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Warm-Up | Safety in Science

Lesson Question

How is safety achieved during scientific investigations?

Lesson Goals

Describe safe practices during a scientific investigation.

Identify examples of safety problems.

Explain the correct procedure for reporting safety issues.

Words to Know

Fill in this table as you work through the lesson. You may also use the glossary to help you.

precaution	an action that is taken to prevent harm
hazardous waste	an unwanted product that may pose a threat to human health and/or to the environment

Science and Technology

- In science, technology is used to collect and record data.
- Technology uses scientific knowledge to find solutions to real-world problems by creating new methods and/or devices.

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The Importance of Preparation

- Read directions completely.
- Review needed equipment.
- Clarify anything confusing.
- Locate all safety equipment.

Proper Clothing in the Laboratory

Do Wear

- A lab coat or apron
- Safety eyewear
- Protective gloves

Do NOT Wear

- Open-toed shoes
- Contact lenses
- Loose hair, clothing, or jewelry

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Professional Behavior in the Laboratory

- Be prepared.
- Follow instructions.
- Show respect.
- Handle equipment with care.
- Think before acting.
- Behave like a professional.

Common-Sense Practices

- Leave all food and drinks outside the lab.
- Wash your hands before and after lab activities.
- Avoid touching your face and eyes.
- Maintain a clean and neat workspace.
- Report any accidents to your instructor.

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Chemical Safety

- Always wear safety [eyewear].
- Always know what [chemicals] you are using, and read any safety [precautions] associated with them.
- Never [mix] chemicals unless instructed to do so.
- Never [taste] chemicals or [breathe in] their fumes.

Glassware Safety

- Check for [cracks] or [chips].
- Handle glassware [carefully].
- [Notify] your teacher and classmates when glassware breaks and:
  - wear [gloves] before you handle broken [glass].
  - [sweep] up the glass quickly.
  - dispose of the glass [properly].

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Heat and Fire Safety

- Do not touch heat sources.
- Keep clothing and hair away from flames.
- Keep flammable substances away from heat sources.

Cleanup and Disposal

Use separate labeled containers for:

- chemical waste.
- broken glass.
- hazardous waste, which may pose a threat to human heath and the environment.

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Safety Equipment: Part 1

- Eye wash station
  - Remove contact lenses.
  - Rinse eyes for at least fifteen minutes.
- Safety shower

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Safety Equipment: Part 2

- Fire [extinguisher]
  - To use a fire extinguisher, remember PASS:
    - P = [pull]
    - A = [aim]
    - S = [squeeze]
    - S = [sweep]
- Fire [blanket]
- [First aid] kit

Laboratory Accidents

In case of an accident, you need to:

- stay [calm] and [tell] your teacher.
- follow your teacher's [instructions].
- [leave] the area if conditions are dangerous.
- do not try to clean up a spill.
- [help] anyone who is injured, if it is [safe] to do so.
- Use emergency [equipment] if necessary.

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Summary | Safety in Science

Lesson Question

How is safety achieved during scientific investigations?

Answer

(Sample answer) Safety is achieved by following safe practices, identifying and avoiding actions that cause safety problems, and knowing the correct procedures for handing and reporting safety issues.

Slide 2

Review: Key Concepts

- [Prepare] for the investigation.
- Wear appropriate [attire].
- Be [professional].
- Use [common sense].
- Handle [chemicals], [equipment], and [waste] carefully.
- [Report] accidents immediately.
- Use safety [equipment] as necessary.

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Use this space to write any questions or thoughts about this lesson.

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