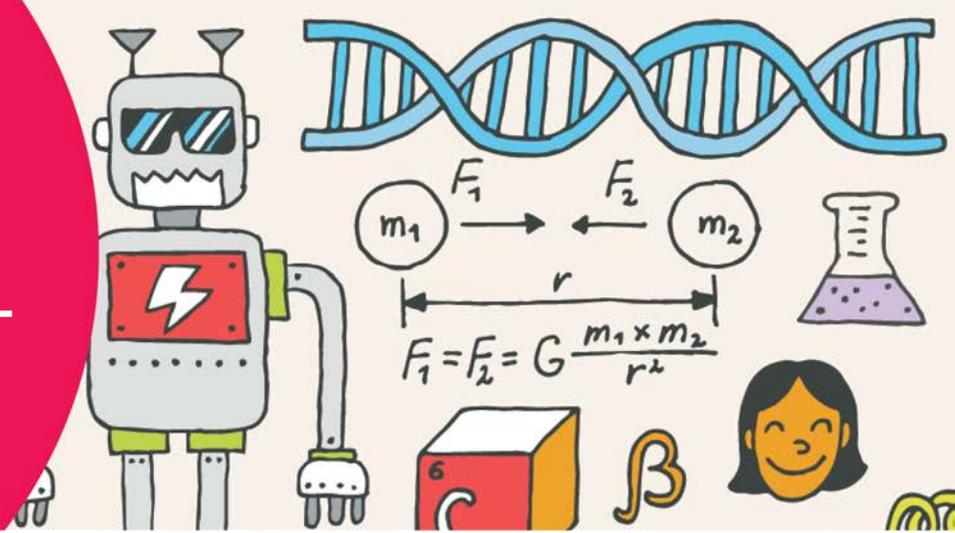


# Light Paths

## Curriculum Connections - Ontario



## GRADE 10 – SCIENCE, ACADEMIC SNC2D

### Physics: Light and Geometric Optics

2. investigate, through inquiry, the properties of light, and predict its behaviour, particularly with respect to reflection in plane and curved mirrors and refraction in converging lenses;
  - 2.1. use appropriate terminology related to light and optics, including, but not limited to: *angle of incidence*, *angle of reflection*, *angle of refraction*, *focal point*, *luminescence*, *magnification*, *mirage*, and *virtual image*
  - 2.2. use an inquiry process to investigate the laws of reflection, using plane and curved mirrors, and draw ray diagrams to summarize their findings
  - 2.4. use an inquiry process to investigate the refraction of light as it passes through media of different refractive indices, compile data on their findings, and analyse the data to determine if there is a trend
3. demonstrate an understanding of various characteristics and properties of light, particularly with respect to reflection in mirrors and reflection and refraction in lenses.
  - 3.3. describe, on the basis of observation, the characteristics and positions of images formed by plane and curved mirrors (e.g., location, orientation, size, type), with the aid of ray diagrams and algebraic equations, where appropriate
  - 3.5. describe the characteristics and positions of images formed by converging lenses (e.g., orientation, size, type), with the aid of ray diagrams
  - 3.7. identify the factors, in qualitative and quantitative terms, that affect the refraction of light as it passes from one medium to another

## GRADE 10 – SCIENCE, APPLIED SNC2P

### Physics: Light and Applications of Optics

2. investigate, through inquiry, properties of light, and predict its behaviour in mirrors and as it passes through different media;
  - 2.1. use appropriate terminology related to light and optics, including, but not limited to: *angle of incidence*, *angle of reflection*, *angle of refraction*, *centre of curvature*, *focal length*, *luminescence*, *magnification*, *principal axis*, *radius of curvature*, and *vertex*
  - 2.2. use an inquiry process to investigate the laws of reflection; use these laws to explain the characteristics of images formed by plane, converging (concave), and diverging (convex) mirrors; and draw ray diagrams to illustrate their observations
  - 2.3. use an inquiry process to investigate the refraction of light as it passes through a variety of media (e.g., the angles of incidence and refraction as light passes through a clear acrylic block)
  - 2.5. investigate how various objects or media (e.g., opaque, translucent, and transparent materials; black-and-white surfaces) reflect, transmit, or absorb light, and record their observations using ray diagrams
  - 2.6. predict the effect of shining a coloured light on objects of different colours, and test their predictions through inquiry
  - 2.7. construct an optical device (e.g., a funhouse mirror, a device that produces an optical illusion, a solar oven) that uses a variety of mirrors
3. demonstrate an understanding of characteristics and properties of light, particularly with respect to reflection and refraction and the addition and subtraction of colour.
  - 3.3. explain the laws of reflection of light, and identify ways in which light reflects from various types of mirrors (e.g., plane, converging, diverging)
  - 3.4. describe qualitatively how visible light is refracted at the interface between two different media
  - 3.5. use additive colour theory to predict the results of combining primary and secondary light colours
  - 3.6. use subtractive colour theory to describe the effect of colour filters on white light
  - 3.7. explain how the colour of an object is determined by reflection, absorption, and transmission of colour
  - 3.8. explain how the properties of light or colour are applied in the operation of an optical device (e.g., a reflecting telescope, stop lights, stage lights)