

# Grade 7: Science

## Unit 2 - Waves (Sound and Light)

Start: October 2022

Duration: 9 weeks

### LEARNING EXPERIENCES:

In this unit, students identify that waves transfer energy but not matter. They will be able distinguish between mechanical and electromagnetic waves, identify that visible light is part of the electromagnetic spectrum. Then, they will identify different waves within the electromagnetic spectrum and their applications in our everyday life. They will be able to compare and contrast between transparent, translucent and opaque substances. Also they will be able to demonstrate that shadows are created when light interacts with opaque objects. Students will be able to deduce that we see reflected light and apply the Law of reflection and they will be able to describe the structure and function of the human eye and human ear. Students will be able to deduce that white light is made up of all colours of the spectrum. Also, they will be able to describe sound as a longitudinal wave caused by vibrations.

### KEY CONCEPT:

**Systems**

### RELATED CONCEPT:

**Function, Patterns**

### STATEMENT OF INQUIRY

Technological **systems** help us perceive **patterns** in our world by using the properties of waves and the **functions** of our senses.

### INQUIRY QUESTIONS:

#### Factual:

What are the similarities and differences of the two types of waves (mechanical and electromagnetic)?  
 What are the properties of the different types of waves?  
 What is the structure of the various parts of the eye and the ear?

#### Conceptual:

How do the functions of different parts of our eyes and ears allow us to perceive the world around us?  
 How does light react with transparent, translucent and opaque objects?

#### Debatable:

To what extent is colour a perception?

### OBJECTIVES AND ASSESSMENT CRITERIA:

#### Criterion B: Inquiring and Designing

Students will:

- i. outline a problem or question to be tested by a scientific investigation
- ii. outline a testable prediction using scientific reasoning.
- iii. outline how to manipulate the variables, and outline how sufficient, relevant data will be collected.
- iv. design a logical, complete and safe method in which he or she selects appropriate materials and equipment.

#### Criterion C: Reflecting on the impacts of science

Students will:

- i. correctly collect, organize, transform and present data in numerical and/or visual forms.
- ii. accurately interpret data and outline results using correct scientific reasoning.
- iii. discuss the validity of a prediction based on the outcome of a scientific investigation
- iv. discuss the validity of the method based on the outcome of a scientific investigation.
- v. describe improvements or extensions to the method that would benefit the scientific investigation.

### ATLs

**Communication skills, Critical thinking skills & Creative thinking skills**

### RESOURCES:

MS Teams / Gizmos / Laptops / Experiments done as demonstration in class. All notes written by the students in the notebooks. Resources shared in TEAMS and ManageBac.

### SUMMATIVE ASSESSMENT:

Criteria B & C: Students will write a lab report on the topic given.