

# LOW-COST EXPERIMENTS IN CHEMISTRY



**DECISIONS**

**TRADITIONAL**

**MICRO**

**VIRTUAL**

# DECISIONS

“THE TREND FROM MACRO  
IS NOW ESTABLISHED”

(Beasley, 1996)

# DISADVANTAGES?

- “My students will not know how to use traditional scale equipment”
- “I cannot do all the experiments that I need to do with the low-cost equipment”
- “The equipment is too small: my students will not be able to handle it/see what is happening/learn concepts”

# DISADVANTAGES?

- “The textbooks we use do not show microscale equipment and the exams require use of the traditional equipment”
- “I cannot do practical work anyway, because I do not have a laboratory/ technical assistance/enough time”

# ADVANTAGES

- LOW INITIAL & RUNNING COSTS
- HIGH SAFETY
- LOW ENVIRONMENTAL IMPACT
- EASY
- QUICK

# TEACHING AND LEARNING

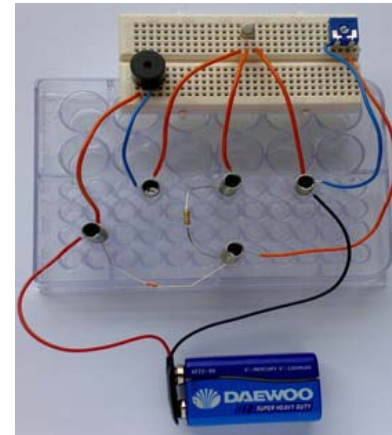
- Learner-centred teaching: constructivism
- Integration of personal hands-on activities with conceptual development
- Understanding the scientific method

# THE CHEMISTS TRIANGLE



# NOT JUST FOR CHEMISTRY

- Electricity and magnetism
- Electronics



- Bio-observation
- Biochemistry

[www.microsci.org.za](http://www.microsci.org.za)

# CONCLUSIONS

## GOALS WE CAN ACHIEVE

1. SCIENCE EDUCATION FOR ALL
2. BROAD SCIENTIFIC LITERACY
3. IMPROVED PUBLIC IMAGE OF CHEMISTRY