
The reflected wave can \_\_\_\_\_ with the incident wave.

The Principle of \_\_\_\_\_: *“The net displacement at any position is the \_\_\_\_\_ of  
the displacements of all waves at that position.”*

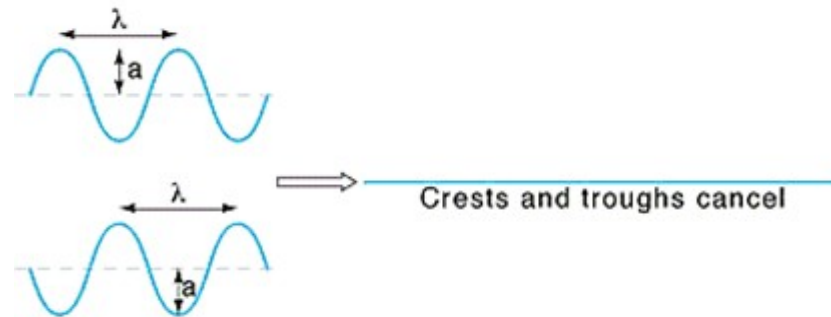


**Figure 10-22.** Refraction of a surface wave at the boundary of deep and shallow water. The shallow water is above the boundary in the picture. Observe the slight reflection of the incident wave to the left at the boundary.

If the waves are \_\_\_\_\_ (both positive displacement or both negative displacement) the interference will be \_\_\_\_\_, \_\_\_\_\_ of the resultant wave.



If the waves are \_\_\_\_\_ (one with positive displacement and the other with negative displacement) the interference will be \_\_\_\_\_.



One of the most commonly studied interference patterns is that produced by \_\_\_\_\_.

\_\_\_\_\_ (actually hyperbolic) occur where the waves of the sources are out of phase.

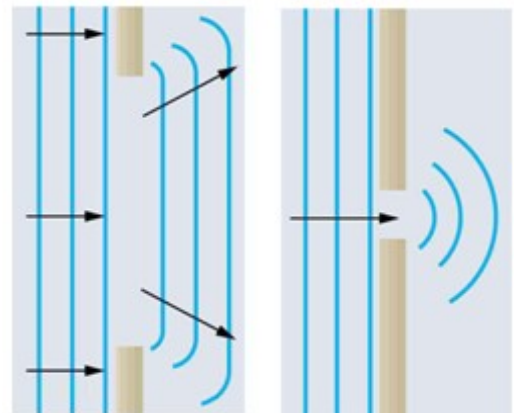
The pattern produced by light emerging from \_\_\_\_\_ in a screen is similar. . . .

but not identical, as light passing \_\_\_\_\_ (or \_\_\_\_\_)

will \_\_\_\_\_.

Diffraction is the \_\_\_\_\_ effect observed when a wave passes through a slit or by an obstacle.

The most \_\_\_\_\_ diffraction occurs when:



Diffraction will also result in \_\_\_\_\_ effects.