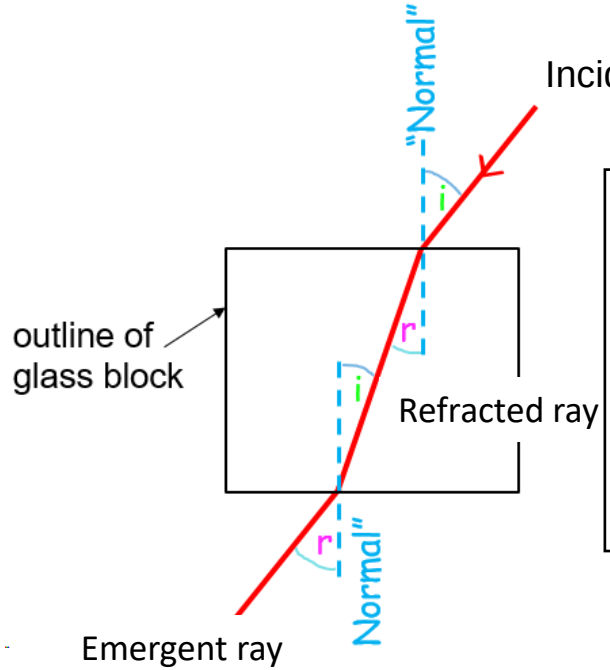
# Light waves are transverse waves

Matter Classified by behaviour when light strikes

| Matter | Transparent | Translucent | Opaque |
|---|---|---|---|
| Effect on incident light | Transmits | Transmits some | Absorbs or reflects |
| Effect on visibility | See through | not clear | Can not see through |
| Example |  |  |  |




**Refraction**
When light enters a more dense material, it bends **towards** the normal.

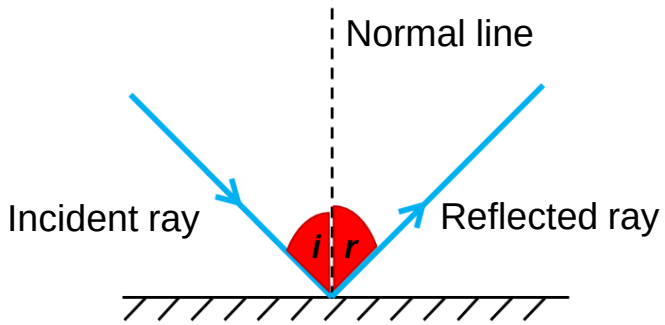
When leaving a more dense material, light bends **away** from the normal.

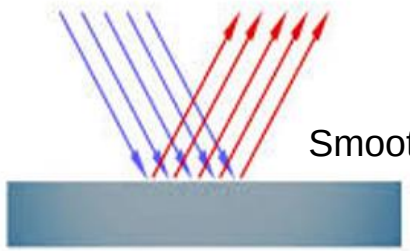
Light travels straight in **all** materials.

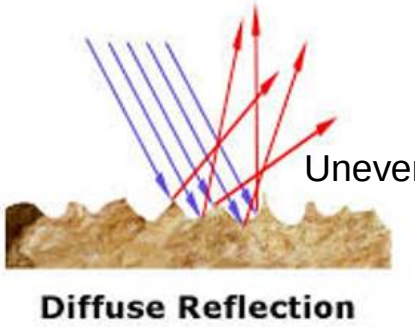
## The law of reflection

**The angle of reflection always equals the angle of incidence**

***i = r***

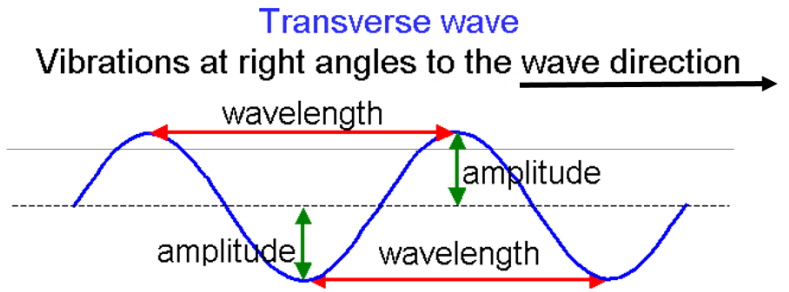


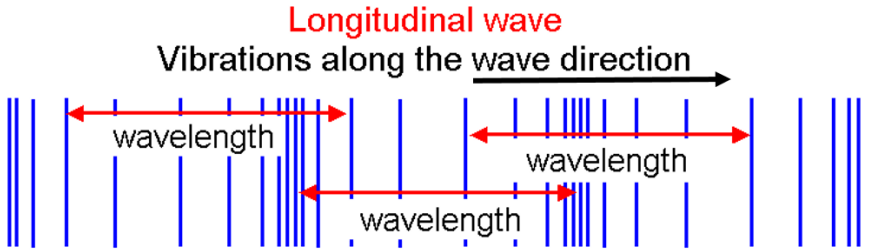



# KS3 Waves knowledge organiser

| Keyword | Definition |
|---|---|
| Wave | Transfer of energy |
| Transverse wave | Particles vibrate perpendicular (at right angles) to the direction of wave travel |
| Longitudinal wave | Particles vibrate parallel (in the same direction) to the direction of wave travel |
| Transparent | Light can travel straight through |
| Translucent | Some of the light travels through and is scattered |
| Opaque | Light cannot travel through |
| Specular reflection | Reflection from a smooth surface |
| Diffuse reflection | Reflection from a rough (uneven) surface |
| Normal line | An imaginary line perpendicular (at right angles) to the reflecting surface (mirror) |
| Incident ray | The ray of light hitting the mirror |
| Reflected ray | The ray of light travelling away from the mirror |
| Visible spectrum | The colours of the rainbow |
| Disperse | Spread out |




Examples of **transverse** waves: electromagnetic waves, water waves, slinky




Examples of **longitudinal** waves: sound waves, ultrasound, slinky

Sound waves are longitudinal waves