reflection:

The light ray changes direction depending on the two media's refractive index in which it is transmitted through.

If they are different media, the probability of having the same refractive index is very minimal.

light's direction must change as it enters a different media from the one it was initially transmitted through.

how is that going to be happened?

imagine there is a light ray is going through the medium from lower refractive index medium

to higher refractive index medium.

these are the light particles; they travel on the same speed before they enter the

higher refractive index.

Once the first particle has entered the higher refractive index,

it gets slower, while the rest of the particles are still at the

same speed as they were. Because light travels slower when it is in higher

refractive medium.

It bends the light because these

particles are divided into two parts, the part in higher refractive

indexes travel slow while the part in higher refractive index travel

fast. That is how light direction changes when going through two

different media.

Huygens's principle:

Huygens's principle was a useful technique that helped determine where and how waves and light rays propagate in detail.

imagine there is a light hit this point right here.

There are many Huygens sources on the reflecting surface, they will

be activated after the incident light hits them.

once them get activated and they start giving out secondary waves.

The time for the reflected wave was traveling,

at the same time, it took this wavefront right here to go from here.

and the reflected wave has the same speed as the incident wave.

so, the radius of the reflected wave should equal to the distance

travelled by the incident wave.

the reflective ray must be tangent to the reflected wave front.

That is how Huygens’s principle determined where and how waves and light rays propagate.