

BJC GENERAL SCIENCE TUTORIALS

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Suggested General Science texts;

**New Integrated Science for The Caribbean
Book 1 – (Longman Publication)**

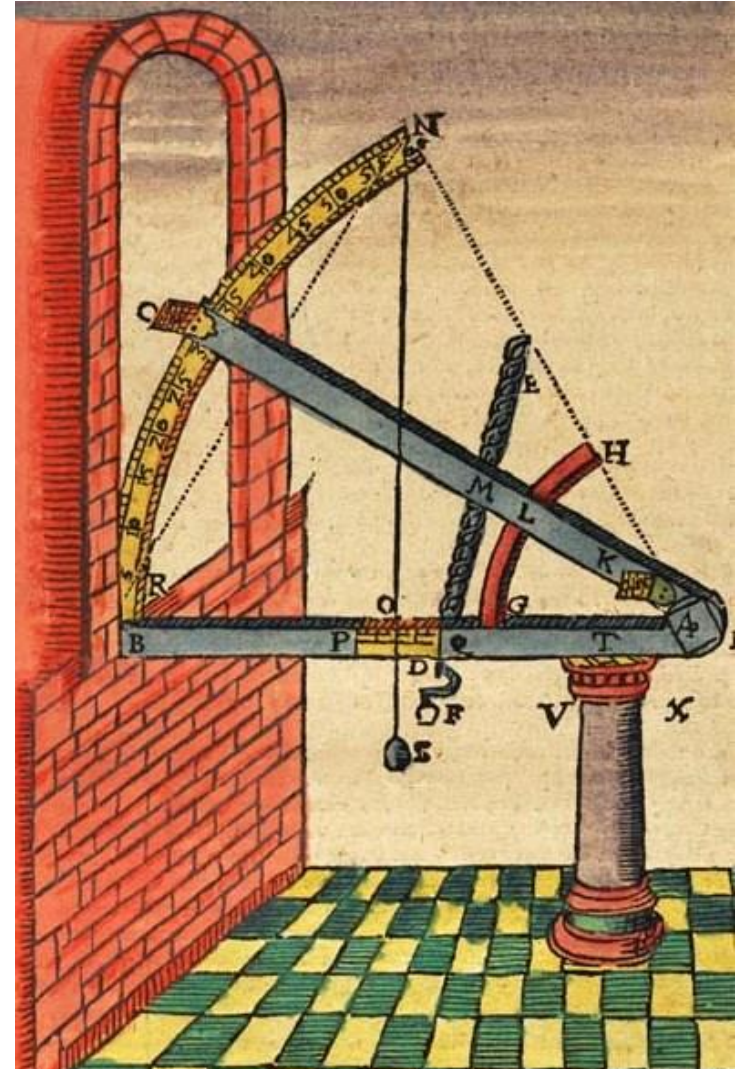
**New Integrated Science for The Caribbean
Book 2 – (Longman Publication)**

**New Integrated Science for The Caribbean
Book 3 – (Longman Publication)**



Science & Me

- What is Science ?
- Branches of Science
- Who are Scientists?
- Scientists in the Caribbean
- Science and Technology Relationship



What is Science?

- (1) Science is the field of study concerned with discovering and describing the world around us by observing and experimenting.
- (2) Science helps us to know about things in nature
- (3) Science is a special way of doing things.
- (4) Science is a special way of obtaining information.
- (5) Science involves using certain skills and knowledge for solving problems.

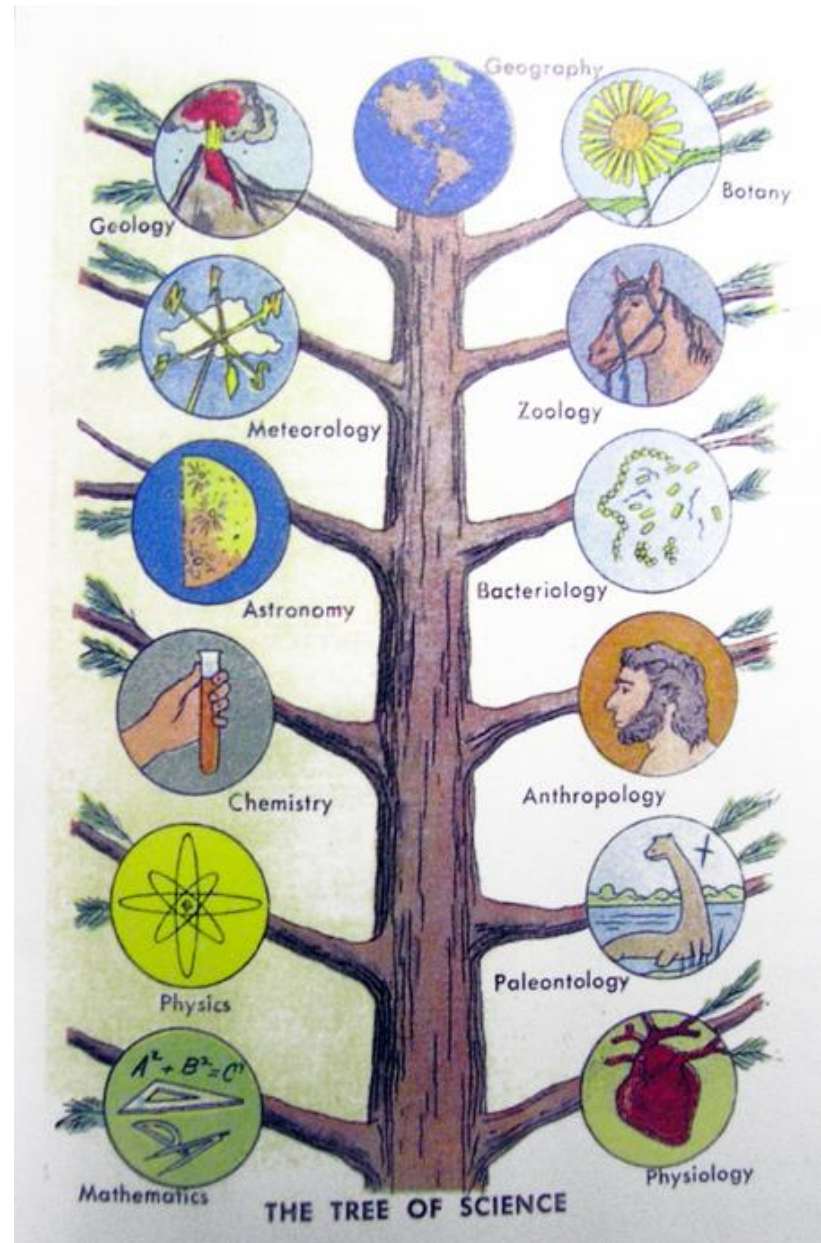
Branches of Science

- **The Physical Sciences**

1) Physics (The study of matter and energy and the interactions between them)

2) Chemistry (The science that deals with the composition, properties, reactions of matter.)

3) Astronomy (The study of the universe beyond the Earth's atmosphere.)



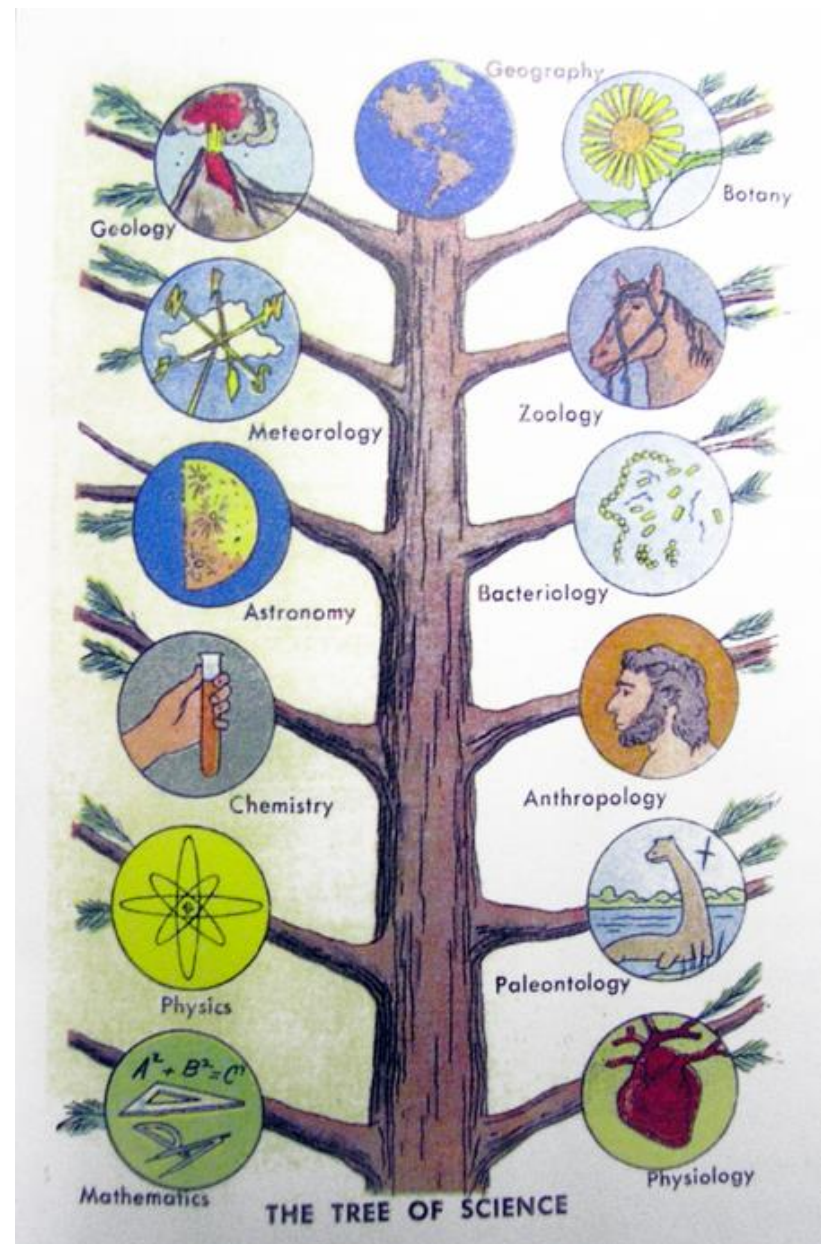
Branches of Science

■The Earth Sciences

- 1) **Geology** (The science of the origin, history, and structure of the Earth)
- 2) **Oceanography** (The exploration and study of the ocean.)
- 3) **Paleontology** (The science of the forms of life that existed in prehistoric or geologic periods.)

■The Life sciences

- 1) **Biology** (The study of life)
- 2) **Botany** (The study of Plants)
- 3) **Zoology** (The study of Animals)



Who are Scientists?

- **Scientists identify problems using processes such as observation and classification.**
- **They follow a scientific method using special tools of apparatus to carry out their investigation.**
- **Scientists are curious people who ask questions like**

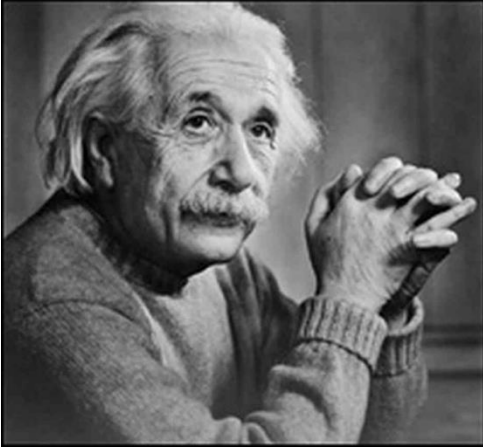
What is this?

What made it happen?

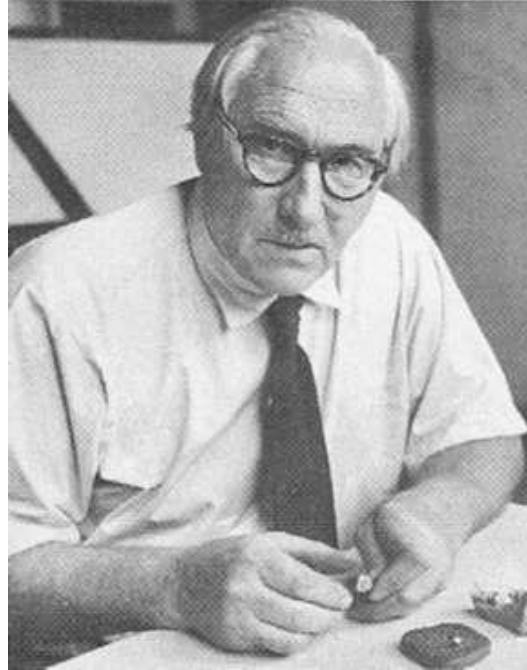
- **Other characteristics of scientists**

They are strong at communication, skepticism, truth and order.

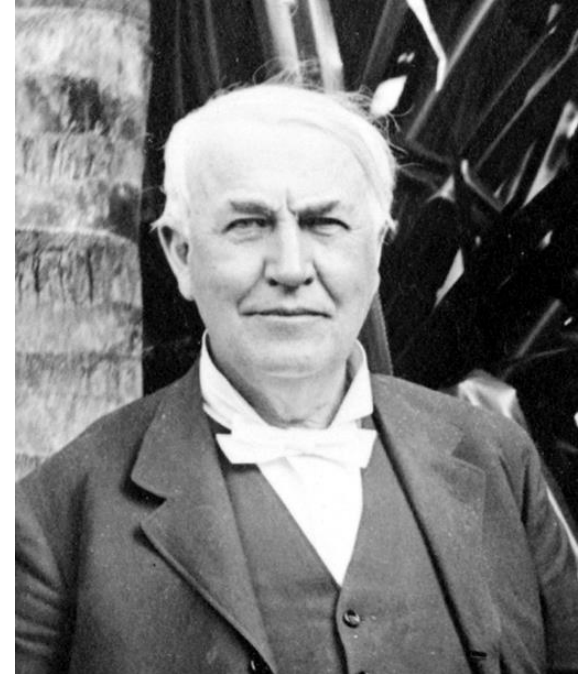
International Scientists



Albert Einstein



Dr. Louis Leakey



Thomas Edison

Caribbean Scientists



Dr. Thomas P. Leaky
of Jamaica



Dr. Avril Siung-Chang
of Trinidad & Tobago

Science And Technology



What we will Cover in This Lesson?

- Scientific Methods
- Safety Symbols

Skills that Scientists Use

- Observing
- Measuring
- Sorting things into groups (classifying)
- Communicating
- Making hypotheses



Skills that Scientists Use

- Inferring
- Collecting data
- Interpreting data
- Manipulating variables
- Experimenting



Scientific Methods

- It is a simple method scientists use to conduct an investigation.
- It is a way to ask & answer scientific questions & conducting experiments.



Scientific Methods(cont...)

I. Question/Problem

- Ask a question about something observed.
 - Why?
 - How?
 - What?
- Question to be solved.
- Must be about something measurable.



Scientific Methods(cont...)

II. Hypothesis

- Educated guess about how things work.
- Prediction
- Use If, then statements
 - If _____ [*I do this*], then _____ [*this will happen*]
- Focus on one variable only.



**Predict the
answer
(hypothesize)**

Scientific Methods(cont...)

III. Experiment

- Tests your hypothesis.
- Is it accepted (right) or rejected (wrong) ?
- Change only one variable at a time.
- Use a control or control group
(*A group that has nothing done to it.
Standard used for comparison in an experiment.*)
- In order for results to be valid,
conduct several tests.
- Also collect data from experiments
for further use.



Scientific Methods(cont...)

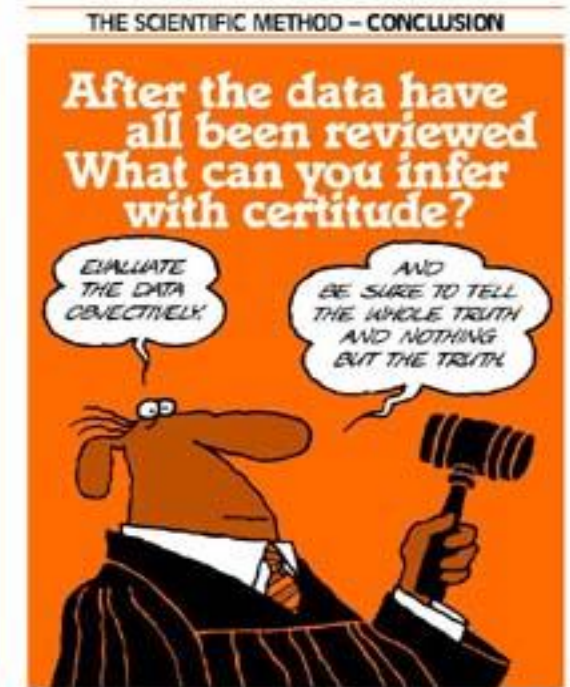
IV. Data Analysis

- Reduce the data
 - Average (Mean)
- Graph
 - Graph the data to look for trends & relationships.

Scientific Methods(cont...)

V. Conclusion

- Summary of your experiment.
- After your experiment, analyze your data to see if your hypothesis was accepted or rejected.
- If hypothesis is rejected, give possible reasons for the difference between your hypothesis and the experimental results.



Experiment

Format Of The Experiment

- ☐ Date
- ☐ Title
- ☐ List of Apparatus
- ☐ Method
- ☐ Observation/Results
- ☐ Conclusion



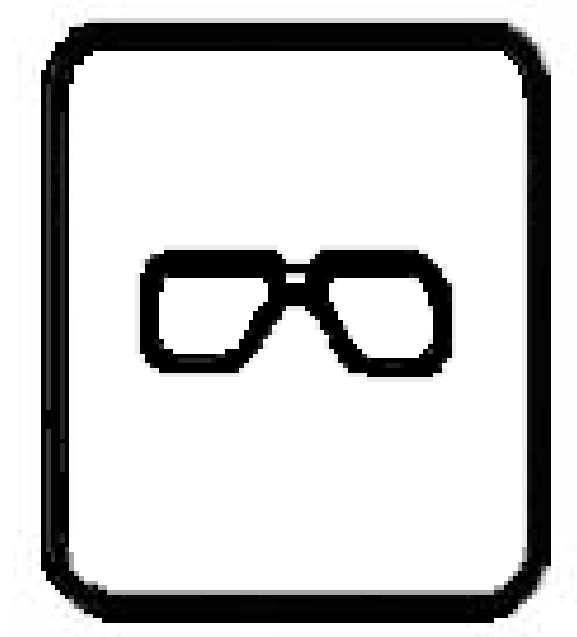
Concerns & Issues in the Science Lab

- **General hazard warning**
 - When you see this symbol, triple check for safety issues



Goggle Use

- Wear goggles when using:
 - Chemicals
 - Sharp objects
 - Fire
- NON-NEGOTIABLE
- It's a LAW!



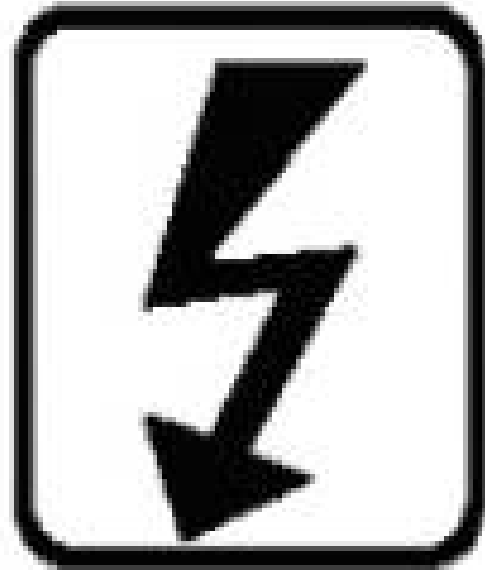
Fire or Flammable

- Fire hazard
 - Use goggles
 - Tie back long hair
 - Tie back loose clothing



Electrical

- Electrical Hazard
 - Watch for water
 - Be aware of cords



Poison

- Poison Hazard
 - Wear goggles
 - Read label
 - Keep away from mouth



Corrosive

- Corrosive Hazard
 - Wear goggles
 - Read labels
 - Wear apron
 - Keep off skin

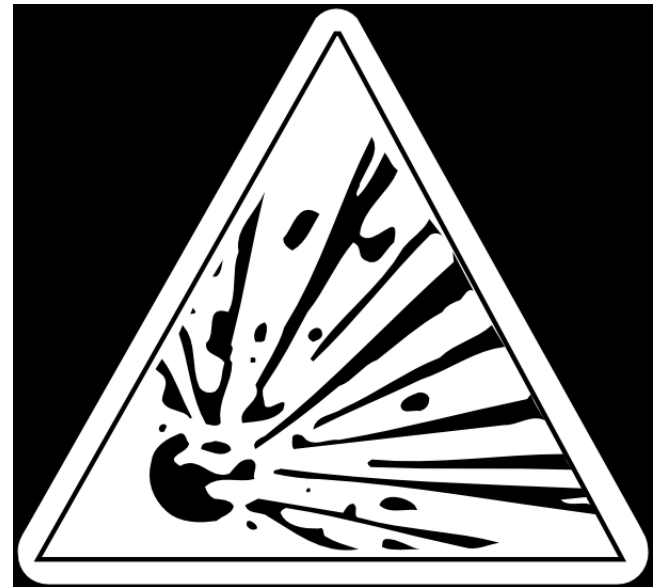


Explosive

- Explosive

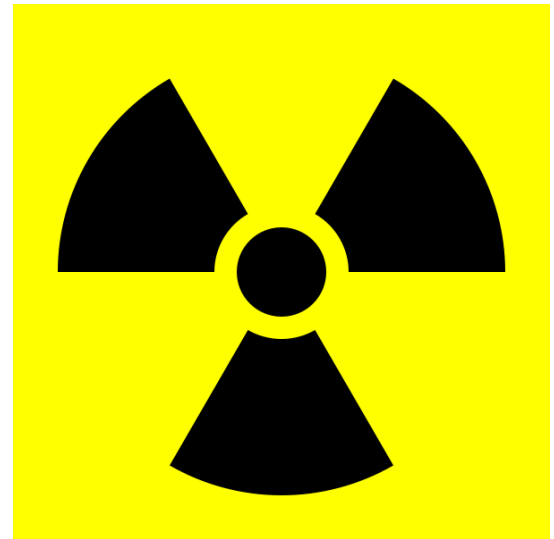
This symbol tells us that the substance can;

- explode or
- shatter



Radioactive

- A radioactive substance must be handled carefully since it can cause cancer or burns.



What do you think these symbols mean?



Safety Rules

Basic safety rules

- Do not enter the lab unless there is a qualified supervisor present.
- Always walk in the lab. Do not run or play around.
- Keep coats, bags and other belongings tidied away.
- Tie back long hair. Keep your hair well away from flames and hot objects.
- Nails should be neatly trimmed, and jewellery kept to the minimum – earrings should be small and not dangling.
- The teacher, laboratory attendant and laboratory technicians are responsible for the equipment in the lab. Do not touch any piece of equipment, unless instructed to do so by one of these adults. Sometimes a senior student may be given the responsibility of guiding you and your classmates through an experiment. Obey all instructions given.
- Do not interfere with fittings such as gas taps and electrical sockets. Seek adult help if something goes wrong with any of these things.
- Do not touch electrical sockets or switches with wet hands. Never allow any electrical appliance to come into contact with water, unless it is designed to do so. You might get a shock.
- Do not open gas taps before you are ready to light the gas. A build-up of gas in the immediate area can lead to an explosion, and you can be seriously hurt.

Quiz

(taken from the BJC General Science Past Paper)

3. Which symbol would be placed on a bottle containing a poisonous substance?



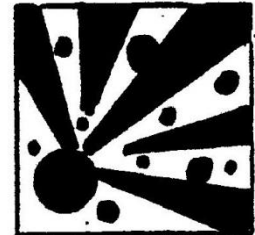
A



B



C



D

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