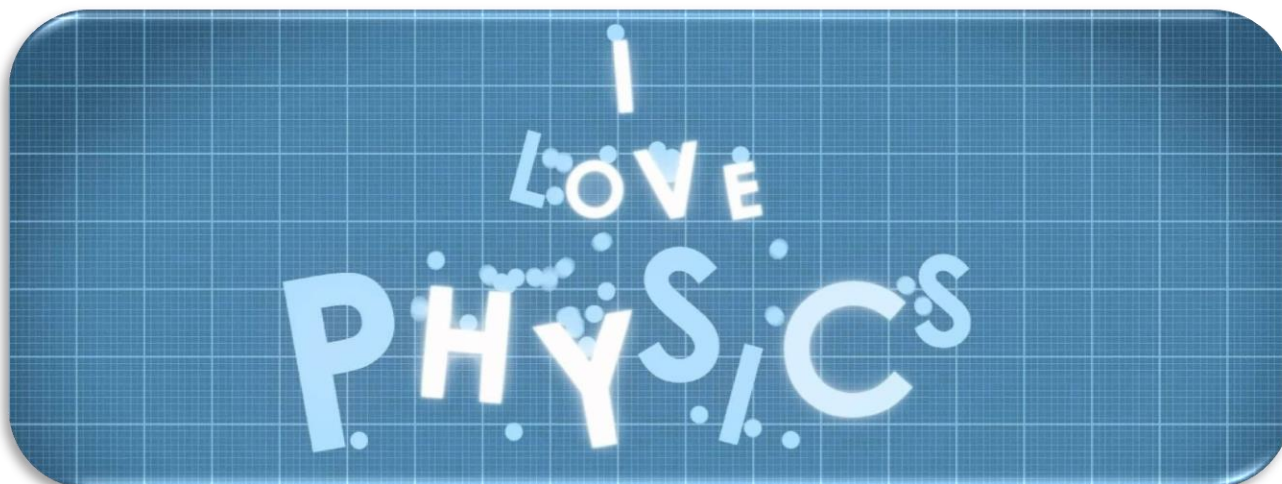


PHYSICS



Physics is a branch of science that deals with the study of matter and its relation to energy.

Physics involves the study of physical and natural phenomena around us.

Examples of these phenomena include;

- ✓ Formation of a rainbow.
- ✓ Cause of sunset and sunrise.
- ✓ Occurrence of an eclipse.
- ✓ Why a dog can detect a tiptoeing thief.
- ✓ ETC.

Definitions:

❖ **Matter:**

Matter is anything that occupies space and has weight.

❖ **Energy:**

Energy is the ability of a body to do work.

NOTE:

✂ People who study Physics are known as Physicists.

BRANCHES OF PHYSICS

Physics is divided into seven different branches namely;

BRANCH	WHAT IT DEALS WITH
<i>Mechanics</i>	It deals with the motion of bodies under the influence of forces.
<i>Light (Optics)</i>	It deals with the nature of light and its behaviour in various media.
<i>Electricity</i>	It deals with the production of electricity, its transmission and applications.
<i>Waves</i>	It deals with the transfer of energy from one place to another without movement of the medium itself.
<i>Magnetism</i>	It deals with the properties of magnets, their production and applications.
<i>Heat</i>	It looks at how heat as a form of energy is transformed to or from other forms of energy.
<i>Modern Physics</i>	It deals with the recent developments in Physics and their applications.

Why do we study Physics?

- ☑ To be able to understand why certain things behave the way they do e.g. why the sky appears blue, which a swimmer draws his hands backwards while swimming, etc.
- ☑ To understand scientific theories, principles, concepts and discoveries.
- ☑ To discover new things that have not been discovered.
- ☑ To get jobs in future e.g. pilots, teachers, engineers, etc.
- ☑ To help students develop skills of measuring, observing and drawing conclusions through scientific experiments.
- ☑ To prepare students to pass physics examinations.
- ☑ To prepare students for further studies since it is a foundational subject for most of the science subjects

Career (Jobs) opportunities that need Physics:

- Engineering e.g. civil engineer, mechanical, agricultural and software engineers.
- Education e.g. Physics teachers like Mr. Ssekwe.
- Computing e.g. computer designers, robot makers.
- Medicine e.g. Pharmacists, radiographers, etc.
- Astronomy.
- Geologists.

THE PHYSICS LABORATORY



A **physics laboratory** is a room where scientific experiments and practical work is carried out. It contains many pieces of materials and apparatus for different scientific activities.

BASIC LABORATORY RULES AND REGULATIONS

- Strictly follow instructions as given by the teacher.
- Do not eat, drink or smoke while in a laboratory.
- Inform your teacher in case you get an accident.
- Do not run, play or throw things while in a laboratory.
- All apparatus must be cleaned and returned to their correct locations after use.
- Laboratory equipment or apparatus must not be taken out of the laboratory.
- Do not plug any foreign objects into electrical sockets.
- Ensure that electrical switches, water and gas taps are switched off when not in use.

NOTE:

- ✂ A good laboratory should have a fire extinguisher and first aid kits.

TERMS USED IN PHYSICS:**a) Hypothesis:**

This is a scientific idea put forward and is still in the stage of experimental investigation.
If the hypothesis is proved correct and accepted, it becomes a scientific principle or law.

b) Scientific law or Principle:

This is a generalised statement of observed facts.

c) Scientific theory:

This is a scientific idea put forward to explain the existence of a scientific law or principle.

THE SCIENTIFIC METHOD

The scientific method is a process by that is used to explore observations and answer questions.

Physics relies on making observations and carrying out experiments.

In science, we observe, raise questions, experiment and make conclusions and discoveries.

How to observe in a physics laboratory

When we observe in science, we normally use four of our senses to notice things i.e.

- We look at things when we use our sense of sight.
- We feel things when we use our sense of touch.
- We listen to things when we use our sense of hearing.
- We smell things when we use our sense of smell.

We don't usually use the sense of taste because it may be dangerous in some cases.

STEPS TAKEN IN THE SCIENTIFIC METHOD**1. Observation:**

Make an observation.

For example: A torch does not light.

2. Question:

Ask a question.

For example: Why doesn't the torch light?

3. Theory:

Form a theory, or an explanation that you can test.

For example: May be the torch doesn't light because the bulb is blown.

4. Prediction:

Predict what will happen based on your theory.

For example: A new bulb will make the torch light.

5. Experiment:

Test the prediction by experimenting.

For example: Remove the top and replace the bulb with a new one.

6. Conclusion:

Use the results to conclude or make new theories.

For example: The torch did not light because it had a blown bulb, or failure to light is not due to the blown bulb.

In the second case, look for another theory to answer your question and test it. Repeat until you get the correct theory.