UNIVERSITI TEKNIKAL MALAYSIA MELAKA

Dr Zakiah Abd Halim

Non-Destructive Testing & Structural Health Integrity

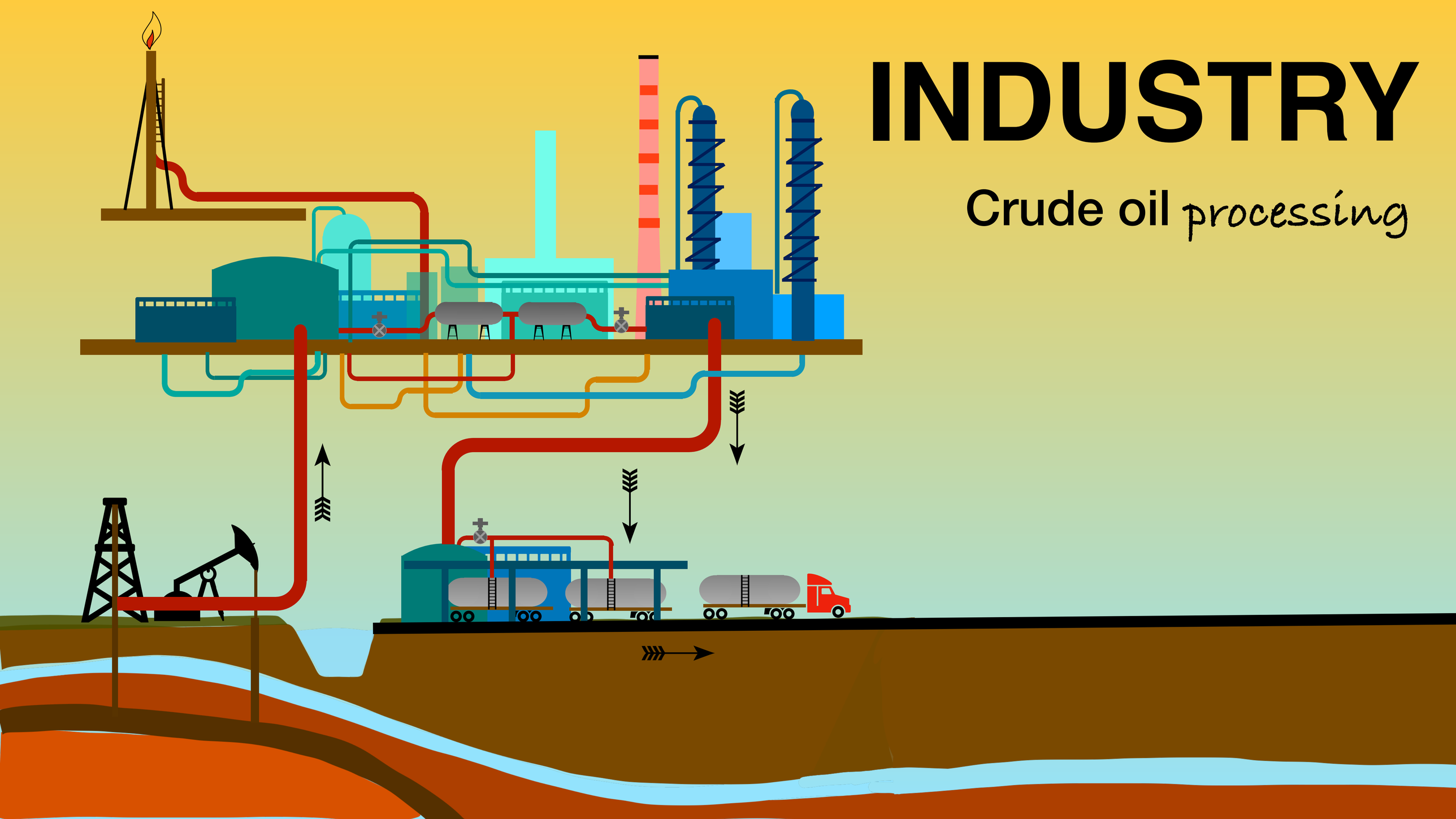
Certified Ultrasonic Tester Level 1 (Plate thickness)

Certified Ultrasonic Tester Level 2 (Plate and pipe butt weld)

Apple Teacher

INDUSTRY

Crude oil processing



EXPERIMENT

Perform a scientific procedure, usually in control laboratory, to make a discovery, test a hypothesis, or demonstrate a known fact.

IMPORTANCE OF EXPERIMENT

1 IDEA

Cognitive learning

2 METHODS

Inquiry methodology

3 ETHICS

Awareness of current practice and inculcate professional ethics

4 SKILLS

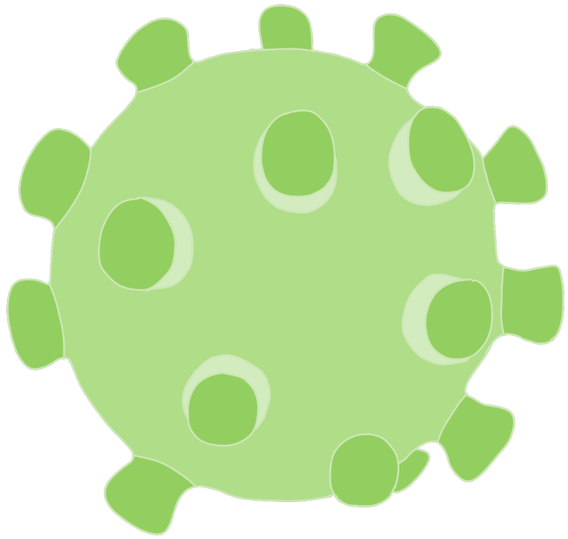
Development of personal skills

SOCIAL DISTANCING

Keep 1 m distance

RESTRICTED MOVEMENT ORDER

Stay at home



SANITIZATION PROCEDURE

Cleaning of equipment before and after usage

LIMITED INSTRUMENTATION

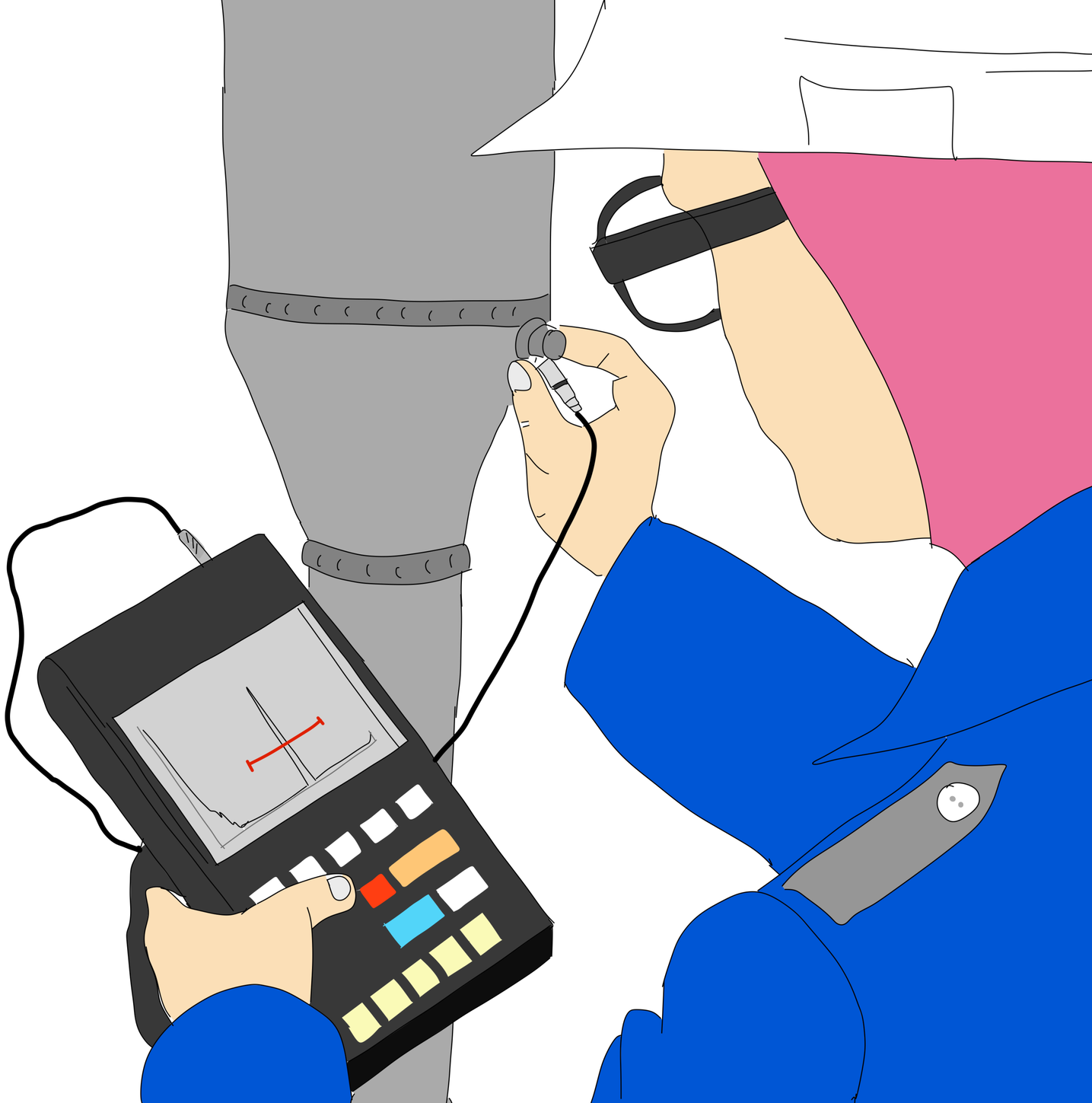
Ratio of students over equipment

SAFETY ISSUES

Some experiments are risky, expensive and difficult to perform in real life

Creating a

VIRTUAL LAB



KNOWLEDGE

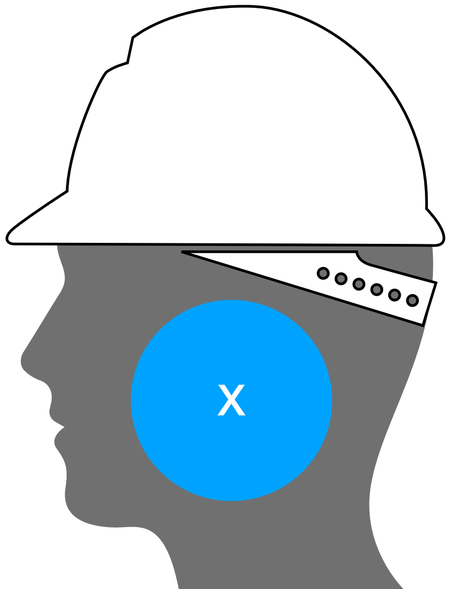
Students have pre-requisite knowledge about the lab and apparatus or instrumentation and clear experiment objectives

INDUSTRY

Practical works must reflect industrial needs

ASSESSMENT

Quiz and feedback to test knowledge retention

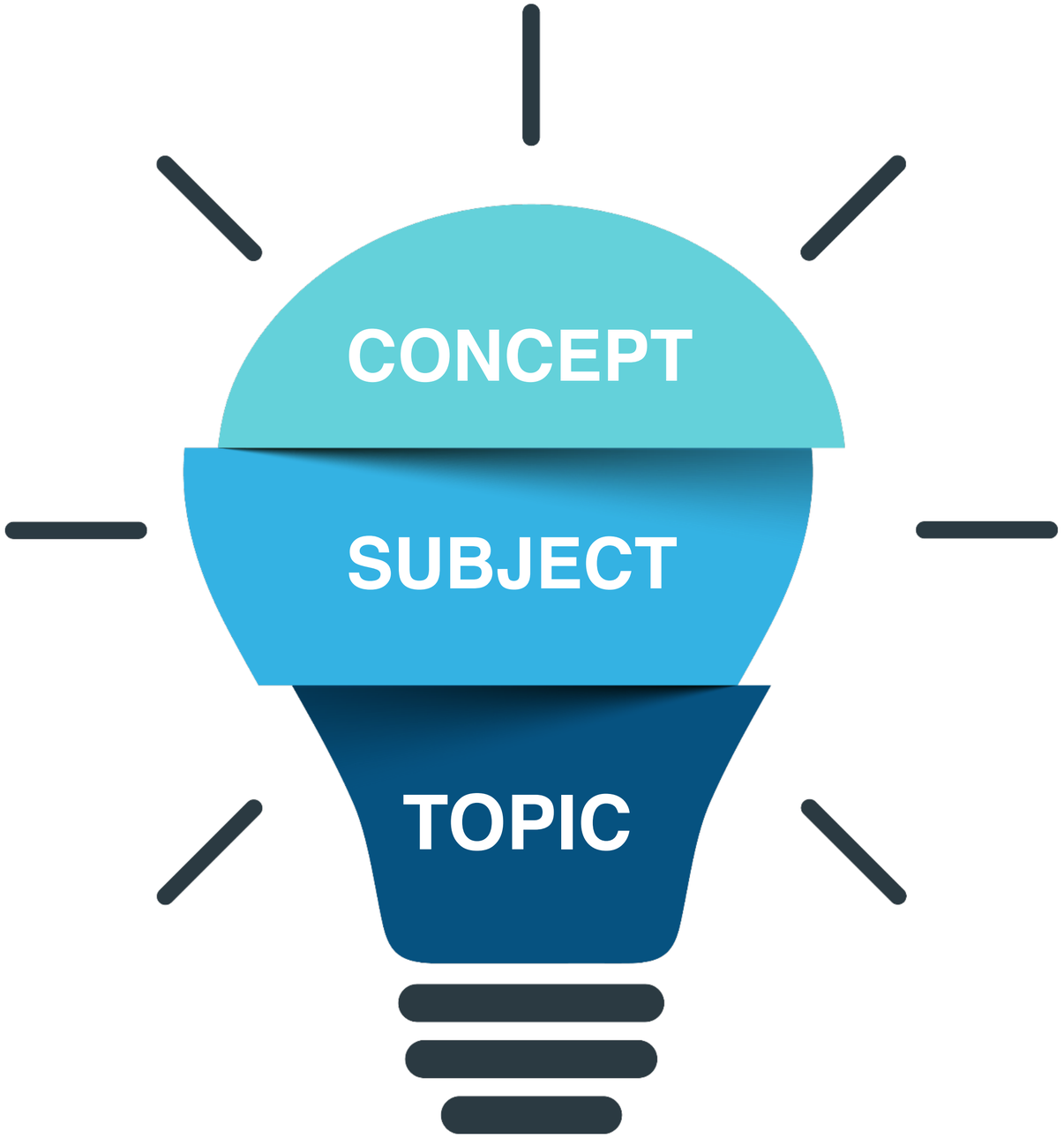


PLAN

The concept of virtual lab and the fundamental phenomenon

TEAM

Must include collaboration working skills



PLAN

STEP A

Determine the concept of virtual lab

STEP B

Identify subjects for Virtual Lab

STEP C

Develop virtual lab by sub topics

PRE-KNOWLEDGE

PRINCIPLE

Provide pre-requisite knowledge

APPARATUS

Familiarity with the instrumentation or apparatus

LEARN

Sample preparation using digital video

LAB OUTCOMES

APPLICATION

Application of testing and practical scenario, where applicable

RESULTS

Observation of results and guiding the interpretation of the test results

SET UP

Setting up instrumentation or apparatus

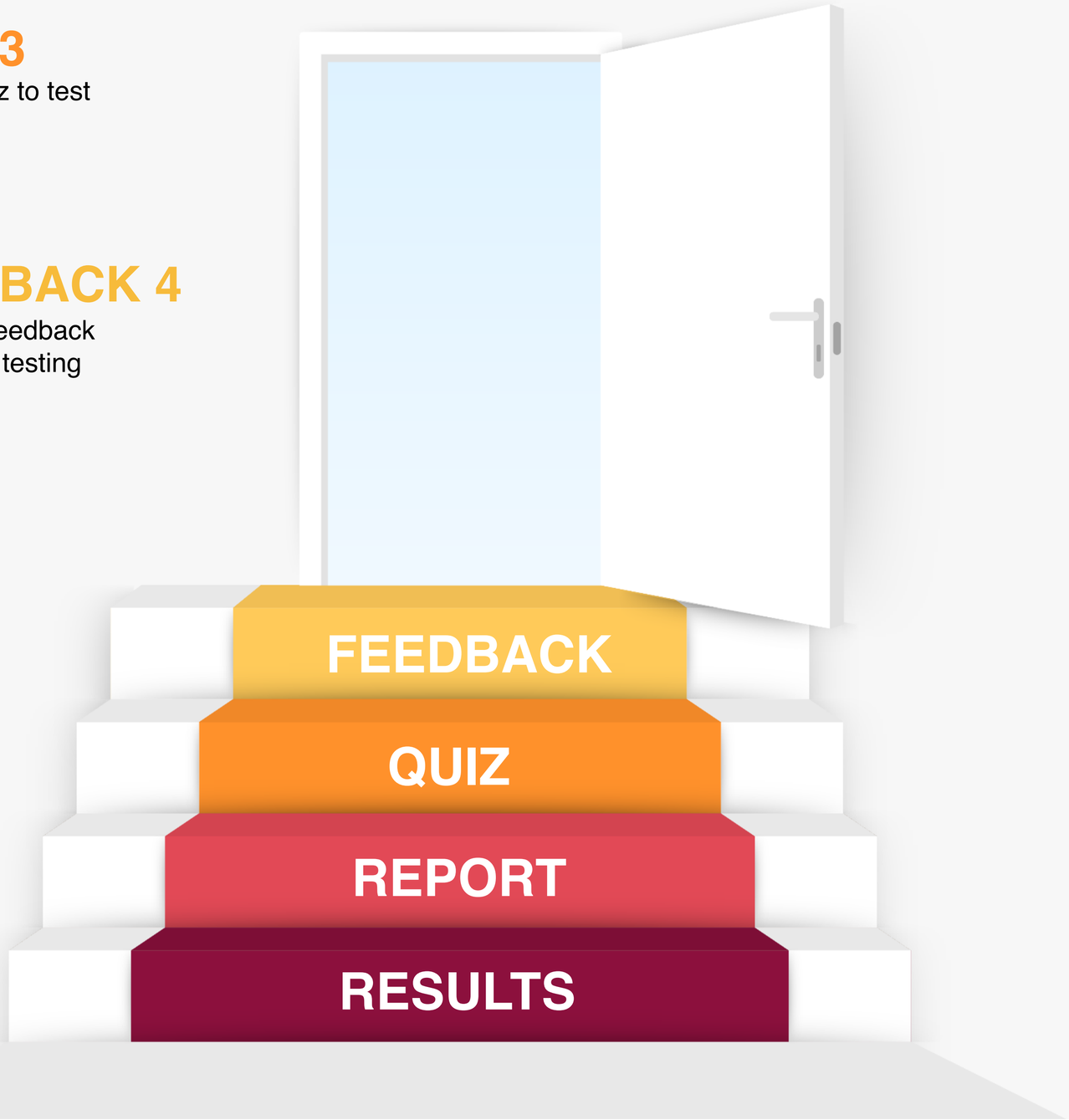
ASSESSMENT

1 RESULTS
Students observe the results of experiments

QUIZ 3
Answer quiz to test retention

2 REPORT
Prepare report of observation and practical application

FEEDBACK 4
Providing feedback throughout testing



TEAM

Work as a team

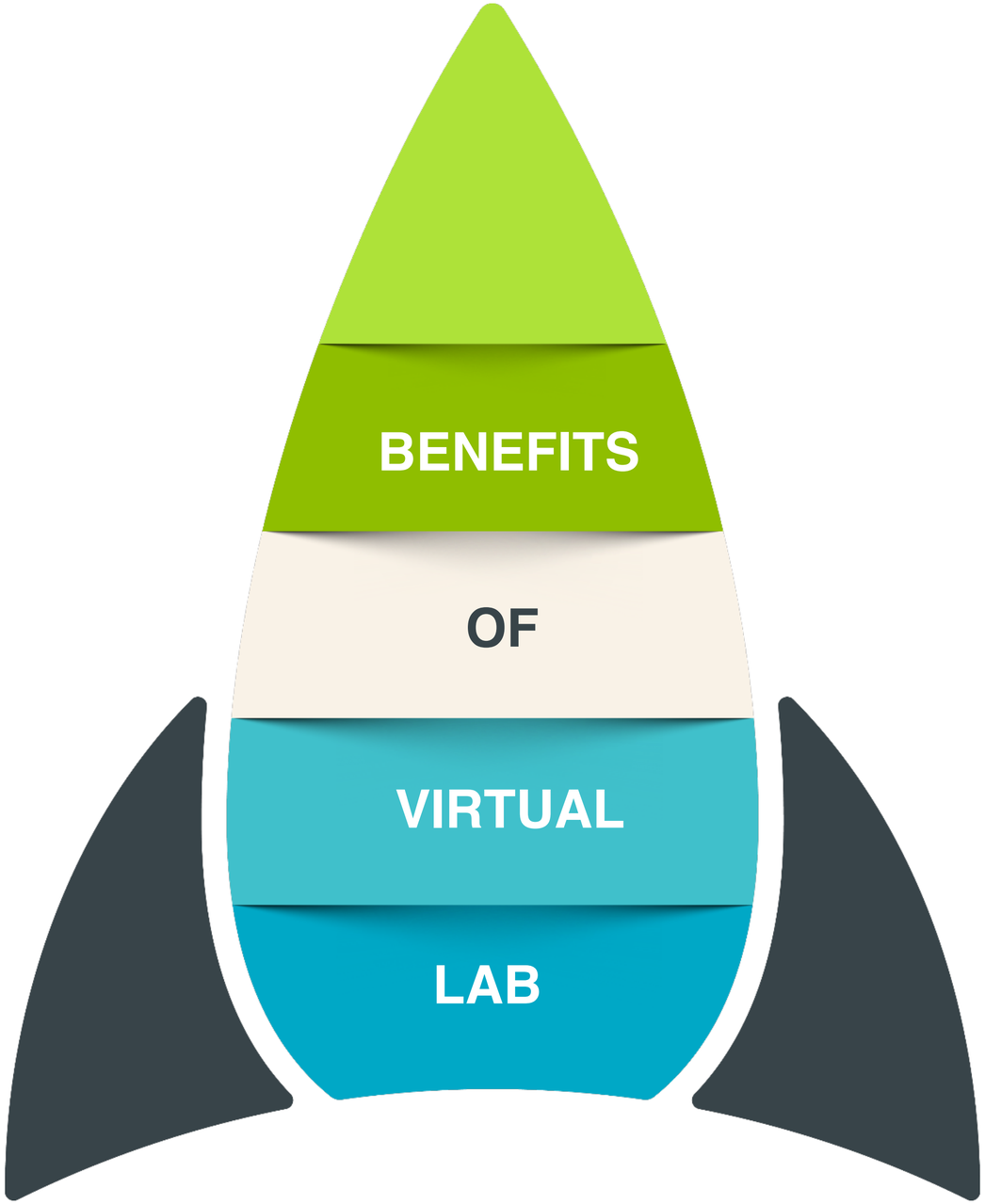
Follow instructions accurately

PROFESSIONALISM

Well designed experiment will bind the curriculum and make invaluable contribution to the future engineer's professionalism

GAIN EXPERIENCES

fundamental phenomena and techniques, engineering modelling and organisational capability



COMPETENCIES

Students see themselves as becoming competent in dealing with practical problems

COLLABORATION

Collaboration can also be done virtually using Pages