



Dr. Bbosa Science

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## S1 New Curriculum Physics

### Theme: Introduction

### Chapter 1 – Introduction to physics

#### Meaning of physics

Physics is the study of matter in relation to energy.

#### Fi. 1: Examples of home appliances that use physics principles



**Trial:** Identify the uses of each appliance in Fig. 1

#### Branches of physics

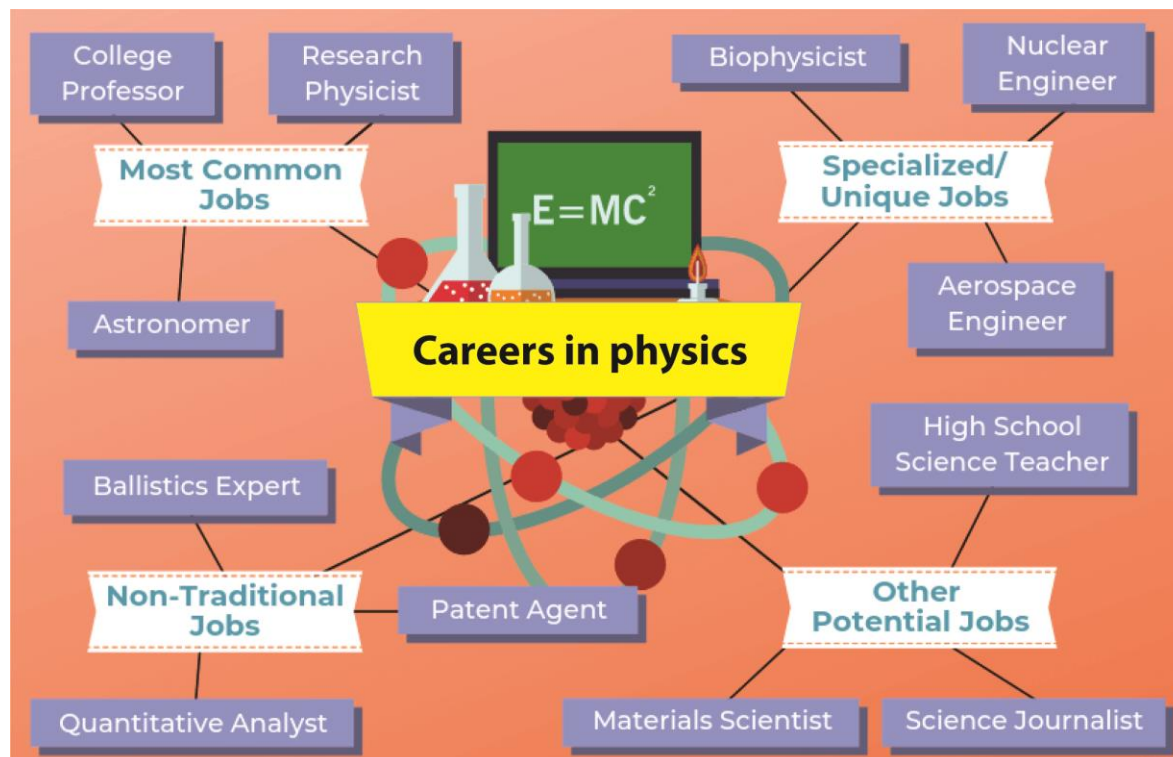
- (i) **Mechanics and properties of matter:** deals in the study of bodies in motion (dynamics) and those at rest (static). Mechanics provides the necessary knowledge on the properties of matter required in designing cars, machines, bridges, and others.
- (ii) **Light:** studies the form of energy that enables us to see. It also helps to design gadgets that improve vision such as telescope, microscopes, lenses, mirrors and others.

- (iii) **Electricity:** deals with the study of charges at rest (electrostatics) and charges in motion (electricity) it deals with generation, measurement, transmission, distribution and use of electricity.
- (iv) **Magnetism:** studies the properties of materials attracted or repelled by others. Magnets are used in loud speakers, generators, microphones among others.
- (v) **Heat and thermodynamics:** deals with how energy is transferred between two points owing to temperature differences between. Heat energy is vital in cooking.
- (vi) **Modern physics:** deals with the study of the underlying processes of interaction of matter, utilizing the tools of science and engineering. It enables us understanding of X-rays, cathodes rays and operation of nuclear reactors.
- (vii) **Waves:** deals with sound and light waves.
- (viii) **Earth and space physics:** deals with the study of the solar system, stars, moon, galaxies, satellites and communication systems.

### Careers in physics

Physics offers a wide range of career opportunities across various industries. Fig.2. gives some of the careers in physics.

**Fig. 2: A chart of careers in physics**



**Trial 2:** Explain the role of any five careers of physics from the chart above

## Definitions

**Physics laboratory** is a room where physics practical and demonstrations are carried out.



**Trial 3:** List any 10 components of a physics laboratory.

**Physics apparatus** are tools used during experiments, examples are shown in fi. 3 below

Fi. 2 : Examples of common apparatus in physic laboratory



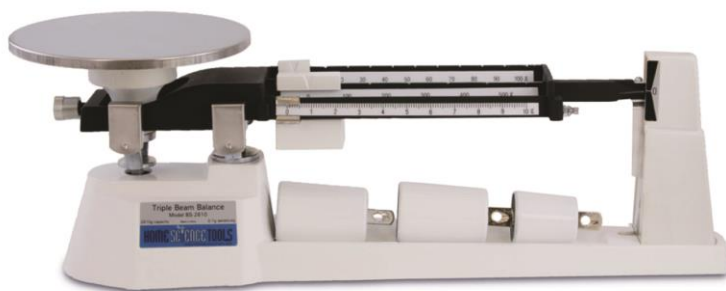
(a)



(c)



(d)



(b)



(e)

**Trial 4:** Identify, the uses of the apparatus shown in fig. 3.

**Experiments** are investigations that prove some statements, laws and physics principles are either true or false.

**Trial 5:** List any 5 activities done during physics practical

## Physics laboratory rules and their purposes

Laboratory rules/precautions in a physics lab exist for **safety, accuracy, and efficiency**. They help prevent accidents, protect individuals, and ensure experiments yield reliable results.

Some of the physics laboratory rules and the dangers avoided

Rule/precautions	Dangers avoided
1. Do not run or move unnecessarily in the laboratory	To avoid causing accidents such as damage to specimen and apparatus or injuring fellow students
2. Do not eat or drink from the laboratory	Prevents contamination and accidental ingestion of harmful substances.
3. Follow teacher's instructions	Ensures proper handling of equipment and reduces the risk of accidents.
4. <b>Report Accidents Immediately</b>	Ensures prompt medical attention and safety measures
5. Do not perform experiments unless you have been told to do so by your teachers	Avoids dangerous practical and fires.
6. Always wear lab coats, safety goggles, gloves, and closed shoes.	Prevents chemical spills, splashes, and exposure to hazardous substances that can cause burns or eye damage.
7. Handle glassware, burners, and electrical devices with care.	Prevents fires, burns, and breakage that could lead to accidents.
8. Follow specific disposal instructions for chemicals and broken glassware.	Reduces environmental pollution and prevents injuries from sharp
9. Know the location of fire extinguishers, first aid kits, and emergency exits.	Allows quick response to accidents, minimizing harm.

## Personalities of physics researchers

Physics researchers often share key personality traits that help them excel in their field. According to studies, physicists tend to be **inquisitive, analytical, and creative**. They are naturally **investigative**, meaning they enjoy solving complex problems and exploring theoretical concepts. Many also exhibit **artistic traits**, allowing them to think outside the box and develop innovative solutions.

Some of the most famous physicists, like **Albert Einstein, Marie Curie, and Stephen Hawking**, were known for their **intellectual curiosity, persistence, and ability to challenge conventional thinking**. Their groundbreaking discoveries shaped our understanding of the universe.

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