

EXPERIMENTAL CHEMISTRY

**Laboratory Rules, Regulations
and
Scientific Methods**

USING A FIRE EXTINGUISHER

- Pull: Pull the pin, this will break the tamper seal.
- Aim: Aim low, pointing the nozzle or hose at the base of the **fire**. ...
- Squeeze: Squeeze the handle to release the **extinguishing** agent.
- Sweep: Sweep from side to side at the base of the **fire**, the fuel source, until the **fire** is out.

USING A FIRE EXTINGUISHER



PREPARING A GLASS OF JUICE

In groups, discuss how to make a glass of juice using a fruit passion fruit.

1. State the aim of the activity.
2. List the materials required for the activity.
3. Identify the steps followed in making the juice.
4. Describe the process involved in making of the juice.
5. What safety measures were required to prepare safe juice?

The Scientific Method

QUESTION

Referring to activity above, which place would be the most suitable for preparing the fruit juice and why?

The Scientific Method

Possible places to prepare juice

- *a Kitchen, Laboratory or Factory*
- *A **Laboratory** is the special room/place required for carrying out experiments in the school.*

Laboratory and Laboratory Rules/Regulations

Question

What special safety measures were required in the preparation of the juice?

- *Wash all utensils/tools clean before use*
- *Wash the fruit before cutting or using*
- *Take care when using a knife for cutting the fruits,*
- *keep the containers clean and covered, etc.*

The Scientific Method

1. Observing a particular behaviour.
2. Making immediate conclusions about the behaviour.
3. Identifying a problem to be acted upon.
4. Making a hypothesis.
5. Determining and controlling variables.

The Scientific Method

6. Planning methods of investigation.
7. Analysing and interpreting data.
8. Making conclusions.
9. Writing a report.

Laboratory and Laboratory Rules/Regulations

In groups:

- a) examine a list of laboratory rules and produce a table or diagram showing the reasons for each rule.
- Observe a demonstration of how to deal with a fire outbreak and how a fire extinguisher is used, and produce a set of guidelines.

Laboratory and Laboratory Rules/Regulations

- Read the passage below:

Mukisa, an S1 student was required to prepare a salt solution in the laboratory. He wrapped his sweater around his waist, picked on his books and ran to the laboratory. On entering, he knocked a table with glassware, spilling a colourless liquid. His books fell down into the pool of the colourless liquid while the glass fell on the floor and broke

Laboratory and Laboratory Rules/Regulations

CONT.. Passage

Mukisa tried to collect the broken pieces of glass. The pieces cut his fingers while the books were burnt by the liquid. In pain he rushed to wash his fingers using water and in the process the sweater around his waist pulled down a beaker of hot water from another table that poured on his leg. Mukisa was rushed to a clinic and never carried out his experiment.

Laboratory and Laboratory Rules/Regulations

QUESTIONS

- a) From the above passage, what errors were committed by Mukisa?
- b) How could Mukisa have avoided the accident?
- c) Using the above story, what rules should be enforced to ensure safety in the laboratory?

Laboratory and Laboratory Rules/Regulations

Answers to a)

- *Running to the laboratory,*
- *knocking a table with glassware,*
- *spilling a colourless liquid,*
- *collecting the broken pieces of glass with bare hands,*
- *washing his fingers using water without reporting to the teacher,*
- *wrapping the sweater around his waist.*

Laboratory and Laboratory Rules/Regulations

Answers to b)

- *Wearing the sweater properly,*
- *Not running in the laboratory,*
- *By following the laboratory rules.*

Laboratory and Laboratory Rules/Regulations

Answers to c)

- *Do not run in the laboratory*
- *Do not wear loose attire in the laboratory*
- *Always wear protective gloves*
- *Report any accidents to the teacher or the laboratory assistant*