Science 8 Optics and Vision Unit

Big Idea: How do we see?

Outcome:

OP8.3 Compare the nature and properties of human vision with optical devices and vision in other living organisms.

Understandings:

 Ray diagrams can illustrate how the human eye and optical devices see objects.

 How the human eye detects color varies from person to person.

 Color is produced by adding or subtracting different wavelengths of light.

 Many optical technologies enhance human vision.

Essential questions:

1. How can ray diagrams illustrate how the human eye sees objects?
2. How does the human eye perceive color?
3. How is color produced?
4. How can optical technologies enhance human vision?

Students need to know:

* How to use ray diagrams
* Vocabulary – geometrical, ray diagram, vertebrate, invertebrate, optical, additive and subtractive models, optical technologies
* Optical technologies – contact lenses, glasses, night vision scopes, snow goggles

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

* Identify questions about optical problems or issues (1-4)
* Draw ray diagrams (1)
* Compare the human eye to an optical device (1)
* Compare human vision to other invertebrates (1, 2)
* Explain how humans detect color (2), explain how color is produced and the additive and subtractive properties of colour (3)
* Describe optical technologies that enhance human vision (4)