Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class: \_\_\_\_\_\_\_\_ Due Date: \_\_\_\_\_\_\_\_\_\_\_\_\_

**Lab 1:** **Lab Equipment and Safety**

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**Purpose**

What can you do to ensure that you work safely and efficiently in the science laboratory?

**Introduction**

Lab activities provide an opportunity to practice the process of science. They allow you to do what scientists all over the world do in research laboratories and in the field. Like all scientists, you must follow procedures that ensure your safety. These procedures also ensure that the data you collect is reliable. Unlike most scientists, you will need to fit your experiments into a specific block of time. Thus, your ability to work efficiently will be essential to your success.

In this lab, you will draw a map of the room in which you will do labs. You will note the locations of safety equipment and other supplies. Finally, you will identify some pieces of equipment that may be unfamiliar and infer the purpose of these items.

**Materials**

* graph paper
* colored pencils
* Ruler
* Meter stick

**Pre-Lab Questions**

1. **Infer** Why is it important to know the location of equipment, such as a fire extinguisher, before you begin working in the lab?

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1. **Relate Cause and Effect** How could reading a lab in advance contribute to both safety and efficiency?

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1. **Use Analogies** Give an example of an activity that takes place outside of school in which people are expected to review safety precautions before taking part in the activity.

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**Procedure**

**Part A: Mapping the Lab**

Use a sheet of graph paper to make a map of your science lab. To avoid having a cluttered map, use **abbreviations** instead of full names to record the locations of items. Use the space below to construct a key with abbreviations, such as *FB for fire blanket*.

1. Start by marking the locations of doors, windows, lab benches, and any desks.

2. Next, walk around the room and use a red pencil to record the locations locate the following safety equipment:   
  
 safety goggles fire extinguisher fire blanket safety shower eyewash station fume hood latex gloves first-aid kit, broken glass disposal box.

3. Then, use a green pencil to mark the locations where common lab equipment such as:

beakers graduated cylinders microscopes thermometers

4. After each lab period, your lab station should be cleaned and organized. To help achieve this goal, use a blue pencil to mark the locations for items such as the following on your map: sink, sponge, paper towels, test-tube brush, hand soap, and dishwashing liquid. Add the abbreviations for these items to your key.

**Lab map abbreviation Key**

FB= Fire Blanket

**Part B: Identifying Lab Equipment**

5. Your teacher will place ten pieces of less-familiar lab equipment labeled A–J on your lab bench or table. Choose a name for each item from the list that your teacher will give you.

6. Identify at least one way each item might be used in an experiment.

7. In the column titled Safety Issues, note which items might require one or more of the following safety warnings: safety goggles, breakage, electric shock, sharp object, and disposal.

|  |  |  |  |
| --- | --- | --- | --- |
| **Data Table** | | | |
| **Item** | **Name** | **Possible Use** | **Safety Issues** |
| **A** |  |  |  |
| **B** |  |  |  |
| **C** |  |  |  |
| **D** |  |  |  |
| **E** |  |  |  |
| **F** |  |  |  |
| **G** |  |  |  |
| **H** |  |  |  |
| **I** |  |  |  |
| **J** |  |  |  |

**Analyze and Conclude**

1. Why is there a general safety rule to never bring food or drinks into the lab?  
   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Describe what you would do if a glass beaker drops and breaks. List the appropriate steps in order.  
   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Why do scientists include a detailed description of their procedures when they publish the results of experiments?  
   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_