

THIRD TERM

WEEKLY LESSON NOTES

WEEK 3

Week Ending:	DAY:	Subject: Science
Duration: 100mins		Strand: Forces & Energy
Class: B9	Class Size:	Sub Strand: Force & Motion
Content Standard: B9.4.4.1 Demonstrate understanding of the concept of pressure and explain how pressure acts in everyday life	Indicator: B9.4.4.1.1 Explain the concept of pressure and show how pressure relates to force; perform activities that work on the principle of pressure in the daily lives of humans.	Lesson: 1 of 2
Performance Indicator: Learners can; <ul style="list-style-type: none"> • Demonstrate the concept of pressure through various activities. • Describe the relationship between pressure and force. • Discuss the application of pressure in everyday life. 		Core Competencies: Critical Thinking and Problem Solving (CP), Communication and Collaboration (CC) Digital Literacy (DL), Creativity and Innovation
References: Science Curriculum Pg. 111		
Key words: Pressure, Force, Inflation, Hydraulic		
Phase/Duration	Learners Activities	Resources
PHASE 1: STARTER	<p>Start with a question: "Have you ever noticed how a balloon gets inflated or how water comes out with pressure from a hose?"</p> <p>Show pictures or videos of examples like drinking straws, balloons, and water jets to introduce the concept of pressure.</p> <p>Ask learners to share their observations and thoughts about how pressure works in these situations.</p>	
PHASE 2: NEW LEARNING	<p>Demonstrate how blowing through a drinking straw can create pressure to move objects (e.g., pushing a small ball).</p> <p>Let learners try this activity in pairs or small groups and discuss their observations.</p> <p>Inflate balloons to different sizes using a pump or by blowing air manually.</p> <p>Discuss with learners how the pressure inside the balloon causes it to expand.</p>	Drinking straws Balloons

Describe the relationship between pressure and force

Aspect	Force	Pressure
Definition	Force is a vector quantity that causes a change in motion or state of rest.	Pressure is the amount of force exerted per unit area.
Symbol	F	P
Unit	Newtons (N)	Pascals (Pa)
Formula	N/A (Force is directly measured)	Pressure = Force / Area
Relationship with Area	Inverse relationship: Smaller area = higher pressure; Larger area = lower pressure.	N/A (Pressure depends on force and area)
Relationship with Force	Direct relationship: Increase in force = increase in pressure (when area is constant).	N/A (Pressure depends on force and area)

Divide learners into groups. Task them to discuss the application of pressure in everyday life

- *In industries and machinery, pressure is used in pneumatic systems to operate tools and equipment. Compressed air is used to create pressure that powers pneumatic cylinders, pumps, and actuators*
- *hydraulic systems use pressure but with fluids like oil instead of air. Hydraulic pressure is crucial in operating heavy machinery such as hydraulic lifts, cranes, and excavators*
- *Pressure cookers utilize high pressure to cook food quickly. The increased pressure raises the boiling point of water, allowing food to cook faster while retaining nutrients*
- *Pressure is essential in various automotive systems. In the braking system, hydraulic pressure is used to apply force to the brake pads, slowing down or stopping the vehicle.*
- *Blood pressure is a vital sign that indicates the pressure exerted by blood against the walls of arteries. Monitoring blood pressure is crucial for assessing cardiovascular health*
- *Pressure plays a role in sports equipment like balls. In sports such as soccer, basketball, and volleyball, the pressure inside the ball affects its bounce and performance*

Assessment

1. Explain how pressure is created using the examples of drinking straws and balloons.
2. Describe one real-life application of pressure and its importance.

	3. What is the relationship between pressure and force?	
PHASE 3: REFLECTION	Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson. Take feedback from learners and summarize the lesson.	

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Duration: 100mins		Strand: Forces & Energy
Class: B9	Class Size:	Sub Strand: Force & Motion
Content Standard: B9.4.4.1 Demonstrate understanding of the concept of pressure and explain how pressure acts in everyday life	Indicator: B9.4.4.1.2 Demonstrate the application of Newton's Third Law of motion in life.	Lesson: 1 of 2
Performance Indicator: Learners can perform an activity to justify predictions and understand Newton's Third Law of Motion		Core Competencies: Critical Thinking and Problem Solving (CP), Communication and Collaboration (CC) Digital Literacy (DL), Creativity and Innovation
References: Science Curriculum Pg. 111		
Key words: Force, Reaction, Newton's Third Law, Equilibrium		
Phase/Duration	Learners Activities	Resources
PHASE 1: STARTER	Show a simple object like a book on a table. Ask learners: What happens if I push the book? (It will move) If I pull it? (It will move in the opposite direction) Why does the book move? (Force is being applied) Pose the question: Imagine you push a toy car. What happens to the car? Write the predictions on the board without revealing the answer.	
PHASE 2: NEW LEARNING	Introduce the concept of force as a push or pull that can affect the motion of an object. Explain the terms "action" (the initial force) and "reaction" (the force exerted by the object in response).	Smooth surface (tabletop, floor) Toy cars (different weights if possible)

Briefly introduce Newton's Third Law of Motion: For every action, there is an equal and opposite reaction.

Explain that this law states that whenever a force is applied, an opposite force is created in response.

Divide learners into pairs or small groups. Instruct them to design a simple experiment using the provided materials to test their predictions about forces and reactions.

Encourage them to consider how force applied to the toy car will cause a reaction.

Activity Time: Learners conduct their experiments on the designated surface. They can push or pull the toy cars with different forces and observe the movements.

After the activity, facilitate a class discussion. Ask learners to share their observations and how they relate to their initial predictions.

Encourage them to explain how the force applied (action) caused a reaction in the toy car.

Assessment

1. Describe a scenario where you applied force to an object. What was the reaction of the object?
2. Explain Newton's Third Law of Motion in your own words.
3. Why is it important to understand the relationship between force and reaction?

Fill in the blanks:

- a. A force is a _____ or _____ on an object.
 - b. The initial force applied to an object is called the _____.
 - c. The opposing force exerted by the object in response is called the _____.
4. According to Newton's Third Law of Motion, for every _____, there is an equal and opposite _____.
 5. Draw a simple diagram showing an action force applied to a toy car and the resulting reaction force.

<p>PHASE 3: REFLECTION</p>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>	
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