MATATAG K to 10 Curriculum Weekly Lesson Log	School:	DepEdClub.com	Grade Level:	7
	Teacher:		Learning Area:	SCIENCE
	Teaching Dates and Time:	AUGUST 19 - 23, 2024 (WEEK 4)	Quarter:	1

I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES	
A. Content Standards	Learners learn that there are specific processes for planning, conducting, and recording scientific investigations
B. Performance Standards	By the end of the Quarter, learners recognize that scientists use models to describe the particle model of matter. They use diagrams and illustrations to explain the motion and arrangement of particles during changes of state. They demonstrate an understanding of the role of solute and solvent in solutions and the factors that affect solubility. They demonstrate skills to plan and conduct a scientific investigation making accurate measurements and using standard units
C. Learning Competencies and Objectives	***Learning Competency*** 1. *The learners follow the appropriate steps of a scientific investigation which include:* a. *Aim or problem,* b. *Materials and equipment,* c. *Method or procedures,* d. *Results including data, and* e. *Conclusions.*
D. A.	Designing a Scientific Investigation
E. Integration	• Scientific literacy and Scientific Qualities • Innovation and Technology • Ethical Considerations • Health and wellbeing • Environmental Sustainability

II. LEARNING RESOURCES
• Quarter 1 Week 4 Worksheet.

III. TEACHING AND LEARNING PROCEDURE		**NOTES TO TEACHERS**
A. Activating Prior Knowledge	**DAY 1** **1. Short Review** Begin the lesson by asking students to recall the different phases of matter discussed in the previous lesson (solid, liquid, gas).	Encourage them to provide examples of each phase and describe how matter transitions between them.
B. Establishing Lesson Purpose	**1. Lesson Purpose** Roleplaying: Superhero scientists **2. Unlocking Content Vocabulary** • *Scientific Investigation* A step-by-step process scientists use to answer questions about the world. (Consider showing a diagram representing the steps: Aim/Problem, Materials, Method, Results, Conclusion). • *Aim/Problem* The question you want to answer through your experiment. • *Materials & Equipment* The tools and supplies you need to conduct your experiment. • *Method/Procedure* The detailed plan outlining exactly what you will do, step-by-step, to test your question (like a recipe for an experiment!).	Announce with excitement, "Today, we'll transform into scientists ourselves and learn a superpower: designing our own experiments!" Clearly state the learning objectives using language students can understand. Introduce Key Terms: Introduce the essential vocabulary terms students will encounter throughout the lesson. Use clear and concise language with student-friendly definitions.

	• *Data* The information you collect during your experiment (observations, measurements). • *Results* The findings of your experiment, presented using tables, charts, or graphs. • *Conclusion* Your explanation of what your results mean and how they answer your initial question.	Have students create their own definitions in their own words or draw pictures to represent the terms.
C. Developing and Deepening Understanding	**Week 4 - Day 1** **Steps of a Scientific Investigation** **1. Explicitation**  • "What do you think scientists do when they want to learn something new?" or "How do scientists figure out the answers to their questions?" Encourage students to share their thoughts and ideas, emphasizing that there is no right or wrong answer at this stage.	*Active recall of concepts and/or tasks covered in the previous day must be noted to transition to the lesson continuation.* Begin by eliciting students' ideas about the scientific process. Use the picture below as prompt.

	Here's a breakdown of each step in a scientific investigation with a more detailed explanation: **a. Aim or Problem:** ● This is the heart of your investigation. It's the question you want to answer through your experiment. ● A good aim is: ○ Clear and Specific: It should be a focused question about what you want to investigate. Don't try to answer too many things at once. ○ Answerable through an Experiment: The question should be something you can test by collecting data. ○ Measurable: You should be able to measure or observe something to find an answer. **b. Materials and Equipment:** ● This is the list of tools and supplies you need to conduct your experiment. ● Consider these points: ○ Adequacy: You should have everything needed to carry out your procedures effectively. ○ Safety: Choose materials that are safe to use and handle. ○ Availability: Ensure the materials are readily available or easily obtainable. **c. Method or Procedures:** ● This is the detailed step-by-step plan for conducting your experiment. It outlines exactly what you will do to test your aim. ● A good method should be: ○ Clear and Concise: Write specific instructions that are easy to understand and follow, even by someone else. ○ Sequential: List the steps in the order they will be performed. ○ Repeatable: The method should be written in a way that allows others to repeat your experiment and get similar results.	On a presentation slide, present the steps of a scientific investigation. Before beginning to reveal what happens in each step, ask students about what each step first.

d. Results including Data:

- This section documents the findings of your experiment. It includes all the information you collected during the investigation.
- Data can be presented in various ways:
    - Observations: Detailed descriptions of what you saw, smelled, heard, etc., during the experiment.
    - Measurements: Quantitative data collected using tools like rulers, thermometers, or scales.
    - Tables and Charts: Organized presentations of your data for easier analysis.
    - Graphs: Visual representations of your data to identify trends or relationships.

e. Conclusions:

- This is where you interpret your results and answer your initial question (aim).
- A good conclusion should be:
    - Based on Evidence: It should be derived directly from the data you collected during the experiment.
    - Explanatory: Explain what your findings mean in relation to your aim.
    - Supports or Rejects: State whether your data supports or rejects your initial hypothesis (if one was formulated).

2. Worked Example

Let students accomplish LAS 1 on Following the Steps of a Scientific Investigation found on Quarter 1 Week 3 Worksheet.

	Week 4 - Day 2 **1. Recall** ● Briefly review the key steps of a scientific investigation from the previous lesson (Aim/Problem, Materials & Equipment, Method/Procedures, Results & Data, Conclusions). You can use pictures or videos (optional) to jog students' memories. ● Ask students to share examples of each step from their own understanding. 2. **Explicitation** Introduce the concept of the "Method" in a scientific investigation. Explain that the method is like a recipe - it tells you exactly what to do, step-by-step, to answer your question (aim). ● Highlight the importance of a clear and concise method. It should be easy to understand and follow, even for someone else who wasn't involved in designing the experiment. **3. Introducing Hypothesis and Variables (10 minutes):** ● Before diving into the worked example, introduce the concept of a hypothesis. Explain that a hypothesis is an educated guess or a prediction about the outcome of an experiment based on your observations and prior knowledge. ● **Example:** "**Hypothesis:** Plants placed in a sunny location will grow taller than plants placed in the shade." ● Now, introduce the concept of variables in an experiment. Explain that variables are factors that can change in an experiment. Here are the three main types of variables: ○ **Independent Variable:** This is the factor you deliberately change or manipulate in your experiment to see its effect on something else. (In our example, the independent variable is the amount of sunlight)	

	○ **Dependent Variable:** This is the factor that you measure or observe in response to the changes made in the independent variable. (In our example, the dependent variable is plant growth) ○ **Controlled Variables:** These are factors that you keep the same throughout the experiment to ensure a fair test. (In our example, we want to control the amount of water both plants receive, pot size, etc.) **Worked Example** Present a scenario: You've noticed that some brands of paper towels seem to be more absorbent than others. You wonder, "Do different brands of paper towels absorb the same amount of water?" **Hypothesis:** _____ **Independent Variable:** _____ **Dependent Variable:** _____ **Controlled Variables:** • **Method:** ● **Step 1:** ● **Step 2:** ● **Step 3:** ● **Step 4:** ● **Step 5:** **Results:** _____ _____	Ask them to supply entries for the following items. Sample answers are provided. Process their responses. **Sample Response:** **Hypothesis:** Brand A paper towel will absorb more water than Brand B paper towel. **Independent Variable:** Brand of paper towel (Brand A vs. Brand B) **Dependent Variable:** Amount of water absorbed (measured in milliliters) **Controlled Variables:** ● Size of paper towel pieces (use the same size for both brands) ● Amount of water used in each trial

3. Lesson Activity

Let students Accomplish LAS 2 on Science Quarter 1 Week 4 Worksheet

LEARNING ACTIVITY SHEET 2

Learning Area:	Science	**Quarter:**	1
Lesson No.:	2	**Date:**	
Lesson Title/ Topic:	**Changes of State: Solid to Liquid to Gas**		
Name:		**Grade & Section:**	

I. Activity No. 2: Melting and Evaporation in Focus! (15 minutes)

II. Objective(s):

a. Observe wax and water undergoing a transition from a solid to a liquid state as they melt and evaporate under heat.
b. Demonstrate understanding of phase change specifically from solid → liquid → gas.

III. Materials Needed:

- Paraffin wax (or any other type of wax)
- Heat-resistant container or saucepan
- Heat source (e.g., stove or hot plate)
- Water
- Safety goggles
- Gloves (optional, but recommended for handling hot objects)

IV. Instructions:

Part A. Observing Melting and Evaporation

Melting Demonstration

1. Place a small amount of paraffin wax in a heat-resistant container or saucepan.
2. Heat the container over a heat source (e.g., stove or hot plate) and observe as the wax begins to melt.

Evaporation Observation

1. Pour a small amount of water into a shallow dish or tray.
2. Place the dish in a well-ventilated area or near a window.
3. Observe and feel as the water slowly evaporates over time, forming water vapor in the air.

- Type of container used to hold the water

Method:

- **Step 1:** Gather two identical glasses or containers, two different brands of paper towel (Brand A and Brand B), a ruler, a marker, and a measuring cup.
- **Step 2:** Mark a line at 10 ml on each glass or container (controlled variable).
- **Step 3:** Pour 10 ml of water into one of the containers (controlled variable).
- **Step 4:** Tear off two same-sized pieces of paper towel from Brand A (independent variable). Fold them together if needed for absorbency.
- **Step 5:** Place the Brand A paper towels in the water for 5 seconds. Then, carefully remove the paper towels and squeeze out any excess water back into the container for 10 seconds.
- **Step 6:** Measure the remaining water level in the container using the ruler. Record the amount of water absorbed by Brand A (dependent variable) in milliliters. Repeat steps 3-6 using two same-

	Week 4 - Day 3 Let students present their work. Some will present LAS while other the output for extended practice.	sized pieces of Brand B paper towel (independent variable). • **Step 7:** Repeat steps 3-6 two more times for each brand of paper towel (total of 3 trials per brand) to ensure accuracy. Calculate the average amount of water absorbed by each brand. **Results:** Imagine you conducted this experiment and found that Brand A paper towels absorbed an average of 8 ml of water, while Brand B paper Provide feedback when necessary.
D. Making Generalizations	**Week 4 - Day 4** **1. Learners' Takeaways** * Today we learned about designing scientific investigations. What surprised you the most about this process? * Think about the scientific investigation you designed today. What was the most challenging part, and how did you overcome it? * Why is it important to have a clear and detailed method (procedure) when designing an experiment? **2. Reflection on Learning** Think about the scientific investigation you designed today. What was the most challenging part, and how did you overcome it?	You can pose open-ended questions or prompts that encourage them to think about the concepts covered and their understanding of designing scientific investigations.

	Why is it important to have a clear and concise method (procedure) when designing an experiment?	

IV. EVALUATING LEARNING: FORMATIVE ASSESSMENT AND TEACHER'S REFLECTION		**NOTES TO TEACHERS**
A. Evaluating Learning	**1. Formative** **Assessment Instructions:** 1. **Exit Ticket:** Provide students with an exit ticket with the following prompts: o Write down a scientific question you are curious about. o What materials would you need to investigate this question? o Describe two or three steps you would take to test your question. o 2. **Group Discussion:** Divide students into small groups and have them share their chosen scientific questions and their initial ideas for procedures. Encourage them to discuss the following: o Is the question clear and answerable through an experiment? o Are the materials listed appropriate and sufficient for the investigation? o Do the proposed steps provide a clear and sequential plan for testing the question? o 3. **Variable Identification:** After students have had a chance to refine their procedures, ask them to consider the variables in their investigation. Have them identify: o The independent variable (the factor they will change) o The dependent variable (the factor they will measure or observe) o At least two controlled variables (factors they will keep the same)	

<table>
<tr><td></td><td colspan="3">Throughout the lesson, observe students' participation in discussions and their written work. Look for the following:

• Can students identify the key steps of a scientific investigation?
• Can students apply their understanding of the steps to design a simple investigation?
• Can students correctly identify the independent, dependent, and controlled variables in their investigation?</td><td></td></tr>
<tr><td rowspan="5">B. Teacher's Remarks</td><td>Note observations on any of the following areas:</td><td>Effective Practices</td><td>Problems Encountered</td><td rowspan="5"></td></tr>
<tr><td>strategies explored</td><td></td><td></td></tr>
<tr><td>materials used</td><td></td><td></td></tr>
<tr><td>learner engagement/ interaction</td><td></td><td></td></tr>
<tr><td>others</td><td></td><td></td></tr>
<tr><td>C. Teacher's Reflection</td><td colspan="3">Reflection guide or prompt can be on:
▪ <u>principles behind the teaching</u>
What principles and beliefs informed my lesson? Why did I teach the lesson the way I did?

▪ <u>students</u>
What roles did my students play in my lesson? What did my students learn? How did they learn?

▪ <u>ways forward</u>
What could I have done differently? What can I explore in the next lesson?</td><td></td></tr>
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