

Unit 3 Physics - Section 3.4

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| What happens to a ray that passes through the pole of a mirror or lens? | It is undeviated - it carries on in a straight line. |
| What is the name of the line around which all lens/mirror diagrams are drawn? | Principal axis |
| What is the name of the point through which parallel rays of light pass through after passing through a convex lens or being reflected by a concave mirror? | Focal point or principal focus. |
| What is the name of the point from which parallel rays of light appear to emerge from after passing through a concave lens or being reflected by a convex mirror? | The virtual focal point or principal focus. |
| What is the name given to the distance between the focal point and the pole (centre of the lens or mirror)? | Focal length. |
| What is the symbol for a ray? | A solid line with an arrow on it. |
| What is a normal? | A construction-line drawn perpendicular to the reflecting/refracting surface at the point of incidence. |
| What is a lens that bulges out called? | A convex lens or a converging lens - it makes the rays converge on a point. |
| What is a lens that curves inwards called? | A concave lens or a diverging lens - it makes the rays appear to diverge from a virtual point. |
| What is a dashed line on an optics diagram? | A construction line - showing where a ray comes from or would go to. It is NOT a ray! |
| What is the symbol for a plane mirror? | A solid line with chevrons at the back. |
| What is magnification? | A ratio of the size of the image to the size of the object. |
| How is the nature of an image described? (three properties) | The nature of an image is defined by its size relative to the object, whether it is upright or inverted relative to the object and whether it is real or virtual. |
| What type of image is formed in a concave lens? | A virtual one - upright - and smaller than the object |
| What type of image is formed in a convex lens? | A virtual, upright, enlarged one if the object is close to the lens (object distance smaller than the focal length) - otherwise an inverted real image....getting smaller as the object distance increases. |
| What type of lens is used in a camera? | A convex lens - object further away than two focal lengths from the lens - giving a real inverted image that is smaller than the object. |
| What is the image in a camera focused onto? | Film or a digital bank of sensors. |
| What type of lens is used as a magnifying glass? | A convex lens - object closer to the lens than the focal length - image is virtual, upright and larger than the object. |
| What is the law of reflection? | That the angle of incidence is equal to the angle of reflection. |
| What type of image is formed in a convex mirror? | A virtual one - upright - and smaller than the object |
| What type of image is formed in a concave mirror? | A virtual, upright, enlarged one if the object is close to the mirror (object distance smaller than the focal length) - otherwise an inverted real image....getting smaller as the object distance increases. |
| What type of image is formed in a plane mirror? | Virtual, upright, same size as the object and as far behind the mirror as the object is in front. |
| What happens when light passes into glass or water? | It slows down and refracts, bending towards the normal. |
| What is refraction? | The changing of speed of waves as they pass into a different medium. |

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| Does a wave always change direction when it refracts? | No, if it hits the boundary normally (at 90 degrees) it carries on in a straight line. |
| What does a prism do? | It refracts white light in such a way as to splay out the colours. It disperses the rays. |
| Why does dispersion occur? | Because the different wavelengths of light (colours) slow down by a different degree, they therefore get refracted by a different angle. This effect is exaggerated by the shape of the prism. |