Science 8 Optics and Vision Unit

Big Idea: How do we see?

Outcome:

OP8.1 Identify and describe, through experimentation, sources and properties of visible light including:

* Rectilinear propagation
* Reflection
* Refraction

Understandings:

* Light is a form of energy with many different properties.
* There are many types of light.
* Light is an integral part of our daily life.
* Light is a form of energy that can be separated and travels in straight lines
* Light forms shadows
* Light forms angles of incidence, reflection and refraction
* Reflection and refraction applications affect our lives

Essential questions:

1. What types of light are there?
2. What properties does light have?
3. How do the properties of light affect our daily life?
4. How can we manipulate light and how does it travel?
5. How is light related to absence of light?

Students need to know:

How to:

* how to classify natural and artificial sources of light
* How to use tools safely
* How to select appropriate tools
* How to measure angles
* How to make a prediction

Vocabulary/ concepts: rectilinear propagation, reflection, refraction, natural, artificial, phosphorescent, chemiluminescent, bioluminescent, energy, spectrum, transparent, translucent, property, umbra, penumbra, angle of incidence, angle of refraction, quantitative relationship, specular reflection, diffuse reflection, absorption, qualitative, indices, prediction

And be able to: (essential questions they are related to are in brackets)

 -classify natural and artificial sources of light (1)

 -demonstrate that light is a form of energy that can be separated and travels in straight lines (2)

 -investigate how light forms shadows (2)

 -investigate, estimate and collect data related to reflection and refraction of light (2)

 -describe applications of light in our daily life (3)

 -make predictions (1-5)

 -select methods and tools and demonstrate safe use (1-5)

 -estimate and measure angles (2)

 -describe qualitatively and quantitatively (1-5)