

CORE SUBJECT



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Development Team

Writers: Jennifer Lou B. Abuzo, Joel S. Bulawan, Jonnabelle Gamino, Benjamin C. Abregado, Joseph Bernard C. Dalusong, Lorie Mae V. Viloria, Ma. Rhoda E. Panganiban, Mariecor F. Magpantay, Mary Janine G. Selva, Cesar F. Navales Jr., Cherry V. Abrazado, John-John Q. Garcia, Kathleen B. Piguerra, Shiela Marie S. Quiamson

Validators: Ivy Pfizer Gabejan Arellano, Junedine Mitze P. Quiñones, Juvy Dale F. Politchay, Mark S. Paulino, Myla V. Lalicon, Olivar Reimos D Barroga Jr, Roselyn L. Molina, Rowell A. Demdam, Saturnino L. Macasinag, Jr.

Consultant: **Dr. Alfons Jayson O. Pelgone**
Philippine Normal University - Manila

Learning Area Specialist: **John Cyrus L. Doblada**
Senior Education Program Specialist
Bureau of Learning Delivery - Teaching and Learning Division

Bureau of Learning Delivery
Bureau of Curriculum Development
Bureau of Learning Resources

Every care has been taken to ensure the accuracy of the information provided in this material. For inquiries or feedback, please write or call the Office of the Director of the Bureau of Learning Resources via telephone numbers (02) 8634-1072 and 8631-6922 or by email at blr.od@deped.gov.ph.

If you have feedback on the LAS, please accomplish this form, which may be accessed through the following link: https://bit.ly/Feedback_LE_LAS_Core.

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LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	1	Date	
Lesson Title/Topic:	Physics in Daily Life - Physics Applications in Everyday Life		
Name		Grade & Section	

Option 1: Performance Task – “Physics in My Life Poster”

I. Learning Competency

The learner illustrates and explains how physics concepts are applied in real-life situations.

II. Learning Objectives

At the end of the activity, the learners are expected to:

1. Identify at least five real-life situations where physics is applied.
2. Explain the physics concepts involved in everyday activities.
3. Create a creative and informative poster showing physics in real life.
4. Articulate how understanding physics helps improve safety, efficiency, or innovation in daily life, and justify its relevance to community or societal needs.

III. Materials Needed

- Bond paper or cartolina
- Coloring materials (crayons, markers, pens)
- Pictures (printed or drawn)
- Glue or tape
- Ruler (optional)

IV. Procedure

1. Create an individual poster entitled “Physics in My Life,” using one (1) sheet of bond paper or a one-fourth ($\frac{1}{4}$) cartolina.
2. Include at least five real-life situations where physics is applied.
3. For each situation, ensure that you:
 - Draw or paste a picture

- Identify the physics concept involved
- Write a short explanation of how the concept works

Example:

- Electric fan → Electricity and motion
- Bicycle → Force and motion
- Rice cooker → Heat transfer

4. Make your poster neat, colorful, and creative.

V. Assessment

Your work will be evaluated using the following rubric:

Criteria	4 – Excellent	3 – Proficient	2 – Developing	1 – Beginning	Points
<i>Science Accuracy</i>	<i>All physics concepts are correct and accurately applied</i>	<i>Most concepts are correct with minor errors</i>	<i>Some concepts are inaccurate or incomplete</i>	<i>Many concepts are incorrect or missing</i>	<i>/4</i>
<i>Application of Concepts</i>	<i>All examples are correctly identified and explained</i>	<i>Most examples are correct with minor errors</i>	<i>Partial understanding of concepts</i>	<i>Little understanding shown</i>	<i>/4</i>
<i>Clarity of Explanation</i>	<i>Clear, complete, and easy to understand</i>	<i>Generally clear with minor gaps</i>	<i>Somewhat unclear or incomplete</i>	<i>Unclear or missing explanations</i>	<i>/4</i>
<i>Creativity & Presentation</i>	<i>Highly creative, neat, and well-organized</i>	<i>Creative and neat with minor issues</i>	<i>Limited creativity or weak organization</i>	<i>Poorly presented</i>	<i>/4</i>

Criteria	4 – Excellent	3 – Proficient	2 – Developing	1 – Beginning	Points
<i>Completeness</i>	<i>All requirements are complete (5 situations, pictures, explanations)</i>	<i>Minor missing elements</i>	<i>Several missing elements</i>	<i>Incomplete output</i>	<i>/4</i>

Total: /20

VI. Reflection / Processing Question

1. How does your understanding of physics concepts reshape your interpretation of everyday phenomena? Cite at least two specific activities and explain the physics principle that governs each. How did this knowledge change your perspective?

2. Evaluate the role of physics in addressing a contemporary societal or technological challenge. Based on what you learned, explain how a physics concept can be applied to improve safety, efficiency, or innovation in a real-world context. Justify this application matters to you and your community.

Option 2: Performance-Based Written Task – Physics in Everyday Life

I. Learning Competency

The learner identifies and explains physics concepts as they are applied in everyday life situations.

II. Learning Objectives

At the end of the activity, the learners are expected to:

1. Identify five (5) situations where physics is present in daily life.
2. Identify the physics concepts involved in each situation.
3. Explain how physics operates in real-life situations in 1–2 sentences.
4. Present ideas clearly, neatly, and accurately in written form.

III. Materials Needed

- Activity Sheet
- Pen or writing materials

IV. Procedure

1. Perform an individual written activity titled “Physics in Everyday Life.”
2. Write five (5) situations where physics is observed in daily life.
3. For each situation, include the following:
 - Situation (e.g., riding a bicycle)
 - Physics Concept (e.g., motion, force, energy, heat, electricity)
 - Short Explanation (1–2 sentences only)

Example:

- Situation: Electric fan
 - Concept: Electricity and motion
 - Explanation: Electrical energy is converted into motion that makes the fan blades rotate.
4. Write your answers below:

<i>Situation</i>	<i>Concept</i>	<i>Explanation</i>
1.		
2.		

3.		
4.		
5.		

V. Assessment

Your work will be evaluated using the rubric below:

Criteria	4 – Excellent	3 – Proficient	2 – Developing	1 – Beginning	Points
Science Accuracy	All five situations and explanations are scientifically correct with no misconceptions	Most situations are correct with minor errors	Some correct, but several misconceptions present	Most answers are incorrect or inaccurate	/ 4
Identification of Physics Concepts	All physics concepts are correctly identified	Most concepts are correct with minor errors	Some correct but several incorrect or missing	Concepts are mostly incorrect or missing	/ 4
Explanation of Concepts	Clear, accurate, and concise (1–2 sentences) for all items	Generally clear with minor gaps	Some unclear or incomplete explanations	Unclear, incorrect, or missing explanations	/ 4

Criteria	4 – Excellent	3 – Proficient	2 – Developing	1 – Beginning	Points
Completeness of Output	All five situations are complete with concept and explanation	One part missing or only four situations complete	Only 2–3 complete situations	Fewer than 2 complete situations	/ 4
Clarity, Neatness, and Organization	Very neat, well-organized, and easy to read	Generally neat with minor issues	Somewhat disorganized or unclear	Poorly written and difficult to read	/ 4

Total: /20

VI. Reflection Questions

1. Synthesize how the physics concepts you identified influence decision-making, safety, or innovation in your daily life. Reflect on one or more of your 5 situations. How would a lack of understanding of that physics concept lead to risk, inefficiency, or poor design in real-world context?

2. Critique one of the situations you documented and propose an improvement using physics principles. How could the application of physics be optimized to make it more efficient, safer, or more sustainable? Explain your proposed change.

Option 1: Additional Activity – Home Observation Journal

I. Learning Competency

The learner identifies and explains physics concepts as applied in real-life household situations.

II. Learning Objectives

At the end of the activity, the learners are expected to:

1. Observe at least five (5) applications of physics at home per day.
2. Identify the physics concepts involved in each observation.
3. Explain how physics is applied in everyday household activities.
4. Develop awareness of physics concepts through real-life observation.

III. Materials Needed

- Activity Sheet
- Pen or writing materials

IV. Procedure

1. Observe applications of physics at home for **three (3) consecutive days**.
2. Record at least **five (5) examples per day**.
3. For each example, include:
 - Activity or object observed
 - Physics concept involved
 - Short explanation of how the concept works

Example:

- Electric fan → Electricity and motion → Electrical energy is converted into mechanical energy that rotates the blades.
4. Observe carefully and use real-life household situations only.

Output Format (Sample Entry Guide)

	Activity/Object	Physics Concept	Explanation
Day 1	1.		
	2.		
	3.		
	4.		

	5		
Day 2	1.		
	2.		
	3.		
	4.		
	5		
Day 3	1.		
	2.		
	3.		
	4.		
	5		

V. Assessment

Your work will be evaluated using the rubric below:

Criteria	4 – Excellent	3 – Proficient	2 – Developing	1 – Beginning	Points
Science Accuracy	All observations and explanations are scientifically correct with no misconceptions	Most observations are correct with minor errors	Some correct but several inaccurate or incomplete explanations	Most entries are incorrect or show major misconceptions	/4
Identification of Physics Concepts	All concepts are correctly identified across all entries	Most concepts are correct with minor errors or omissions	Some correct but several incorrect or missing concepts	Fails to identify relevant physics concepts	/4
Explanation of Observations	Clear, accurate, and meaningful	Generally clear with minor gaps	Limited or partially	Missing or incorrect explanations	/4

Criteria	4 – Excellent	3 – Proficient	2 – Developing	1 – Beginning	Points
	<i>explanations in all entries</i>		<i>correct explanations</i>		
<i>Completeness of Entries</i>	<i>Complete journal with at least 15 entries (5 per day for 3 days)</i>	<i>Minor omissions in entries</i>	<i>Partial entries (8–12 total) or missing some days</i>	<i>Very few entries (less than 8)</i>	<i>/4</i>
<i>Clarity, Neatness, and Organization</i>	<i>Very neat, well-organized, and easy to read with clear daily labeling</i>	<i>Generally neat with minor issues</i>	<i>Somewhat disorganized or unclear</i>	<i>Poorly organized and difficult to read</i>	<i>/4</i>

Total: /20

VI. Reflection Questions

1. Analyze patterns in your 3-day observation and evaluate the overall role of physics in maintaining household function, safety, or efficiency. *Which physics concepts appear most frequently in your home? How would the absence or misuse of these concepts affect daily life? Justify with at least two examples from your journal*

2. Critique and redesign one household activity or appliance you observed to improve its efficiency or safety using physics principles. *Select one entry from your journal. Identify a limitation in how physics is currently applied and propose a specific improvement. Explain how your redesign addresses that limitation.*

Option 2: Additional Activity - “Physics in My Community” Photo Essay

I. Learning Competency

The learner identifies and explains physics concepts as applied in real-life community settings.

II. Learning Objectives

At the end of the activity, the learners are expected to:

1. Identify physics concepts present in community settings.
2. Document real-life applications of physics through photos or illustrations.
3. Explain how physics concepts are applied in everyday community experiences.
4. Present creative and organized outputs in a photo essay format.

III. Materials Needed

- Camera or mobile phone (for taking photos)
- Drawing materials (if illustrations are used instead of photos)
- Bond paper / scrapbook / digital presentation tool
- Pen or writing materials

IV. Procedure

1. Take photos or draw illustrations showing physics concepts in the community.
2. Focus on any of the following:
 - Transportation
 - Safety devices
 - Household appliances

- Sports activities
 - Community tools or machines
3. Compile at least five (5) photos or drawings.
 4. For each image or illustration, include:
 - Title or caption
 - Physics concept involved
 - Short explanation of how the concept is applied
 5. Use clear, appropriate, and relevant images or drawings.
 6. Organize outputs as a photo essay, scrapbook, or digital presentation.

V. Assessment

Your work will be evaluated using the following rubric:

Criteria	4 – Excellent	3 – Proficient	2 – Developing	1 – Beginning	Points
<i>Science Accuracy</i>	<i>All concepts and explanations are correct and free from misconceptions</i>	<i>Most concepts are correct with minor errors</i>	<i>Some correct but several inaccurate or incomplete explanations</i>	<i>Most or all concepts are incorrect</i>	<i>/ 4</i>
<i>Identification of Physics Concepts</i>	<i>All five images/ drawings correctly identify appropriate physics concepts</i>	<i>Most concepts correctly identified with minor omissions</i>	<i>Some correct concepts but several incorrect or missing</i>	<i>Fails to identify relevant physics concepts</i>	<i>/ 4</i>
<i>Explanation of Application</i>	<i>Clear, meaningful, and accurate explanations for all entries</i>	<i>Clear explanations with minor gaps</i>	<i>Limited or partially correct explanations</i>	<i>Missing or incorrect explanations</i>	<i>/ 4</i>

Criteria	4 – Excellent	3 – Proficient	2 – Developing	1 – Beginning	Points
Completeness of Output	At least 5 complete entries with title, concept, and explanation	4–5 entries with minor missing elements	2–3 complete entries	Fewer than 2 complete entries	/4
Creativity and Presentation	Highly creative, well-organized, and visually appealing output	Organized and clear with minor issues	Somewhat disorganized or lacks visual appeal	Poorly presented and disorganized	/4

Total: /20

VI. Reflection Questions

1. Evaluate how physics concepts contribute to community development, public safety, or sustainable living in your locality. Analyze *at least two of your documented examples from transportation, safety devices, or community tools*. How do these applications improve quality of life, and what risks arise if the physics principles are misunderstood or ignored?

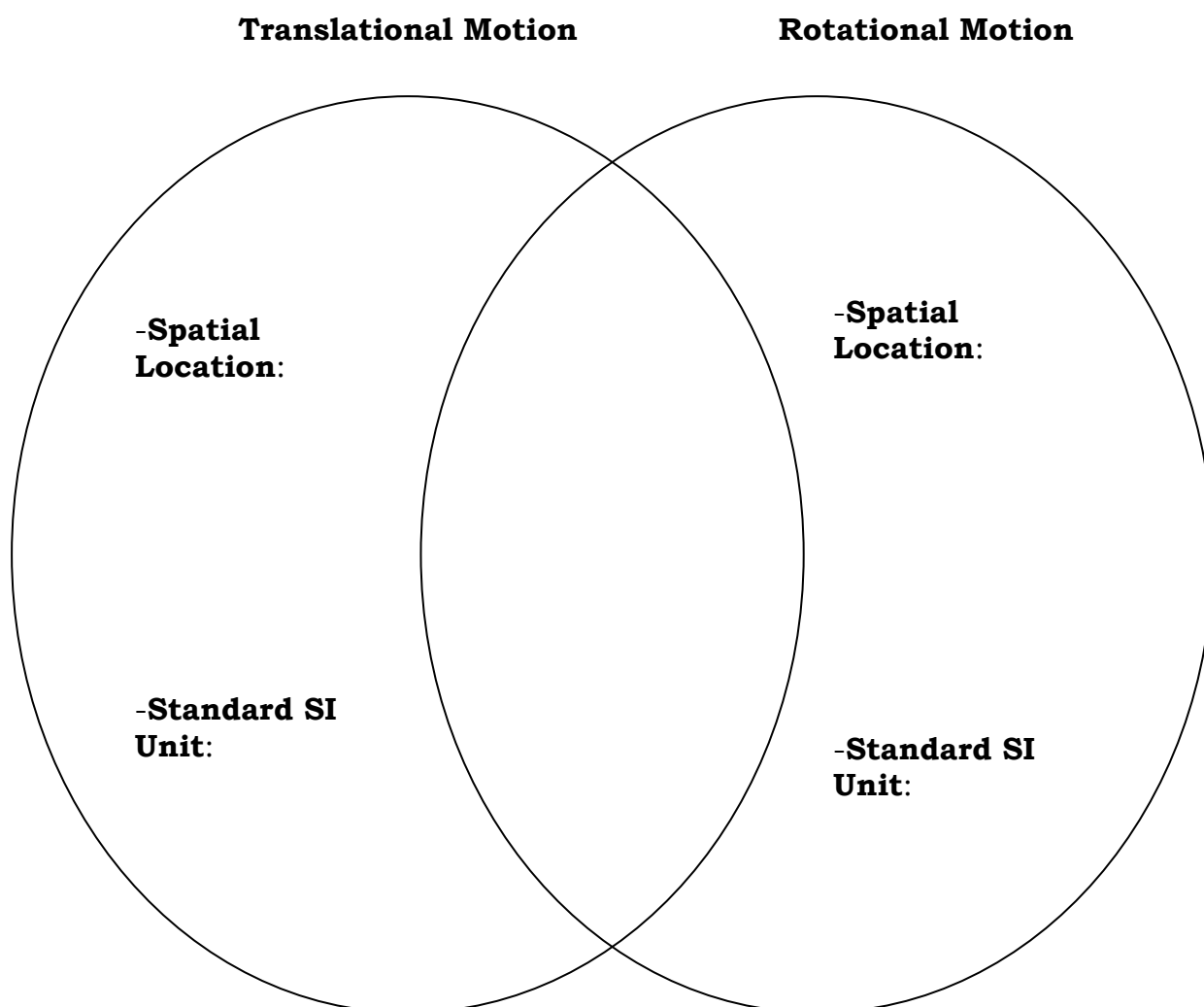
2. Select one area from your photo essay. Propose a new or improved tool, structure, or system for your community that applies to physics principles to solve a local problem. Justify how feasible your proposal is and beneficial.

LEARNING ACTIVITY SHEET (LAS)

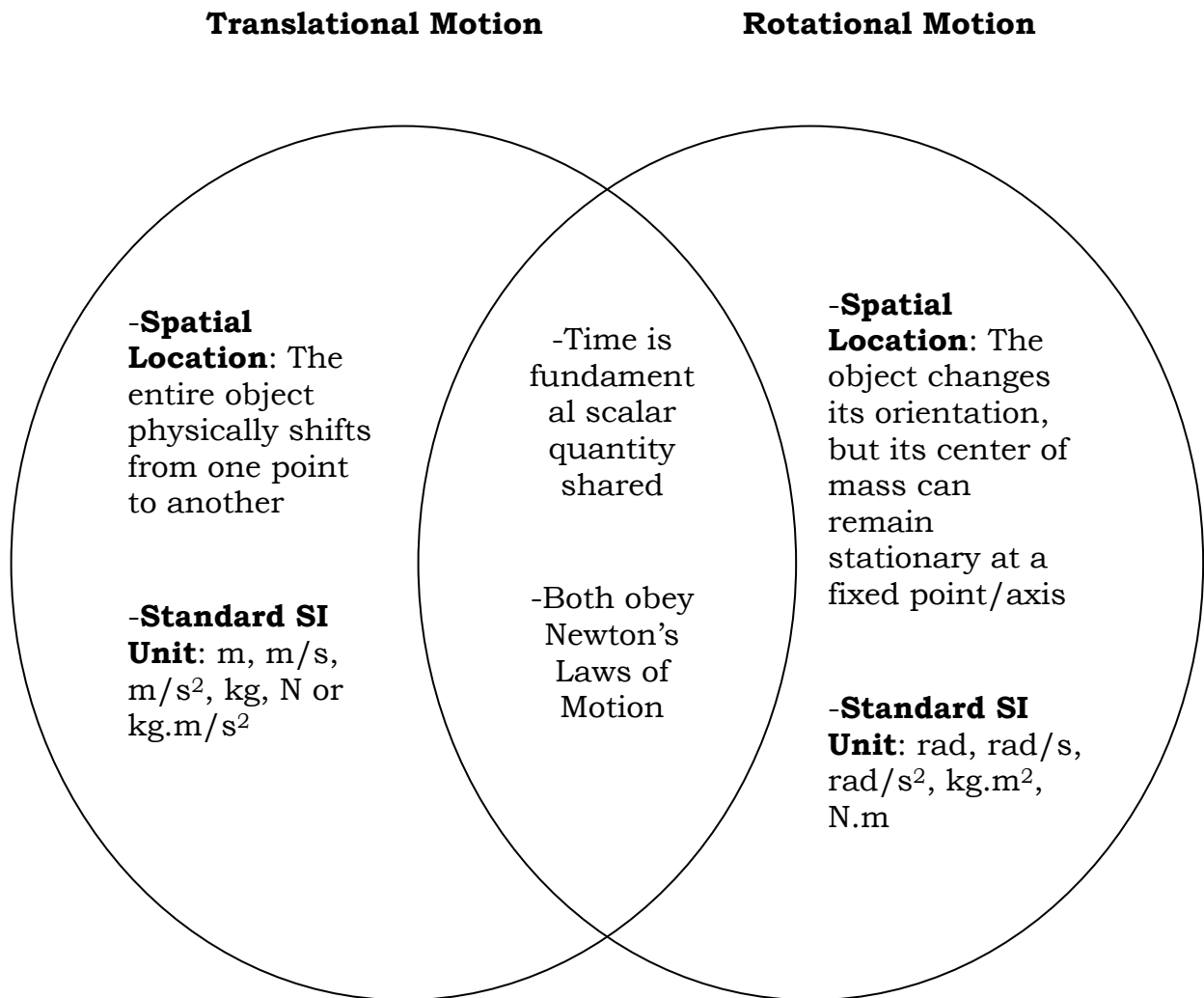
Learning Area	General Science	Term	1
Lesson Exemplar No.	2	Date	
Lesson Title/Topic:	Applications of Translational and Rotational Motion - Linear and Angular Quantities		
Name		Grade & Section	

Activity: Venn Diagram

Direction: Complete the Venn Diagram below showing the similarities and differences between translational and rotational motion in terms of the following domains: *spatial location changes, the standard SI units used, point-vector uniformity, and at least one shared scalar quantity.*



Sample Venn Diagram:

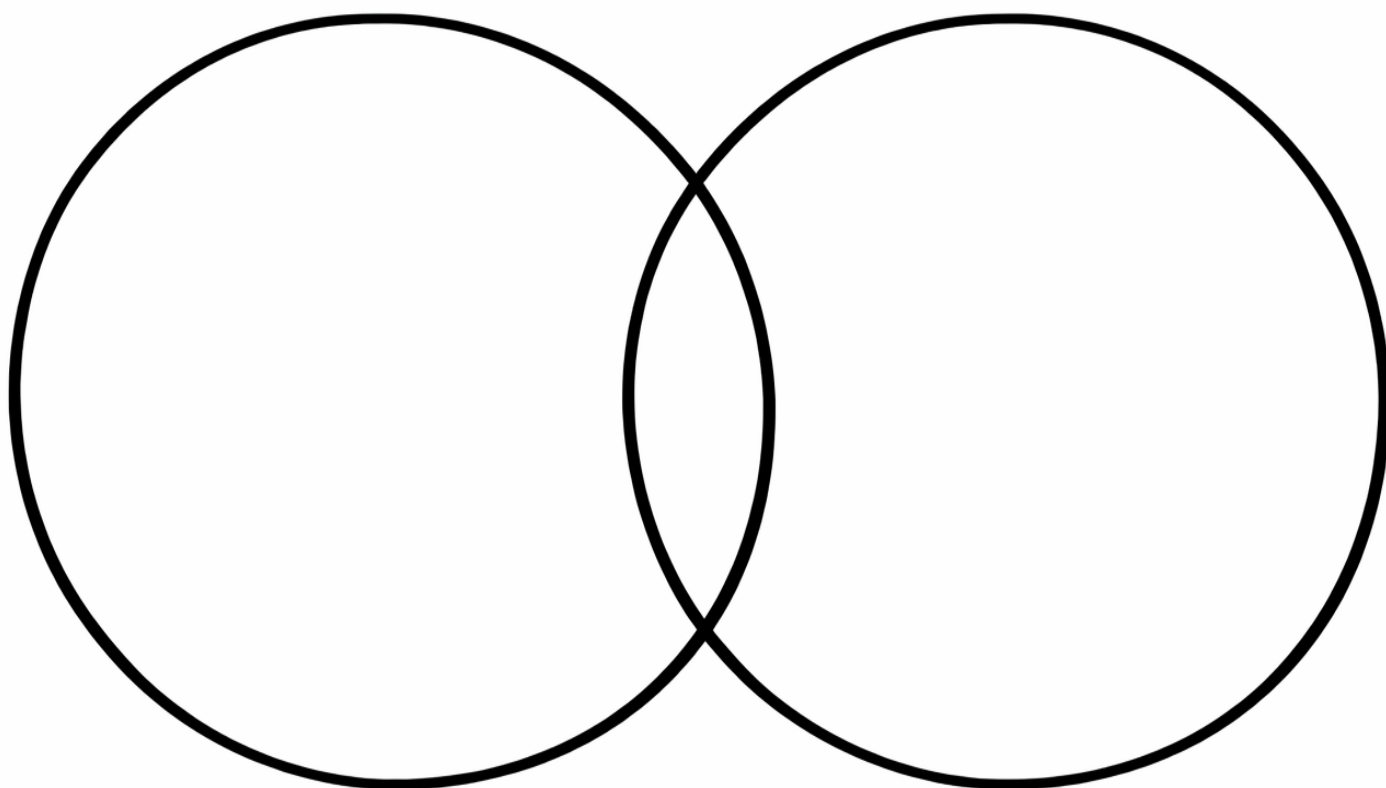


LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	3	Date	
Lesson Title/Topic:	Applications of Translational and Rotational Motion - Relationship Between Linear and Angular Quantities		
Name		Grade & Section	

VENN DIAGRAM ACTIVITY:

Directions: Create a Venn diagram showing the similarities and differences between translational motion and rotational motion. The 18 statements below may be used for the differences, but the similarities must be identified by the learners.



Statements:

1. Center of mass may remain fixed.
2. Described by linear quantities — displacement, velocity, acceleration.
3. It involves torque and angular momentum
4. All points move same distance.
5. Examples include a car moving forward or a sprinter running.
6. Motion occurs around a fixed axis.
7. Examples include a spinning top or rotating fan.
8. No rotation about an axis.
9. Measured in radians, rad/s , rad/s^2 .
10. Direction of motion is the same for all parts.
11. Motion occurs along a straight or curved path.
12. Described by angular quantities — displacement, velocity, acceleration.
13. Measured in meters, m/s , m/s^2 .
14. Each point moves parallel to others.
15. Different points cover different distances.
16. All points move in circular paths.
17. Center of mass changes position.
18. Direction of motion varies for different points.

LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	3	Date	
Lesson Title/Topic:	Applications of Translational and Rotational Motion - Relationship Between Linear and Angular Quantities		
Name		Grade & Section	

SHORT RESPONSE ACTIVITY:

Directions: Answer the following questions in a paper or notebook.

a. What are the characteristics of translational motion?

b. What are the characteristics of rotational motion?

c. How do translational and rotational motion differ?

d. What three quantities discussed belong to translational motion?

e. What three quantities discussed belong to rotational motion?

- f. Give at least one way linear and angular quantities that are applied to human movement as observed in daily life and explain how.

- g. Give at least one way linear and angular quantities that are applied to ergonomic designs as observed in daily life and explain how.

LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	4	Date	
Lesson Title/Topic:	Simple and Compound Machines - Designing Efficient Machine Prototypes		
Name		Grade & Section	

Option 1: Prototype Design Challenge

I. LEARNING COMPETENCY

Apply concepts of translational and rotational motion to analyze the operation of simple and compound machines.

II. LEARNING OBJECTIVES

After completing this Learning Activity Sheet, you should be able to:

1. Differentiate translational motion from rotational motion.
2. Identify translational and rotational motion in everyday machines.
3. Analyze how forces affect machine movement and efficiency.
4. Explain how translational and rotational motions work together in machines.
5. Propose practical improvements that can increase machine efficiency.

III. BRIEF REVIEW

Machines make work easier by helping us move objects, lift loads, and transfer energy.

Two important types of motion commonly found in machines are:

Translational Motion

Translational motion occurs when an object moves from one position to another along a straight or curved path without rotating about its own axis.

Examples:

- Elevator moving up and down
- Sliding door
- Conveyor belt
- Piston inside an engine

Rotational Motion

Rotational motion occurs when an object spins or rotates around a fixed axis.

Examples:

- Bicycle wheel
- Electric fan blades
- Wind turbine blades
- Ferris wheel

Many machines use both translational and rotational motion to perform their functions efficiently.

Common Forces Acting on Machines

Force	Description
Friction	Resistance that opposes motion
Gravity (Weight)	Force pulling objects toward Earth
Tension	Force transmitted through ropes, cables, or strings
Torque	Rotational force that causes an object to spin

Understanding these motions and forces helps engineers design more efficient machines.

IV. LEARNING ACTIVITY

MOTION DETECTIVE: Investigating Motion in Everyday Machines

Directions: Carefully observe a machine or mechanical device commonly used in your everyday environment, such as at home, in school, or in the community.

Examples include:

- *Bicycle*
- *Electric fan*
- *Wheelbarrow*
- *Sewing machine*
- *Toy car*
- *Hand mixer*
- *Office chair with wheels*
- *Pulley system*

- Rolling luggage
- Wind-up toy

Choose **ONE** machine and complete the activities that follow.

PART A: SYSTEM IDENTIFICATION AND SCOPE

Directions: Select one mechanical system from the list above or choose another machine that you can observe. Treat your observation as an engineering case study.

System/Machine Chosen:

Context of Observation:

Specify the location where the machine was observed and its operational state.

Example: An office chair with wheels being used at home for sideways movement.

Primary Function:

State the mechanical purpose of the system in one sentence.

Example: The office chair converts human effort into translational motion through the rotational movement of its wheels.

Initial Hypothesis:

Predict the types of motion you expect to observe and identify the physics principles that are likely to be most evident.

Example: I predict that rotational motion will be dominant because the wheels must rotate for the chair to move across the floor.

PART B. MOTION OBSERVATION TABLE

Study the machine carefully.

Complete the table below.

Machine Component	Translational Motion (✓)	Rotational Motion (✓)	Description of Movement
Example: Wheel		✓	Rotates around an axle
1.			
2.			
3.			
4.			

PART C. IDENTIFYING FORCES

Determine which force most affects the machine.

Check (✓) the appropriate column.

Force	Present? (✓)	How does it affect the machine?
Friction		
Gravity (Weight)		
Tension		
Torque		

PART D. MACHINE DIAGRAM

Draw your chosen machine below.

Label:

- ✓ Parts showing translational motion
- ✓ Parts showing rotational motion
- ✓ Important forces acting on the machine

Drawing Space

PART E. ANALYSIS QUESTIONS

Answer the following questions in complete sentences.

1. Which parts of your machine exhibit translational motion?

2. Which parts exhibit rotational motion?

3. How does rotational motion contribute to the machine's function?

4. How does translational motion contribute to the machine's function?

5. What forces affect the operation of the machine?

6. How do translational and rotational motion work together in your machine?

PART F. ENGINEER'S CHALLENGE

Imagine that you are an engineer.

Identify one limitation or problem of the machine and propose one improvement.

Limitation or Problem

Proposed Improvement

How will this improvement increase efficiency?

PART G. APPLICATION TASK

Read the situation below.

A bicycle moves forward because its wheels rotate while the entire bicycle travels in a straight path.

Questions

1. Which motion occurs in the bicycle wheels?

☐ Translational Motion

☐ Rotational Motion

2. Which motion occurs as the bicycle moves forward?

☐ Translational Motion

☐ Rotational Motion

3. Why is it important for both motions to work together?

V. GENERALIZATION

Complete the statements below.

1. Translational motion occurs when

2. Rotational motion occurs when

3. Many machines use both translational and rotational motion because

4. Understanding motion principles helps engineers

VI. ASSESSMENT

Directions:

Choose the letter of the correct answer.

1. Which object primarily demonstrates rotational motion?

- A. Elevator
- B. Sliding door
- C. Electric fan
- D. Escalator

2. Which example demonstrates translational motion?
- A. Bicycle wheel rotating
 - B. Wind turbine spinning
 - C. Ferris wheel turning
 - D. Elevator moving upward
3. Which force is responsible for causing an object to rotate?
- A. Friction
 - B. Gravity
 - C. Torque
 - D. Tension
4. Why is friction important in machines?
- A. It always improves efficiency.
 - B. It prevents all movement.
 - C. It can either help or hinder machine operation.
 - D. It causes rotational motion.
5. A wheelbarrow uses both translational and rotational motion because
- A. the wheel rotates while the wheelbarrow moves forward.
 - B. the wheel only rotates.
 - C. the wheelbarrow only moves forward.
 - D. the wheel remains stationary.

VII. REFLECTION

Directions: Explain how understanding translational and rotational motion can help improve the efficiency, safety, and performance of machines used in everyday life. Support your answer with at least one specific example. Answer the question below in **3–5 complete sentences**.

ANSWER KEY

Part G

- 1. Rotational Motion**
- 2. Translational Motion**
- 3. Both motions work together to allow efficient movement and machine operation.**

Assessment

- 1. C**
- 2. D**
- 3. C**
- 4. C**
- 5. A**

LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	5	Date	
Lesson Title/Topic:	Simple and Compound Machines - Characteristics of Efficient Machines		
Name		Grade & Section	

Activity: Real-Life Problem Scenario - Choosing an Efficient Tool

Learning Objectives

- Define efficiency in the context of simple machines.
- Explain characteristics of efficient simple machines such as low friction, proper alignment, and optimal mechanical advantage.
- Compare simple and compound machines in terms of structure, function, and efficiency and recommend improvements.

Materials

Pen, paper, and available classroom/home materials as needed.

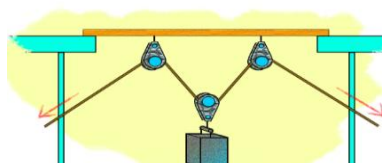
Imagine that you are helping move supplies into a storage area. A heavy box must be placed on a raised platform, but lifting it directly would be difficult and unsafe. You may use a ramp, a pulley system, or a lever to complete the task. Compare the three options, choose the simple machine that would be most suitable, and justify your choice based on the effort required, ease of use, and safety. Answer the guide questions below.

- a. **Ramp (inclined plane)** – Uses translational motion to move objects upward with reduced force.



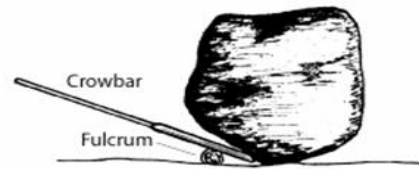
<https://ph.pinterest.com/pin/603341681298775409/>

- b. **Pulley System** – Uses rotational motion to lift objects with less effort.



<https://www.education.com/science-fair/article/moveable/>

- c. **Lever (crowbar)** – Transfers force efficiently by applying rotational motion at one end.



https://www.teachengineering.org/lessons/view/cub_simp_machines_lesson03

Guide Questions:

1. Which tool would be the best choice for lifting the box efficiently? Why?

Answer: _____

2. What forces influence your decision?

Answer: _____

3. How do friction, gravity, and torque affect the tool?

Answer: _____

4. What safety concerns should you consider?

Answer: _____

Tool	How it helps	Possible disadvantage	Efficiency rating 1-5

LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	5	Date	
Lesson Title/Topic:	Simple and Compound Machines - Characteristics of Efficient Machines		
Name		Grade & Section	

Model Demonstrations: Lever, Pulley, and Ramp

Learning Objectives

- Define efficiency in the context of simple machines.
- Explain characteristics of efficient simple machines such as low friction, proper alignment, and optimal mechanical advantage.
- Compare simple and compound machines in terms of structure, function, and efficiency and recommend improvements.

Materials

Pen, paper, and available classroom/home materials as needed.

Instructions

Observe the following demonstrations of a lever, pulley, and ramp. Record what happens and compares effort needed in the observation table.

Demonstration of Each Simple Machine

Lever:

1. Place a board over a fulcrum.
2. Apply force at different points to observe how position affects effort needed.
3. Discuss real-world applications (e.g., crowbars, seesaws, car jacks).

Pulley:

1. Set up a pulley system with a rope and weight.
2. Compare pulling directly vs. using a pulley to lift an object.
3. Explain applications in construction, cranes, and well systems.

Ramp (Inclined Plane):

1. Slide objects up a ramp and compare force needed vs. lifting vertically.
2. Discuss applications in wheelchairs, loading docks, and accessibility ramps.

Observation table

Simple Machine Used	Task Performed	Effort Needed	Distance Moved	Friction Points Observed	Conclusion About Efficiency
Lever	Board placed over a fulcrum; force applied at different points to lift or move a load.	☐ Difficult to move/lift ☐ Somewhat easy to move/lift ☐ Easy to move/lift Explain:	☐ Short distance ☐ Moderate distance ☐ Long distance Explain:	☐ Between board and fulcrum ☐ Between load and board ☐ Other: Observation:	☐ Very efficient ☐ Efficient ☐ Less efficient Reason:
Pulley	Rope and pulley used to lift a weight; compare lifting directly and lifting using the pulley.	☐ Difficult to move/lift ☐ Somewhat easy to move/lift ☐ Easy to move/lift Explain:	☐ Short distance ☐ Moderate distance ☐ Long distance Explain:	☐ Between rope and pulley wheel ☐ Between rope and hand ☐ Other: Observation:	☐ Very efficient ☐ Efficient ☐ Less efficient Reason:
Ramp / Inclined Plane	Object pushed or pulled up a ramp and compared with lifting the object vertically.	☐ Difficult to move/lift ☐ Somewhat easy to move/lift ☐ Easy to move/lift Explain:	☐ Short distance ☐ Moderate distance ☐ Long distance Explain:	☐ Between object and ramp surface ☐ Between wheels and ramp, if used ☐ Other: Observation:	☐ Very efficient ☐ Efficient ☐ Less efficient Reason:

Student Engagement & Reflection

1. Which machine required the least effort to move objects?
2. How do engineers use these concepts to improve real-world designs?

Rubrics for short answers

Score	Verbal Interpretation	Description
4	Excellent	The answer is complete, accurate, and clearly explained. It directly answers the question and includes important details or examples.
3	Very Good	The answer is mostly accurate and answers the question well, but it may lack some details or examples.
2	Satisfactory	The answer shows basic understanding but is incomplete, unclear, or missing important details.
1	Needs Improvement	The answer is mostly incorrect, unclear, or only slightly related to the question.
0	No Response	No answer is given, or the response is completely unrelated to the question.

LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	5	Date	
Lesson Title/Topic:	Simple and Compound Machines - Characteristics of Efficient Machines		
Name		Grade & Section	

Activity: Efficiency Calculation Exercise

Learning Objectives

- Define efficiency in the context of simple machines.
- Explain characteristics of efficient simple machines such as low friction, proper alignment, and optimal mechanical advantage.
- Compare simple and compound machines in terms of structure, function, and efficiency and recommend improvements.

Materials

Pen, paper, and available classroom/home materials as needed.

Introduction

Machines make work easier by changing the amount or direction of force. Their efficiency depends on how much input work is converted into useful output work, while some energy is lost through friction, heat, or sound. In this activity, you will calculate mechanical advantage and efficiency and identify ways to improve machine performance.

Formula for Efficiency

- Efficiency tells how much of the input work is converted into useful output work. A machine is more efficient when less energy is wasted due to friction, heat, or poor design.

$$\bullet \text{ Efficiency} = \frac{\text{Output Work}}{\text{Input Work}} \times 100$$

Where:

Output Work = useful work done by the machine

Input Work = work put into the machine

Efficiency is expressed as a percentage (%)

Formula for Mechanical Advantage

- The mechanical advantage shows how much a machine multiplies the input force. It helps explain how simple machines reduce the effort needed to move or lift a load.

$$\text{Mechanical Advantage} = \frac{\text{Output Force}}{\text{Input Force}}$$

$$\text{or}$$
$$MA = \frac{\text{Load}}{\text{Effort}}$$

Where:

Output Force / Load = force exerted by the machine on the object

Input Force / Effort = force applied by the user

MA has no unit because it is a ratio

Sample Problem

A student uses a pulley to lift a 200 N load. The student applies an effort force of 50 N. The input work done is 500 J, while the useful output work is 400 J.

Find the:

- Mechanical Advantage
- Efficiency of the pulley

Given

$$\begin{aligned}\text{Output Force or Load} &= 200\text{N} \\ \text{Input Force or Effort} &= 50\text{N} \\ \text{Output Work} &= 400\text{J} \\ \text{Input Work} &= 500\text{J}\end{aligned}$$

Step 1: Solve for Mechanical Advantage

$$MA = \frac{\text{Output Force}}{\text{Input Force}} \quad MA = \frac{200\text{N}}{50\text{N}} \quad MA = 4$$

Answer for Mechanical Advantage:

$$MA = 4$$

This means the pulley multiplies the student's effort by **4 times**.

Step 2: Solve for Efficiency

$$\begin{aligned}\text{Efficiency} &= \frac{\text{Output Work}}{\text{Input Work}} \times 100 \\ \text{Efficiency} &= \frac{400\text{J}}{500\text{J}} \times 100 \\ \text{Efficiency} &= 0.8 \times 100 \\ \text{Efficiency} &= 80\%\end{aligned}$$

Answer for Efficiency:

$$\text{Efficiency} = 80\%$$

This means that 80% of the input work became useful output work, while 20% was lost, possibly due to friction in the pulley system.

Instructions

Part A. Solve the following problems. Show your solution.

1. Mechanical Advantage

A lever is used to lift a 300 N load. The student applies an effort force of 100 N.

$$MA = \frac{Load}{Effort}$$

Solution:

Answer:

2. Efficiency

A ramp has an input work of 600 J and an output work of 450 J.

$$Efficiency = \frac{Output\ Work}{Input\ Work} \times 100$$

Solution:

Answer:

3. Combined Mechanical Advantage and Efficiency

A machine lifts a 500 N object using an effort force of 125 N. The input work is 1,000 J and the output work is 750 J.

Find the:

- Mechanical Advantage
- Efficiency

Solution:

Answers:

- Mechanical Advantage: _____
- Efficiency: _____

Processing Questions:

- What does a mechanical advantage of 4 mean?
- Why is efficiency not 100%?
- What could have caused energy loss in the pulley system?
- How can the pulley be improved to increase its efficiency?
- Why is it important for engineers to design machines with high efficiency?

Part B. Independent Practice

Directions: Solve the following problems. Show the formula, substitution, computation, unit, and interpretation.

Problem 1: Lever in a Construction Site

A worker uses a lever to move a heavy object. The input work applied is 300 J, while the useful output work is 240 J. Find the efficiency of the lever.

Problem 2: Wheel and Axle in a Bicycle System

A bicycle wheel and axle system receives 600 J of input work. It produces 480 J of useful output work. Find the efficiency of the wheel and axle system.

Problem 3: Hydraulic Lift in a Factory

A hydraulic lift uses 1,000 J of input work to raise a load. The useful output work is 850 J. Find the efficiency of the hydraulic lift.

ANSWER KEY

1. $(240 \div 300) \times 100 = 80\%$. The lever converts 80% of input work into useful output.

2. $(480 \div 600) \times 100 = 80\%$.

3. $(850 \div 1000) \times 100 = 85\%$.

For Problem 3, the machine is 85% efficient. The remaining 15% was lost mainly as heat, sound, friction, deformation, or other non-useful energy transfers.

LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	5	Date	
Lesson Title/Topic:	Simple and Compound Machines - Characteristics of Efficient Machines		
Name		Grade & Section	

Activity: Field Observation: Simple Machines Around Us

Learning Objectives

- Define efficiency in the context of simple machines.
- Explain characteristics of efficient simple machines such as low friction, proper alignment, and optimal mechanical advantage.
- Compare simple and compound machines in terms of structure, function, and efficiency and recommend improvements.

Materials

Pen, paper, and available classroom/home materials as needed.

Directions: Explore your home, school, garden, classroom, workshop, playground, or a nearby structure. Identify at least three machines or objects that use one or more simple machines. *(Ask permission before taking photographs outside your home or school.)*

Guide Questions

1. Where did you observe each machine or object?

Answer: _____

2. What type of simple machine or combination of simple machines does it use?

Answer: _____

3. What useful task does it perform?

Answer: _____

4. What possible source of friction or energy loss did you observe?

Answer: _____

5. What improvement could make the machine more efficient or safer?

Answer: _____

Object/Machine	Location	Simple machine type/s	Possible energy loss	Suggested improvement

LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	6	Date	
Lesson Title/Topic:	The Physics of Fluids - Hydraulic Systems and Pascal's Principle		
Name		Grade & Section	

Option 2: KWL Chart Activity: Hydraulic Systems and Pascal's Principle

I. Learning Competency

The learner explains pressure transmission in fluids and applies Pascal's Principle in real-life situations involving hydraulic systems.

II. Learning Objectives

At the end of the activity, the learners are expected to:

1. Activate prior knowledge about pressure and hydraulic systems using a KWL chart.
2. Explain how pressure is transmitted in enclosed fluids.
3. Identify real-life applications of Pascal's Principle.
4. Demonstrate understanding of hydraulic systems through organized learning reflections.

III. Materials Needed

- KWL chart template
- Pen or writing materials

IV. Procedure

1. Use the KWL chart template to accomplish this activity.

2. Review the **“K” (What I Know)** and **“W” (What I Want to Know)** columns completed during the activating prior knowledge activity.
3. Present examples of hydraulic systems and pressure applications such as:
 - Hydraulic jack
 - Syringe
 - Car brake system
 - Hydraulic lift
4. Observe how pressure is transmitted in each example.
5. Complete the **“L” (What I Learned)** column based on the lesson discussion and presented examples.
6. Write at least three (3) learnings about:
 - Pressure and force relationship
 - Pascal’s Principle
 - Real-life applications of hydraulic systems

Output Format (KWL Chart)

K – What I Know	W – What I Want to Know	L – What I Learned

V. Assessment

Your work will be evaluated using the following rubric:

Criteria	4 – Excellent	3 – Proficient	2 – Developing	1 – Beginning	Points
<i>Scientific Accuracy</i>	<i>All entries (K, W, L) are scientifically correct and show clear understanding of pressure and Pascal’s Principle</i>	<i>Minor inaccuracies but overall correct understanding</i>	<i>Some incorrect or unclear scientific ideas</i>	<i>Many misconceptions or incorrect concepts</i>	<i>/4</i>
<i>Application of Physics Concepts</i>	<i>Clearly explains pressure transmission, Pascal’s Principle, and hydraulic systems with correct relationships</i>	<i>Mostly correct application with slight gaps</i>	<i>Limited or partially correct application</i>	<i>No clear application of physics concepts</i>	<i>/4</i>
<i>Clarity of Explanation / Organization</i>	<i>Ideas are well-organized, clear, and easy to follow in all columns</i>	<i>Generally clear with minor organization issues</i>	<i>Some unclear or poorly expressed ideas</i>	<i>Disorganized and difficult to understand</i>	<i>/4</i>
<i>Relevance to Daily Life</i>	<i>Provides clear and meaningful real-life applications (e.g., hydraulic jack, brakes, syringe)</i>	<i>Includes at least one relevant example</i>	<i>Weak or unclear connection to real-life situations</i>	<i>No real-life application provided</i>	<i>/4</i>

Criteria	4 – Excellent	3 – Proficient	2 – Developing	1 – Beginning	Points
Completeness of Output	All KWL columns complete with at least three well-developed ideas in the “L” column	Most required parts are complete	Some missing or incomplete entries	Output is largely incomplete	/4

Total: /20

LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	7	Date	
Lesson Title/Topic:	The Physics of Fluids - Archimedes' Principle and Pascal's Principle		
Name		Grade & Section	

Applications of Pascal's Principle

ACTIVITY #1: Pressure Spot Test

Directions: Carefully perform the activity below. Observe what happens, then answer the questions in the spaces provided.

Procedure: Place a plastic bag filled with water on a flat table. First, press down gently using one finger. Then, press the bag using your entire palm. Compare how the water and the shape of the bag respond in each case.

Concept Questions

1. Was the pressure applied only beneath your finger or palm, or was it transmitted throughout the entire bag?

2. Why did the water move and cause certain parts of the bag to bulge?

3. What does this observation reveal about the behavior of fluids in a confined space?

Critical-Thinking Questions

1. Do you think the effect would change if the plastic bag were larger or smaller? Explain your answer.

2. What might happen if an air bubble were trapped inside the bag? Would the pressure still be transmitted in the same way? Explain why or why not.

LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	7	Date	
Lesson Title/Topic:	The Physics of Fluids - Archimedes' Principle and Pascal's Principle		
Name		Grade & Section	

Directions: Read with understanding the scenario, then perform the sample tasks and write your answer on a separate sheet of paper.

Activity # 2: Escape the Sinking Ship Challenge

Scenario:

Your ship has hit an obstacle and is starting to take on water! To stay afloat and reach safety, your crew must use your knowledge of **Archimedes' Principle** to solve these challenges. Complete each task to unlock clues that will keep your ship balanced and above water.

Sample Tasks

Task 1: Calculate the Buoyant Force

Problem:

You have a cargo box with a mass of 3 kg and a volume of 4,000 cm³. The ship is in freshwater (density = 1 g/cm³).

Question:

Calculate the buoyant force acting on the box.

Will the box float or sink?

(Hint: 1 g/cm³ = 1,000 kg/m³; use Archimedes' Principle: Buoyant force is equal to the weight of the displaced fluid.)

Task 2: Design a Better Hull

Problem:

Your current hull is not keeping the ship stable. You need to redesign the hull so it can displace enough water to produce a buoyant force that balances the ship's weight and improves stability.

Instructions:

On your task sheet, sketch a new hull design that you think will float better. Label key parts and explain why your design is an improvement using terms such as volume, displacement, buoyant force, weight, and stability.

Task 3: Sort the Cargo by Density

Problem:

You have 5 types of cargo. To prevent sinking, you must place the least dense items at the bottom and the densest on top.

Item	Mass (g)	Volume	(cm³)
Wooden crate		800	1,200
Metal box		1,000	200
Plastic tub		500	1,000
Glass container		900	600
Cotton bale		300	1,500

LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	7	Date	
Lesson Title/Topic:	The Physics of Fluids - Archimedes' Principle and Pascal's Principle		
Name		Grade & Section	

Activity 3: Field Observation or Interview

Optional/Homework

Directions: Interview a mechanic, nurse, heavy-equipment operator, or another person who uses tools or machines involving fluid pressure. Ask the person to describe the tools they use and how these tools work. Summarize the information gathered and explain how the operation of each tool demonstrates Pascal's Principle. Write your answers in the space provided below.

Name of Interviewee: _____

Occupation/Role: _____

Place of Interview: _____

Date of Interview: _____

Tool or Machine Used: _____

1. **What is the tool or machine used for?**

2. **How does the tool or machine use fluid pressure?**

3. **How does the tool or machine demonstrate Pascal's Principle?**

4. **Why is fluid pressure important to the operation of the tool or machine?**

5. **What did you learn from the interview?**

Summary

In 3–5 sentences, summarize how the tool or machine works and explain its connection to Pascal's Principle.

LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	8	Date	
Lesson Title/Topic:	Utilization of Electricity - Electrical Hazards and Safety Practices		
Name		Grade & Section	

- I. Activity: Hazard Hunt**
- II. Objective(s):** At the end of the activity, you should be able to look for signs of potential electrical hazards and recommend actions.
- III. Materials Needed:** pen and paper, Electrical Inspection Checklist
- IV. Instructions:**
 1. This is a two-phased activity. Wait for the instructions from your teacher on when to accomplish each phase.
 2. For Phase 1: Spot the Danger, carefully inspect your assigned area for any signs of potential electrical hazards. Use the *Electrical Inspection Checklist* as a guide to help you identify and evaluate possible risks. As you conduct your inspection, document any observed hazards by taking clear and relevant photos. Make sure each photo corresponds to specific items on the checklist to ensure accurate and organized reporting of your findings.
 3. For Phase 2: Power Up Safety, assess the risk level of the identified hazards. Suggest actions and identify the person responsible.

Refer to this guide for the risk level rating:

Low Risk: Minimal danger can be easily managed with basic precautions.

Medium Risk: Moderate danger; could lead to injury or equipment damage if left unchecked.

High Risk: Severe danger poses an immediate risk of electrocution, fire, or equipment failure.

PHASE 1 (Spot the Danger)		PHASE 2 (Power Up Safety)		
Inspection Items	Documentation (Attach photo)	Risk Level (Low/Medium /High)	Suggested Actions	Responsible Person
A. Outlets and B. Wires				

☐ Overloaded sockets				
☐ Damaged/ exposed wires				
☐ Flickering lights				
C. Appliances and devices				
☐ Overheating appliances				
☐ Tangled or unsafe extension cords				
☐ Unplugged unused devices				
D. Environmental Risks				
☐ Electrical items near water/ damp area				
☐ Wires and devices placed unsafely				
☐ Improper ventilation for electrical equipment				
E. Emergency Readiness				
☐ Working fire extinguisher nearby				
☐ Emergency contact availability				
☐ Placed Electrical Safety Procedures				

F. Other Hazards				
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Electrical Inspection Checklist (Adapted from Jones & Bartlett Learning, Electrical Inspection Checklist: 2015 (Burlington, MA: Jones & Bartlett Learning, an Ascend Learning Company, 2015)

Guide Questions:

1. What were the most common electrical hazards identified during the inspection?

2. Were there any hazards that surprised you or that you hadn't considered before?

3. Which hazards pose the greatest risk?

4. What simple actions can reduce electrical hazards found during inspection?

5. How can schools, homes, or businesses improve their electrical safety practice?

V. Synthesis:

Directions: Reflect on what you learned and relate it to your responsibilities in real-life situations. Answer each question in complete sentences and support your responses with evidence from your Hazard Hunt findings.

1. Based on the hazards you documented, propose one specific and prioritized safety improvement plan for your school, home, or community. Identify who should implement the plan, when it should be completed, and how its effectiveness will be evaluated.

2. As a responsible student and citizen, what personal commitment will you make to promote electrical safety in your environment? Explain how this activity changed your awareness of risks that you had previously overlooked.

LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	9	Date	
Lesson Title/Topic:	Utilization of Electricity - Energy Loss and Energy Wastage		
Name		Grade & Section	

I. Activity: Power Patrol

II. Objective(s): At the end of the activity, you should be able to identify energy wasting habits and evaluate their impact.

III. Materials Needed: pen and paper, Power Patrol Checklist

IV. Instructions:

1. This is a two-phased activity. Wait for the instructions from your teacher to accomplish each phase.
2. For Phase 1: Inspection, carefully inspect your assigned area for inefficient energy use/habits. As you conduct your inspection, document any observed habits by taking clear and relevant photos. Make sure each photo corresponds to specific items on the checklist to ensure accurate and organized reporting of your findings.
3. For Phase 2: Assess the energy waste level of the identified habits. Recommend actions and identify the person responsible. Refer to this guide for the energy waste level rating:

Low: Minimal impact on overall energy consumption. Can be addressed with simple behavioral changes.

Medium: Noticeable impact on energy bills and efficiency. Requires moderate intervention or habit adjustments.

High: Significant energy waste leads to excessive resource consumption and increased costs. Needs urgent corrective action.

Phase 1		Phase 2		
Inspection Item	Photo Documentation	Energy Waste Level (Low/Medium/High)	Recommended Action	Responsible Person
Electricity Use				

☐ Lights left on in empty rooms				
☐ Windows covered when natural light is available				
☐ Electric devices left on when not in use				
☐ Overlit areas				
☐ Inefficient lighting (Use of incandescent instead of fluorescent/L ED)				
Ventilation				
☐ Electric fans running unnecessarily				
☐ Doors/windows left open while AC is on.				
☐ Improper maintenance of ventilation (unclean fans/ AC)				
Water				
☐ Faucets left running unnecessarily				
☐ Leaking faucets				

☐ Damaged water pipes				
Other inefficient practices on the use of electricity				

*Power Patrol Checklist adapted and modified from
<https://www.ecohedge.com/blog/10-energy-efficiency-checklist-items-for-smes/>*

Guide Questions:

1. What were the most common energy-wasting habits observed during your inspection?

2. Were there any surprising findings you didn't expect?

3. What simple habits can you do to minimize unnecessary energy consumption?

4. How can schools encourage behavioral changes to create a culture of energy conservation in the school?

V. Synthesis:

Directions: Use evidence from your Power Patrol Checklist and Phase 2 Table to answer the questions below. Be specific, support your answers with your findings, and propose practical solutions.

1. Refer to your Phase 2 Table. Which two energy-wasting habits were rated as having a **High Energy Waste Level**? Using your photo

documentation and the rating guide, explain why you classified their impact as significant in terms of resource consumption and cost.

2. Based on your findings, what should be the top priority in your **Power Patrol Action Plan** for the school administration? Identify the specific habit that must be changed, the person responsible, the timeline for implementation, and one measurable indicator of success.

3. How did evaluating the impact of energy-wasting habits influence your own behavior at school or at home? Identify one personal habit that you will monitor or change, and explain why.

LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	10	Date	
Lesson Title/Topic:	Understanding and Using Light and Sound - Properties of Light and Sound in Technology		
Name		Grade & Section	

Activity: Wave Applications Analysis

Direction: Analyze the following situations involving the applications of electromagnetic and sound waves in everyday life. Fill in the blanks using the choices inside the box.

Choices:

a. Fields:

- Communication
- Navigation
- Medicine
- Entertainment

b. Types of Waves:

- Electromagnetic Waves (radio/microwave signals)
- -Sound Waves
- -Electromagnetic and Sound Waves

c. Applications:

- Allow people to communicate over long distances
- Help people identify locations and directions accurately
- Help doctors examine internal body organs and monitor health conditions
- Provides visual and audio entertainment through electromagnetic signals/light and sound
- Produces sound for listening and enjoyment

Situation	Field	Type of Wave Used	Application
1. A student from a far-flung barangay video-calls a relative in		Electromagnetic Waves (radio/microwave signals)	Allow people to communicate over long distances

in Manila using a cellphone			
2. A taxi driver uses GPS/Waze to find a faster route to school.		Electromagnetic Waves (radio/microwave signals)	Help people identify locations and directions accurately
3. A pregnant mother in Davao Region has an ultrasound at a local clinic.			
4. Watching educational videos or news on TV/YouTube at home.		Electromagnetic and Sound Waves	Provide visual and audio entertainment through electromagnetic signals/light and sound
5. SHS students listening to music through Bluetooth earphones while studying			

Answer Key: Wave Applications Analysis

Situation	Field	Type of Wave Used	Application
1. Using cellular phones to communicate	Communication	Electromagnetic Waves (radio/microwave signals)	Allow people to communicate over long distances
2. Using GPS for directions	Navigation	Electromagnetic Waves (radio/microwave signals)	Help people identify locations and directions accurately
3. Ultrasound for diagnosing diseases	Medicine	Sound Waves	Help doctors examine internal body organs and monitor health conditions
4. Watching television or movies	Entertainment	Electromagnetic and Sound Waves	Provide visual and audio entertainment through electromagnetic signals/light and sound
5. Listening to music using speakers or earphones	Entertainment	Sound Waves	Produces sound for listening and enjoyment

LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	11	Date	
Lesson Title/Topic:	Understanding and Using Light and Sound - Innovations Related to Sound and Light		
Name		Grade & Section	

Activity: Light and Sound Save the Day

Directions: Each group will receive one scenario card. Read the assigned scenario carefully. Identify whether the technology uses **light, sound, or both**. Then, explain the scientific principle involved and why the technology is important for the user's safety, accessibility, or independence. Answer the guide questions in complete sentences.

Scenario Cards

Card 1: Digital Hearing Aid

A senior citizen in Manila uses a digital hearing aid. The device captures faint sound waves, amplifies them, and sends clearer sounds to the ear, helping her participate in family conversations and barangay meetings.

Card 2: Accessible Traffic Signal

At a busy intersection, an accessible traffic signal uses red, yellow, and green lights for sighted pedestrians and a beeping sound or voice cue for pedestrians with visual impairments, helping them cross safely.

Card 3: LASIK Surgery

An ophthalmologist uses a laser to reshape a patient's cornea during LASIK surgery. The focused beam of light removes a precise amount of tissue, allowing the patient to see more clearly without glasses.

Card 4: Smart Cane

A person with visual impairment uses a smart cane equipped with ultrasonic sensors. The cane emits sound waves and produces vibrations or beeping sounds when it detects obstacles, helping the user navigate independently in crowded places such as Rizal Avenue.

Card Number: _____

Scenario:

Does the technology use light, sound, or both?

Guide Questions

a. What technology is used, and what physics principle does it apply?

b. How does the technology promote safety, accessibility, or independence for its users?

c. Where else in the community could the same scientific principle be applied to solve a problem?

Questions	Answers
1. Does light, sound, or both play a key role in your assigned scenario? What specific property or behavior of light or sound makes the technology work? What detail from the scenario supports your answer? What might happen without this property or behavior?	
2. What is the name of the technology presented in your scenario? What specific problem or challenge does it address for the user?	

<p>3. Who directly benefits from this technology? How does it improve the user's safety, independence, accessibility, or quality of life? What barriers might prevent people in remote or resource-limited communities from accessing it?</p>	
<p>4. How could you apply the same scientific principles in your community? Identify one local problem and propose a new technology or improvement that uses light, sound, or both to address it.</p>	

Scoring Guide:

Criteria	4 points	3 points	2 points	1 point
Identification of Wave Role (Step 2)	Correctly and explicitly identify whether light, sound, or both play a key role in the scenario, providing a brief, accurate justification.	Correctly identifies the wave role (light/sound /both) but provides a weak or slightly unclear justification.	Incorrectly identifies the wave role or leaves the justification entirely.	Fails to identify the wave role or waves involved in the scenario.
Technology Analysis (Steps 3a, 3b, 3c)	Thoroughly answers all three questions (Technology, Importance, Problem Solved) with high accuracy and clear scientific reasoning.	Answers all three questions, but one response lacks depth, detail, or has a minor inaccuracy.	Misses one entire question, or answers are extremely brief and show minimal effort.	Misses two or more questions, or the answers provided are completely inaccurate.
Application of Scientific Accuracy	Demonstrates a deep understanding of how the technology manipulates light or sound to assist the human senses.	Demonstrates a basic understanding of the technology, with minor gaps in connecting it to light or sound concepts.	Misunderstands how the technology works or how it relates to light and sound waves.	Answers contain significant misconceptions or irrelevant information.
Group Collaboration (Step 1)	All group members are actively engaged, roles	Most members contribute effectively; the group	Only one or two members do the majority of the work; the	Disruption within the group; failure to collaborate or complete

	are clearly divided, and the task is completed cohesively and on time.	stays focused but may experience minor division of labor issues.	group appears disorganized.	the assignment as a team.
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Sample Output:

Questions	Answers
Does light, sound, or both play a key role in your assigned scenario? Explain your answer.	Sound plays the key role in this scenario. Because the individual is blind, they cannot rely on light waves reflecting off objects to see. Instead, the device uses sound waves (ultrasonic pulses) that bounce off nearby objects and echo back to the sensor, translating spatial information into auditory cues or beeps that the user can hear.
What technology is used in your assigned scenario?	The technology used is an electronic travel aid (ETA) or "smart cane." It utilizes an ultrasonic sound sensor that emits high-frequency sound waves (similar to echolocation used by bats) and a receiver that detects the returning echoes to calculate how far away an obstacle is.
Why it is important?	It is important because it enhances the user's safety, independence, and mobility. Standard white canes only detect obstacles that physically touch the tip on the ground. A smart cane is important because it can detect hanging hazards, drop-offs, or walls from several feet away before the user ever bumps into them, preventing injuries.

<p>What problem it solves?</p>	<p>It solves the problem of limited spatial awareness and navigation barriers faced by visually impaired individuals. Specifically, it addresses the "blind spots" of traditional canes by detecting upper-body and head-level obstacles (like tree branches, open cabinet doors, or hanging signs) and gives the user advanced warning to safely navigate around them.</p>
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LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	12	Date	
Lesson Title/Topic:	Chemists and How They Have Made an Impact on Our Lives - Louis Pasteur's Contributions		
Name		Grade & Section	

Activity: Louis Pasteur's Contributions to Modern Science and Health

Instructions

Imagine that you are a team of scientists participating in a roundtable symposium. Your task is to evaluate Louis Pasteur's contributions to modern science, medicine, and public health.

What to Do

1. **Assign roles.** Designate a facilitator, a recorder, two presenters, and one critic to ensure that all group members participate.
2. **Discuss and answer.** Collaborate in answering the guide questions below using accurate scientific evidence.
3. **Prepare your output.** Write a **5–7-sentence consensus response** for each question in your Learning Activity Sheet. Prepare a **two-minute oral defense** of your answers for the class symposium.

1. Historical Significance

A. The Swan-Neck Flask Experiment

Before Pasteur's work, many people believed in spontaneous generation. How did his swan-neck flask experiment change scientists' understanding of the origin of microorganisms, disease prevention, and the Germ Theory of Disease? Cite specific evidence from the experiment.

Consensus Answer:

B. Pasteur's Most Lasting Contribution

Which of Pasteur's contributions—vaccination, pasteurization, or the Germ Theory of Disease—has had the most lasting impact on modern medicine or public health in the Philippines? Defend your choice using at least two pieces of evidence or real-life examples.

Consensus Answer:

2. Ethical and Societal Impact

A. Influence on Public Health

How did Pasteur's discoveries influence public health policies and practices? Give two examples of community health practices in the Philippines that were influenced by his work.

Consensus Answer:

B. Equal Access to Scientific Innovations

Pasteur's work on vaccines and pasteurization helped save millions of lives. However, not all communities initially had equal access to these innovations.

1. What ethical issues arise when life-saving scientific innovations are not accessible to everyone?
2. How can modern scientists and the government ensure that health innovations are distributed fairly and inclusively, particularly in rural and underserved areas?

Consensus Answer:

3. Connections to Modern Science

A. Modern Scientific Advancements

Choose two modern scientific advancements that directly build on Pasteur's work on germ theory or vaccination. Explain how each advancement applies one of Pasteur's fundamental ideas.

Example: COVID-19 vaccines apply the principle of training the immune system to recognize and respond to a specific pathogen.

Consensus Answer:

B. Challenges Faced by Scientists

Compare and contrast the challenges Pasteur faced during his time with the challenges scientists face today when developing medical discoveries.

Consensus Answer:

4. Application Scenarios

A. Responding to a Disease Outbreak

Imagine that a new infectious disease has emerged in your community. Based on Pasteur's scientific principles, what should be the first steps in identifying the cause and controlling its spread?

Consensus Answer:

B. Pasteur and Emerging Scientific Problems

If Pasteur were alive today, which emerging scientific or public health problem do you think he would investigate? Explain your answer.

Consensus Answer:

Reflection

Answer each question in complete sentences.

1. What is one important scientific idea from Pasteur's work that you will remember?

2. Identify two ways Pasteur's work continues to affect your life or community today.

3. As a Senior High School learner, what responsible action can you take to promote health and scientific awareness in your home or school?

Prepared by:

Group Members:

Name

Role/Contribution

LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	13	Date	
Lesson Title/Topic:	Application of Chemical Substances in Household and Personal Care Products - Product Labels and Functions of Substances		
Name		Grade & Section	

Activity: Chemical Composition and Functional Analysis of Household and Personal Care Products

Directions: Conduct a critical examination of the product labels of selected household and personal care products, such as bleach, detergent, baking powder, shampoo, soap, and toothpaste.

For each product, accomplish the following using the data table provided:

1. Identify the product and list at least two key chemical substances or ingredients indicated on the label.
2. Explain the specific function or chemical role of each identified substance in the product formulation.
3. Analyze the data by comparing the chemical composition and functions across different products. Synthesize your findings by identifying at least one significant similarity and one notable difference in the ingredients or their intended functions.

Ensure that your responses are evidence-based, use appropriate scientific terminology, and demonstrate an understanding of the relationship between chemical structure and function.

Task: Product Safety and Compliance Audit

You will conduct a safety and regulatory compliance audit of selected household and personal care products.

Procedure

1. Work in groups of four to five members. Select two household or personal care products assigned by the teacher or brought to class.

2. Carefully examine the product labels. In **Part A**, record the product name, brand, key ingredients, safety warnings, hazard symbols, and disposal instructions indicated on each label.
3. Using reliable references or official online sources, explain the roles of the Food and Drug Administration (FDA), Department of Trade and Industry (DTI), and Department of Environment and Natural Resources (DENR) in regulating or monitoring the selected products. Identify one relevant regulation, standard, or policy implemented by each agency.
4. Evaluate each product based on applicable government labeling requirements. In **Part B**, classify each product as **compliant** or **non-compliant** and justify your evaluation using evidence from the product label and official requirements.
5. As a group, propose at least two evidence-based improvements that could enhance the safety, labeling, use, or environmental responsibility of the products.
6. Present your findings during the class discussion.

Safety Precaution

Do not open, taste, directly smell, or apply any chemical product during the activity. Base your analysis only on the product label and official product information.

Regulatory Note

The FDA primarily regulates health products, including cosmetics and certain personal care products. The DTI oversees consumer product standards and labeling requirements for products under its jurisdiction. The DENR and local government units provide policies and guidelines on waste management, proper disposal, and environmental protection.

Product Name	Key Ingredient/Substance	Function
Bleach		
Detergent		
Shampoo		
Soap		
Toothpaste		
Baking Powder		

Similarities:

Differences:

Answer Key: Analyzing Product Labels (Sample Answers)

Product Name	Key Ingredient/Substance	Function
Bleach	Sodium Hypochlorite	Removes stains and kills bacteria
Detergent	Surfactants	Removes dirt, grease, and stains
Shampoo	Sodium Laureth Sulfate	Cleans hair and scalp by removing oil and dirt
Soap	Soap molecules/surfactants; glycerin	Soap molecules or surfactants help remove dirt and oil; glycerin helps retain moisture
Toothpaste	Sodium Fluoride	Prevents tooth decay and strengthens teeth
Baking Powder	Sodium bicarbonate and acid salts	Produce carbon dioxide gas during baking to help dough or batter rise

Similarities

- Some products contain cleaning agents such as surfactants.
- Many products contain preservatives, fragrances, or colorants.
- Ingredients are included to help the product perform its intended function.

Differences

- Each product contains specialized ingredients based on its purpose.
- Bleach contains disinfecting agents, while toothpaste contains fluoride for oral health.
- Shampoo and soap contain ingredients designed for personal hygiene, while detergents are intended for cleaning fabrics and surfaces.

LEARNING ACTIVITY SHEET (LAS)

Learning Area	General Science	Term	1
Lesson Exemplar No.	14	Date	
Lesson Title/Topic:	Application of Chemical Substances in Household and Personal Care Products - Benefits, Risks, and Proper Use and Disposal		
Name		Grade & Section	

I. Activity Title

Investigating Safety Regulations of Household Products

II. Learning Objectives

- Identify safety warnings, hazard symbols, and disposal instructions on product labels
- Explain the roles of FDA, DTI, and DENR in regulating household products
- Evaluate whether products follow government regulations
- Suggest improvements for product safety and environmental responsibility

III. Materials Needed

Selected household products (2 per group)

Internet access / references

Markers/highlighters

This worksheet

IV. Activity Proper

Part A: Product Information

Product 1: _____

Brand: _____

Type: _____

Product 2: _____

Brand: _____

Type: _____

Part B: Label Investigation

Safety Warnings:

Hazard Symbols:

Ingredients:

Proper Use Instructions:

Disposal Instructions:

Part C: Regulatory Cross-Check

For personal care or health-related products, does the label show FDA-related safety information or registration/notification, when applicable?

Product 1: _____

Product 2: _____

Does the label meet DTI consumer product labeling requirements, when applicable?

Product 1: _____

Product 2: _____

Does the product provide disposal information consistent with DENR/LGU waste-management guidance, when applicable?

Product 1: _____

Product 2: _____

Are important warnings clearly presented?

Product 1: _____

Product 2: _____

Part D: Research and Analysis

What laws or regulations apply to your products?

What are common violations or gaps?

What risks can these products pose?

Part E: Suggested Improvements

1. _____
2. _____
3. _____

V. Reflection

Directions: Reflect on what you learned from analyzing household and personal care products and the regulations that govern them. Answer each question in complete sentences and support your responses with examples from the activity.

1. What is the most important realization you gained about product safety, chemical ingredients, or government regulation? How did the activity change the way you examine product labels?

2. What health, safety, and environmental risks may arise when consumers ignore safety warnings and disposal instructions?

3. As a Senior High School learner, what specific commitment will you make to practice responsible consumption and promote product safety awareness at home or in school?

Answer:
