

# Small Scale Apparatus for Science Learners – a new approach



**Marié du Toit  
Corrie du Toit**

## AIM

- To make a substantial contribution to improve Science teaching in South Africa and Internationally.

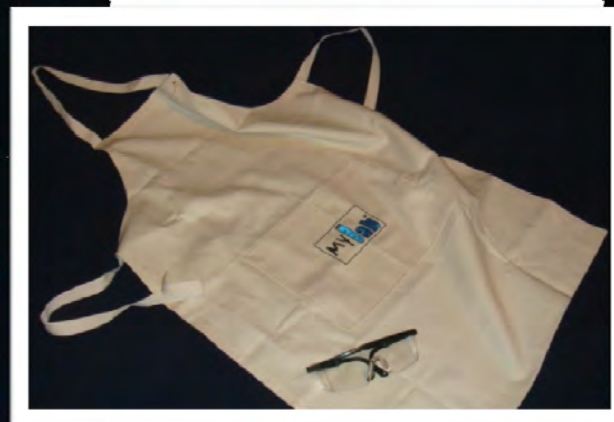
## IMPORTANCE OF PRACTICAL WORK

- Practical work contributes to visualization
- Inadequate visualization leads to bad concept formation and rote learning
- Practical work promotes positive attitudes towards Chemistry



# SHOW-CASING the MYLAB kits

## Packaging of Basic Chemistry kit (grades 10, 11 & 12)



# SHOW-CASING the MYLAB kits

## Packaging of Basic Chemistry kit (grades 10, 11 & 12)



Tray 1



Tray 2



Tray 3

# SHOW-CASING the MYLAB kits

## Packaging of Natural Science kit (grades 4 to 9)



# SHOW-CASING the MYLAB kits

## Packaging of Natural Science kit (grades 4 to 9)



# SHOW-CASING the MYLAB kits

## Packaging of Natural Science kit (grades 4 to 9)



Tray 1



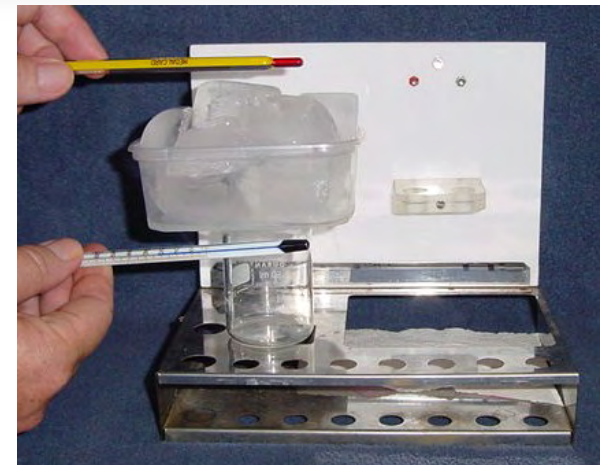
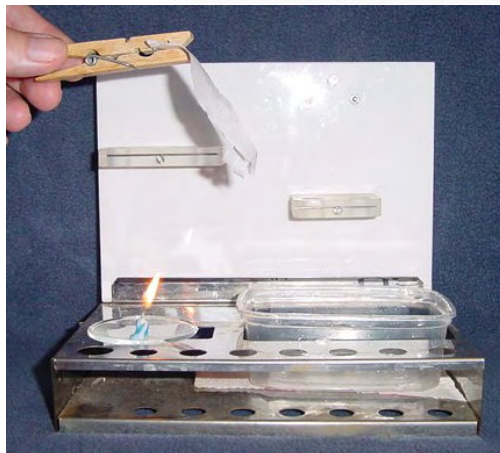
Tray 2



Tray 3

# THE USE OF MYLAB in GRADE 4

- How do you know that cool air and hot air flows?



# THE USE OF MYLAB in GRADE 5

- What is the difference between sand, loam and clay soil?

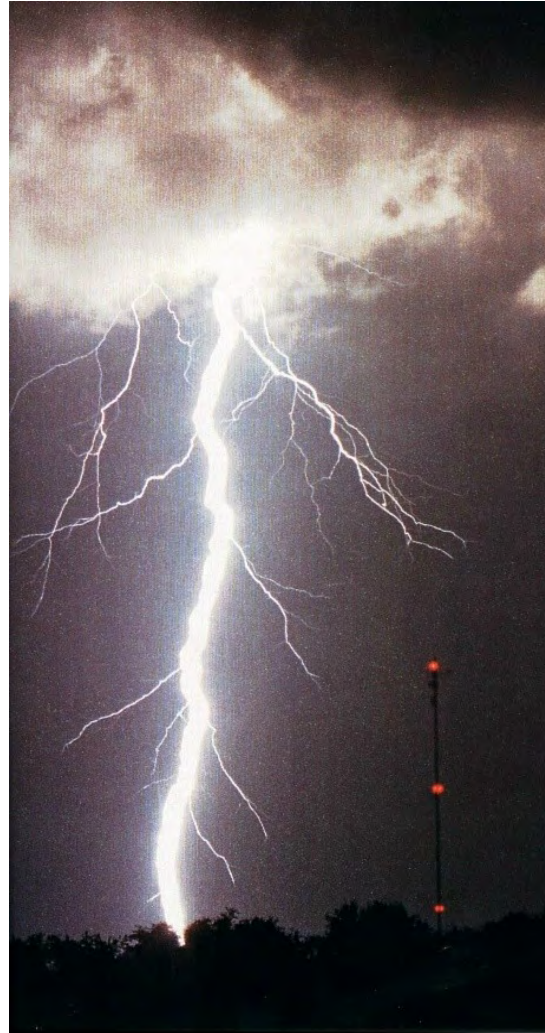


- How can evaporation make things cold?



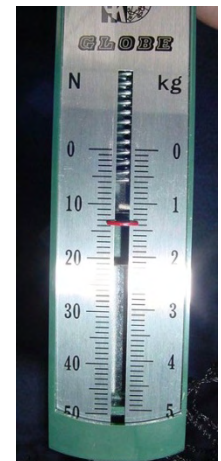
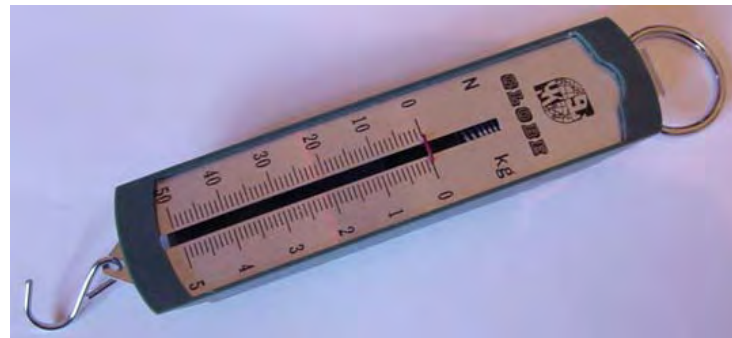
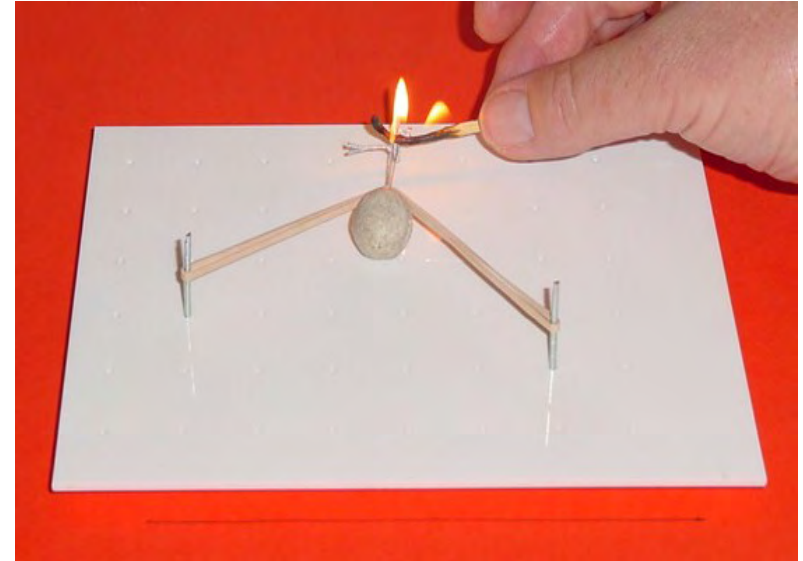
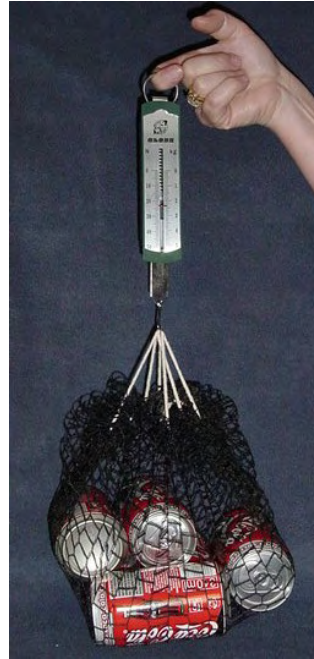
# THE USE OF MYLAB in GRADE 6

- What is the effect of static electricity?



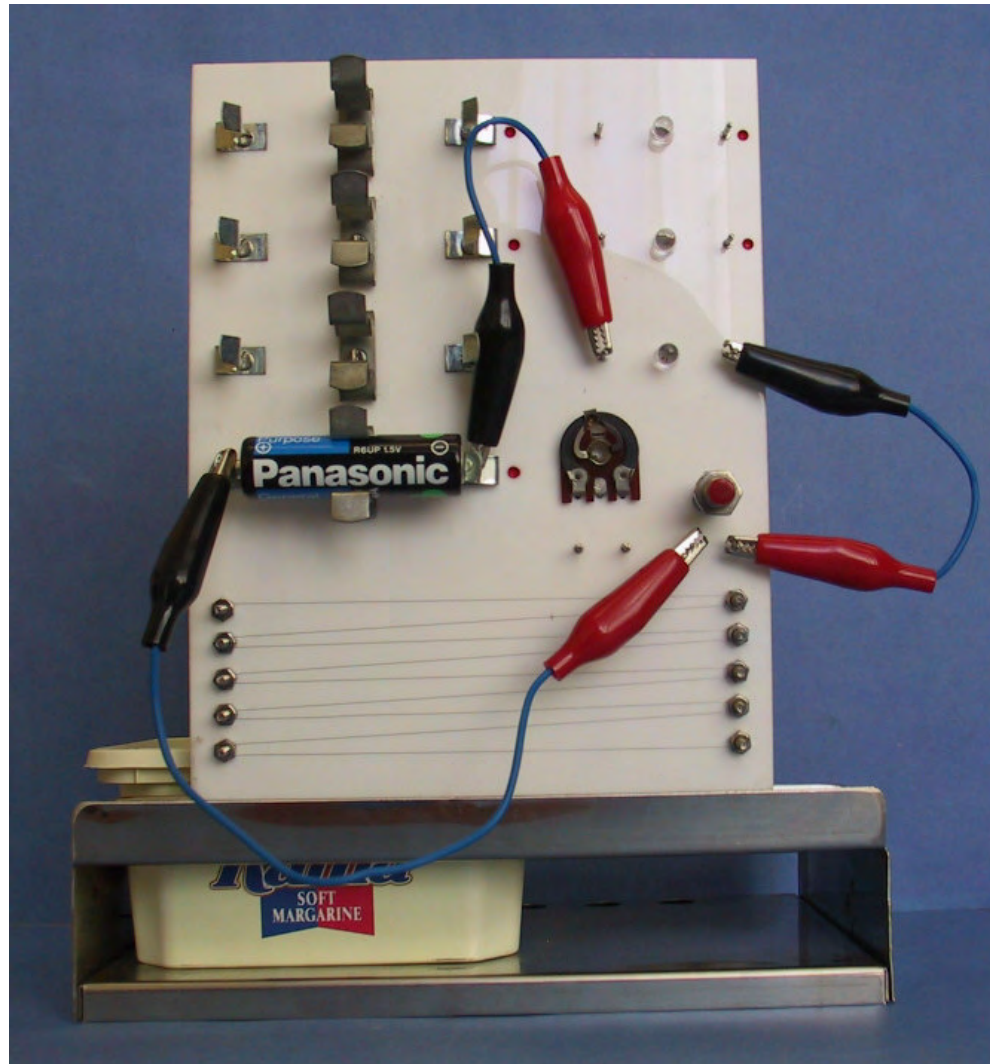
# THE USE OF MYLAB in GRADE 7

- How can a force be measured?



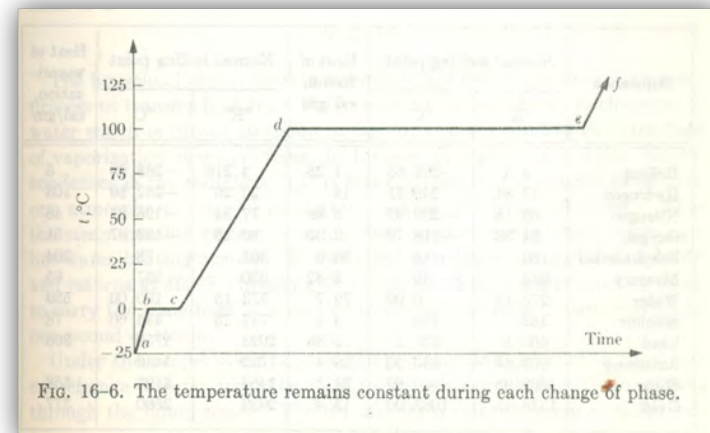
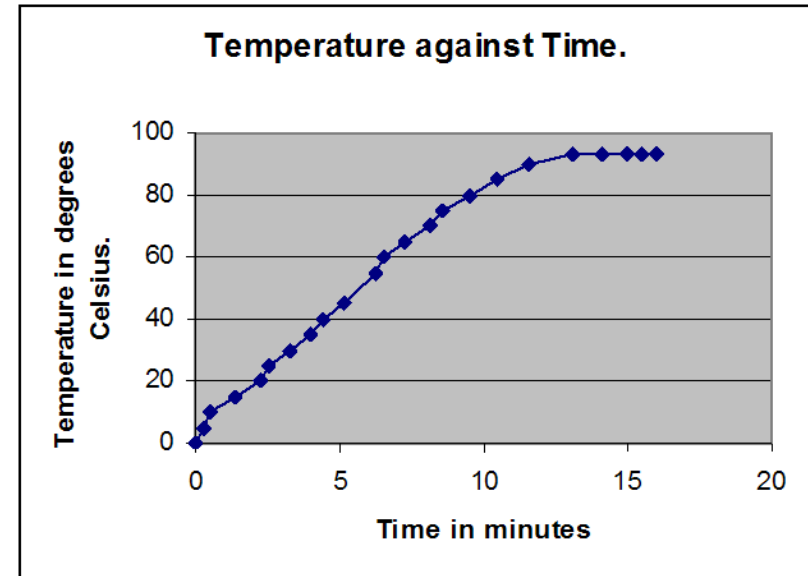
# THE USE OF MYLAB in GRADE 8

- How can you connect a simple electric circuits?



# THE USE OF MYLAB in GRADE 9

- How does the melting and evaporation curve of water look like?



# THE USE OF MYLAB in GRADE 10

- **What are the different kinds of chemical reactions?**

**Activity 1:** Why do precipitation reactions take place?

**Activity 2:** Why do gas-forming reactions take place?

**Activity 3:** Why do acid-base reactions take place?

**Activity 4:** Why do composition reactions take place?

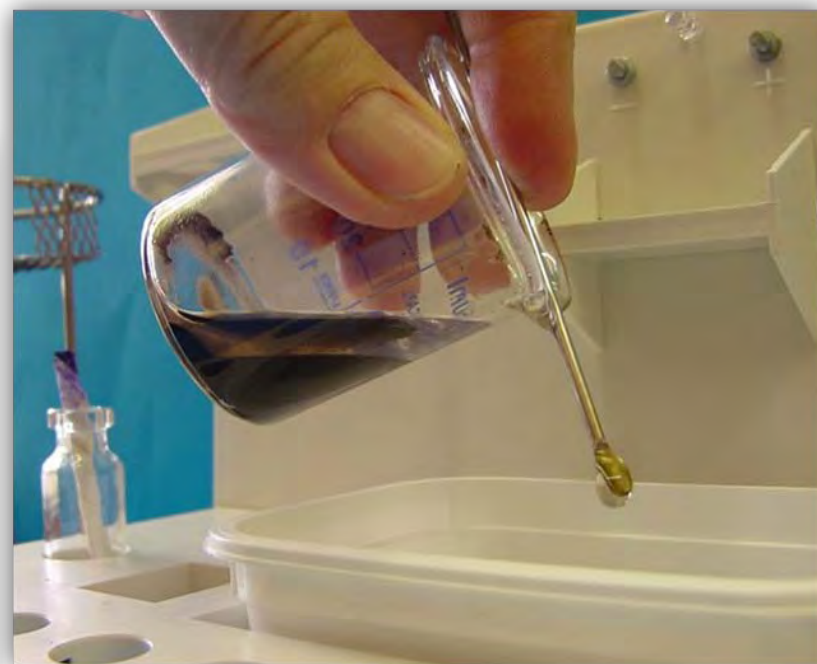
**Activity 5:** Why do decomposition reactions take place?

**Activity 6:** Why do displacement reactions take place?



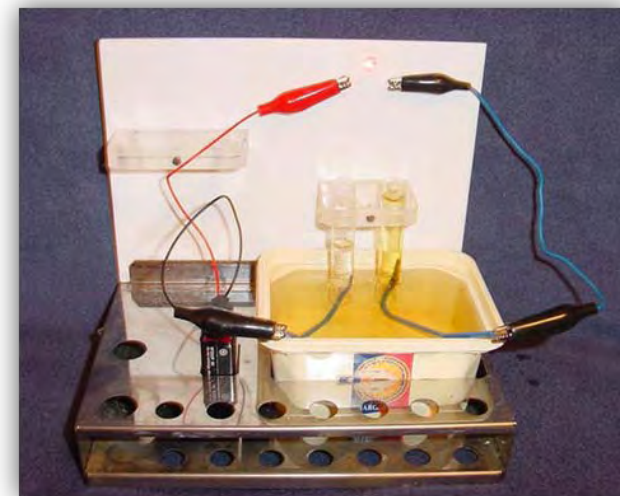
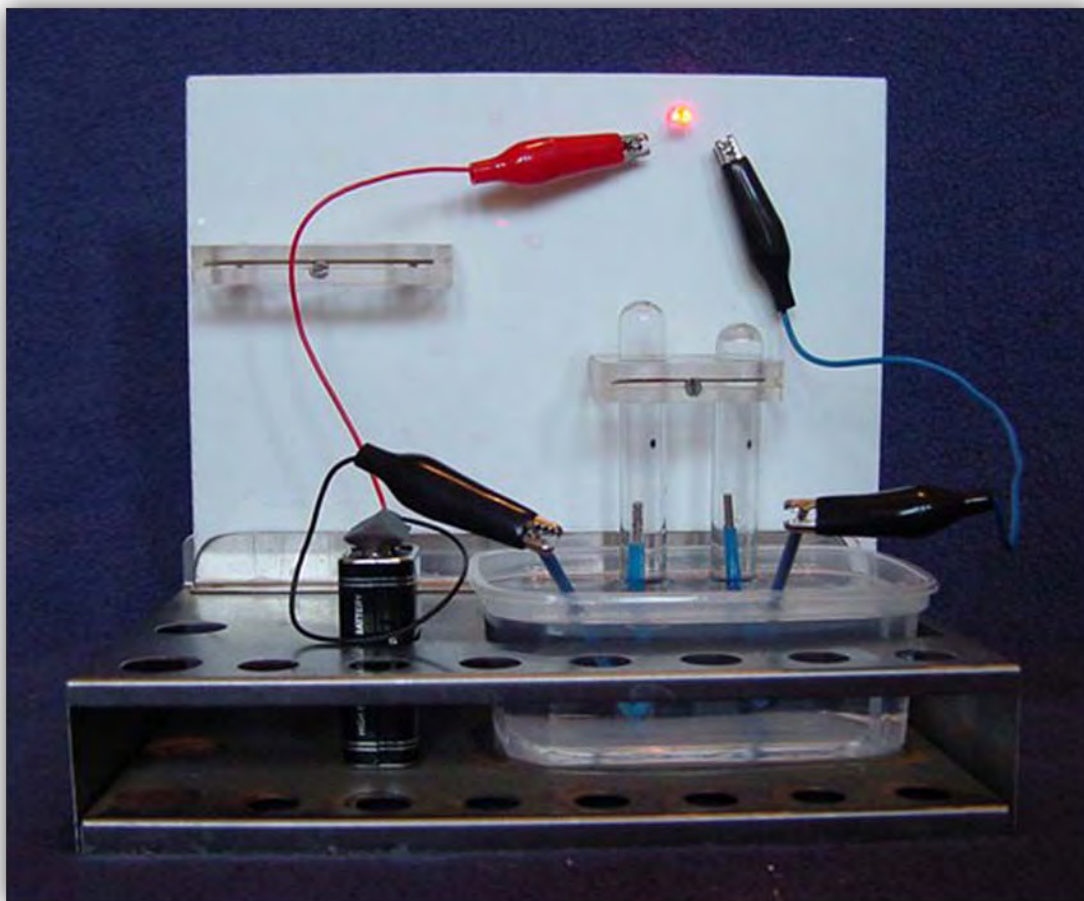
# THE USE OF MYLAB in GRADE 11

- What is the mass lead(IV) oxide that can be prepared from a given mass of lead(II) nitrate?



# THE USE OF MYLAB in GRADE 12

- Which products are formed if an electric current is sent through (i) water and (ii) sodium iodide solution?



### PROBLEM QUESTION

- The aim of the experiment in the form of a problem question

### CORE KNOWLEDGE AND CONCEPTS

- Learning outcomes

### BACKGROUND KNOWLEDGE

- Start from the known and lead learners to the unknown
- Give the learners the opportunity to suggest a way in which the problem question could be solved

### DO EXPERIMENTS TO ANSWER THE PROBLEM QUESTION.

- List of apparatus and chemicals needed
- Warning about hazardous chemicals
- Sketch of apparatus to make experimental method easier
- Observations in question-form to stimulate creative thinking
- Application in environment and daily life
- Enrichment and possibilities for further investigation

### Learner self-evaluation and Facilitator evaluation

- **The assessment fields are:**

**Observation**

**Procedure**

**Measuring**

**Investigation**

**Recording**

**Evaluation**

**Manipulating**

**Knowledge**

**Inference**

- **To assist the facilitator, *self assessment* and *facilitator assessment* tables are included**

# 2008 Workshop for Grade 12 learners

## Matthews Mangope High School, SUPINGSTAD

