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DepED
DEPARTMENT OF EDUCATION

Learning Activity Sheet for Science

Quarter 1
Lesson
5

Worksheet for Science Grade 4
Quarter 1: Lesson 5 (Week 5)
S.Y 2024-2025

Development Team

Writer:
- Dr. Berhana I. Flores (Western Mindanao State University)

Validator:
- PNU RITQ Development Team

Management Team

Philippine Normal University
Research Institute for Teacher Quality
SiMERR National Research Centre

LEARNING ACTIVITY SHEET 1 – DAY 1

Learning Area:	Science 4	**Quarter:**	1st Quarter
Lesson No.:	5	**Date:**	
Lesson Title/ Topic:	**Harmful Effect of Changes in Materials**		
Name:		**Grade & Section:**	

I. Activity No. 1: "Exploring the Impact of Changes on Everyday Objects" (25 Minutes)

II. Objective(s):

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

- explore the impact of changes on objects
- recognize the importance of distinguishing between physical and chemical changes
- identify potential harmful effects associated with each type of change and the significance of understanding these effects in everyday life.

III. Materials Needed:

- Two identical metal nails or screws
- Vinegar (or lemon juice) for the chemical change demonstration
- Two small cups or containers
- Water
- Sandpaper or a file
- Optional: Safety goggles and gloves for handling vinegar

IV. Instructions:

- Work in group.
- Together with your teammates, perform the activity.
- Procedures:

Part 1

✔ Hold up the two metal nails or screws, observe and touch them. Remember that both nails are made of the same material and appear identical.

✔ Use sandpaper or a file to scratch or roughen the surface of one of the nails.

✔ Observe any changes in the appearance of the roughened nail compared to the smooth one.

Part 2

✔ Pour vinegar (or lemon juice) into one of the small cups or containers.

✔ Place one of the nails in the cup containing vinegar and leave it for a few minutes.

✔ Meanwhile, pour water into the other cup.

✔ After a few minutes, remove the nail from the vinegar and rinse it with water.

✔ Observe and compare the appearance of the nail that was soaked in vinegar with the one that was not.

- Based on your observations, answer the following questions:
  a. What changes did you observe in the nails during the activity?

  _____
  _____
  _____
  _____

  b. Can you describe the differences between the nail that underwent a physical change and the one that underwent a chemical change?

  _____
  _____
  _____
  _____

  c. How did the appearance of the nails change after each part of the activity?

  _____
  _____
  _____
  _____

  d. Why do you think it's important to understand the differences between physical and chemical changes?

  _____
  _____
  _____
  _____

  e. What harmful effects did we discuss regarding physical changes, such as scratching the nail?

  _____
  _____
  _____
  _____

  f. What harmful effects did we observe regarding chemical changes, such as rusting in vinegar?

  _____
  _____
  _____
  _____

- Present your findings to the class.

V. Synthesis/Extended Practice/Differentiation (if needed):

LEARNING ACTIVITY SHEET 2 – DAY 2

Learning Area:	Science 4	**Quarter:**	1st Quarter
Lesson No.:	5	**Date:**	
Lesson Title/ Topic:	**Minimizing Harmful Effects in Changes in Properties of Materials**		
Name:		**Grade & Section:**	

I. Activity No. 2: "Environmental News Reporting: Investigating Pollution and Solutions" (25 Minutes)

II. Objective(s):

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

- raise awareness about different types of environmental pollution: air, water, and land;
- foster critical thinking by discussing potential solutions to environmental pollution.

III. Materials Needed:

- Skit
- Props

IV. Instructions:

- Work in group.
- Together with your teammates, perform the activity.
- Procedures:

  1. Watch a short news report. You may use the internet to research how to do news reporting.
  2. Each group will perform a news reporting skit featuring the assigned topic.
     Group 1 – Air Pollution
     Group 2 – Water Pollution
     Group 3 – Land Pollution

  3. Assign members to be the
     - Newscaster
     - Field Reporter
     - Cameramen
     - Props men (materials assigned by the teacher)
     - Pupils for the commercial
     - Music and News Director
  4. The news reporting will focus on how the pollution started, how it affects the environment, and how we can prevent it from happening again.
  5. The performance will be recorded through a video that will be reviewed and commented on by the teacher and the class.
  6. Present your output to the class.

V. Synthesis/Extended Practice/Differentiation (if needed):

Analytic Rubric: Environmental News Reporting

Criteria:

1. Research and Investigation (25 points)
    - 0-5 points: Little to no evidence of thorough research on pollution issues and potential solutions.
    - 6-10 points: Some research is evident, but lacks depth and specificity in understanding the pollution problem and its potential solutions.
    - 11-15 points: Adequate research conducted, demonstrating a clear understanding of the pollution issue and some potential solutions.
    - 16-20 points: Extensive research evident, showcasing a deep understanding of the pollution problem and offering comprehensive solutions.
    - 21-25 points: Exceptional research conducted, demonstrating a nuanced understanding of the pollution issue and proposing innovative and practical solutions.
2. Reporting Clarity and Organization (20 points)
    - 0-4 points: The report lacks clear structure and organization, making it difficult to follow.
    - 5-8 points: The report has some organization but lacks clarity in conveying information.
    - 9-12 points: The report is adequately organized, making it relatively easy to follow, but clarity could be improved.
    - 13-16 points: The report is well-organized and clear, effectively conveying information to the audience.
    - 17-20 points: The report is exceptionally well-structured and clear, enhancing the audience's understanding of the pollution issue and its potential solutions.
3. Presentation and Visuals (20 points)
    - 0-4 points: Presentation lacks visuals or uses visuals inappropriately, detracting from the overall effectiveness.
    - 5-8 points: Visuals are present but not effectively utilized to enhance understanding or engagement.
    - 9-12 points: Visuals are used adequately to support the presentation and enhance audience engagement.
    - 13-16 points: Visuals are well-integrated and effectively enhance the presentation, aiding in conveying information and engaging the audience.
    - 17-20 points: Visuals are exceptional, creatively used to complement the presentation, and significantly enhance audience understanding and engagement.
4. Depth of Analysis (25 points)
    - 0-5 points: Superficial analysis lacking depth or critical thinking.
    - 6-10 points: Limited analysis provided, with minimal critical thinking evident.
    - 11-15 points: Adequate analysis conducted, demonstrating some critical thinking skills and insight into the pollution issue and its potential solutions.
    - 16-20 points: Thorough analysis presented, showcasing strong critical thinking skills and insightful perspectives on the pollution problem and its potential solutions.

- 21-25 points: Exceptional depth of analysis demonstrated, with sophisticated critical thinking evident and innovative perspectives on addressing the pollution issue.

5. Creativity and Innovation (10 points)
    - 0-2 points: Lack of creativity and innovation in approach and presentation.
    - 3-4 points: Minimal creativity demonstrated, with little innovation in approach or presentation.
    - 5-6 points: Some creativity is evident in approach or presentation, but lacking innovation.
    - 7-8 points: Creative approach and presentation demonstrated, with some innovative elements.
    - 9-10 points: Exceptional creativity and innovation are evident in both approach and presentation, setting the project apart and capturing audience's attention effectively.

Total Points: 100

Score Sheet

Group No.	Research and Investigation (25 points)	Reporting Clarity and Organization (20 points)	Presentation and Visuals (20 points)	Depth of Analysis (25 points)	Creativity and Innovation (10 points)	TOTAL
1						
2						
3						
4						

The following AWARD may also be given (Optional)

- Best Newscaster
- Best Field Reporter
- Best Commercial
- Best Music
- Best News Director

LEARNING ACTIVITY SHEET 3 – DAY 3

Learning Area:	Science 4	**Quarter:**	1st Quarter
Lesson No.:	5	**Date:**	
Lesson Title/ Topic:	**Proper Ways of Handling of Reactive Materials**		
Name:		**Grade & Section:**	

I. Activity No. 2: "Proper Ways of Handling Reactive Materials" (20 Minutes)

II. Objective(s):

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

- demonstrate an understanding of the proper handling procedures for reactive household materials through active participation in group role-play scenarios
- recognize the importance of quick and appropriate responses to emergencies or unexpected reactions involving reactive household materials, demonstrating their ability to assess and react effectively to simulated scenarios.

III. Materials Needed:

- Skit/script
- Props

IV. Instructions:

- Work in group.
- Together with your teammates, perform the activity.
- Procedures:
  1. Assign specific roles to each member of your group:
     - ✔ handler of the reactive material
     - ✔ observers
     - ✔ safety officers
     - ✔ Record keeper
  2. Assign each group a specific reactive household material to focus on for their role-play
  3. Each group will perform a role-play skit demonstrating the proper handling of the assigned reactive household material.
     Group 1 – Bleach
     Group 2 – Ammonia
     Group 3 – Batteries
     Group 4 – Drain Cleaners
     Group 5 – Hydrogen Peroxide
  4. Your group should be able to enact the handling process, following proper procedures for containment, and manipulation of the reactive material.
  5. Include a segment where students respond to simulated emergencies or unexpected reactions, emphasizing the importance of quick and appropriate action.
  6. Be creative. You may effectively convey the message by incorporating dialogue, demonstrations, and interactive elements.
- Present your role-play to the class.

V. Synthesis/Extended Practice/Differentiation (if needed)

Analytic Rubric: Role-Play Assessment

Criteria:

1. Roles and Responsibilities (20 points)

    - 0-4 points: Roles are not defined or executed, leading to confusion and disorganization within the group.
    - 5-8 points: Roles are somewhat defined but not fully executed, resulting in inconsistencies or misunderstandings during the role-play.
    - 9-12 points: Roles are adequately defined and executed, contributing to the overall coherence and effectiveness of the role-play.
    - 13-16 points: Roles are well-defined and executed, enhancing the authenticity and professionalism of the role-play performance.
    - 17-20 points: Roles are exceptionally defined and executed, seamlessly integrating with the role-play and demonstrating clear understanding and commitment.

2. Demonstration of Proper Procedures (25 points)

    - 0-5 points: Lack of understanding or adherence to proper handling procedures, resulting in unsafe or incorrect portrayal of material handling.
    - 6-10 points: Limited demonstration of proper procedures, with some inaccuracies or omissions in handling techniques.
    - 11-15 points: Adequate demonstration of proper procedures, with basic adherence to handling protocols and containment methods.
    - 16-20 points: Thorough demonstration of proper procedures, showcasing accurate and effective handling techniques and containment methods.
    - 21-25 points: Exceptional demonstration of proper procedures, incorporating advanced handling techniques, and emphasizing safety measures effectively.

3. Response to Emergencies (20 points)

    - 0-4 points: Ineffective or inappropriate response to simulated emergencies or unexpected reactions, leading to escalation or exacerbation of the situation.
    - 5-8 points: Limited response to emergencies, with some attempts made but lacking effectiveness or proper execution.
    - 9-12 points: Adequate response to emergencies, demonstrating basic understanding and ability to address unexpected situations with some effectiveness.
    - 13-16 points: Effective response to emergencies, showcasing quick thinking and appropriate actions to mitigate risks and ensure safety.
    - 17-20 points: Exceptional response to emergencies, demonstrating exemplary decision-making and actions to effectively resolve unexpected situations and ensure the safety of all involved.

4. Creativity and Engagement (15 points)

- 0-3 points: Lack of creativity and engagement, resulting in a dull or uninspiring role-play performance.
- 4-6 points: Limited creativity and engagement, with some attempts to engage the audience but lacking innovation or enthusiasm.
- 7-9 points: Adequate creativity and engagement, with elements of dialogue, demonstration, and interaction to convey the message effectively.
- 10-12 points: Creative and engaging performance, capturing audience attention and effectively conveying the message through innovative approaches.
- 13-15 points: Exceptionally creative and engaging performance, utilizing dialogue, demonstration, and interactive elements to captivate the audience and leave a lasting impression.

Total Points: 80

Score Sheet

Group No.	Roles and Responsibilities (20 points)	Demonstration of Proper Procedures (25 points)	Response to Emergencies (20 points)	Creativity and Engagement (15 points)	TOTAL
1					
2					
3					
4					
5					

ANNEX A

TEAM JOBS

Manager (red):

- Responsible for collecting and returning the team's equipment.
- Informs the teacher if any equipment is broken or damaged.
- All members are responsible for cleaning up after an activity and getting ready to return.

Speaker: (blue)

- Responsible for asking the teacher or another team's speaker for help.
- If the team cannot decide how to follow a procedure, the speaker is the **ONLY** person who may seek help.
- The speaker shares any information obtained with all the team members.
- The teacher may speak with all the team members.
- Each team member should be able to report on the team's results, not just the speaker.

Director: (green)

- Responsible for making sure that the team understands the activity and helps team members to focus on each step to be completed.
- Helps team members to check that they have completed all aspects of the activity successfully.
- Provided guidance but is not the team leader.

Reports Coordinator: (yellow)

- Responsible for ensuring that team members have completed all the necessary reports, data collection, and relevant worksheets.
- Does not necessarily report on behalf of the team.
- Ensures that each member of the team has the necessary information so that they can report to the class if required to do so.