**Glass and Refraction Notes**

**Speed of Light:**

**Two models describe the behavior of light.**

* 1. **Light is described as a continuous \_\_\_\_\_\_\_\_\_\_\_\_ traveling through space.**
	2. **Light is also described as a stream of discrete energy \_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**\_\_\_\_\_\_\_\_\_\_\_ are described as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that release energy in the form of electrons**

\_\_\_\_\_\_\_\_\_\_\_ are described in terms such as:

-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, **the distance between two successive crests (or one trough to the next trough).**

* + **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the number of crests passing any one given point per unit of time.**

**Visible Light:** When \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, it is dispersed into a continuous \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Visible light ranges in color from red to violet in the electromagnetic spectrum (ROYGBIV).

**Physical Properties of Light**

* Light waves travel in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ until they hit another substance.
* Contact with another substance \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_causes the light wave to slow down, causing the ray of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Refraction:**

**Refraction Index:**

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as it travels from one medium into another

**Refraction Index=**

**Water has a Refractive Index of:**

RI depends on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Refractive Index by Immersion:**

|  |  |  |  |
| --- | --- | --- | --- |
| Liquid | RI | Glass | RI |
| Water | 1.333 | Vitreous silica | 1.458 |
| Olive oil | 1.467 | Headlight  | 1.47-1.49 |
| Glycerin | 1.473 | Window  | 1.51-1.52 |
| Castor oil | 1.82 | Bottle | 1.51-1.52 |
| Clove oil | 1.543 | Optical  | 1.52-1.53 |
| Bromobenzene | 1.560 | Quartz | 1.544-1.553 |
| Bromoform | 1.597 | Lead | 1.56-1.61 |
| Cinnamon oil | 1.619 | Diamond | 2.419 |

1. A glass particle is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (silicone oil) which has a different refractive index compared to the glass

2.A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is present. It is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that is immersed in the oil of a different refractive index.

3. When the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the Becke line disappears and : RI oil = RI glass. The glass appears to disappear



**The \_\_\_\_\_\_\_\_\_\_has compiled density and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for glass from around the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

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**N= N=**

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the \_\_\_\_\_\_, the more the light bends.

**Learning Check:**

Beaker Windshield Crystal