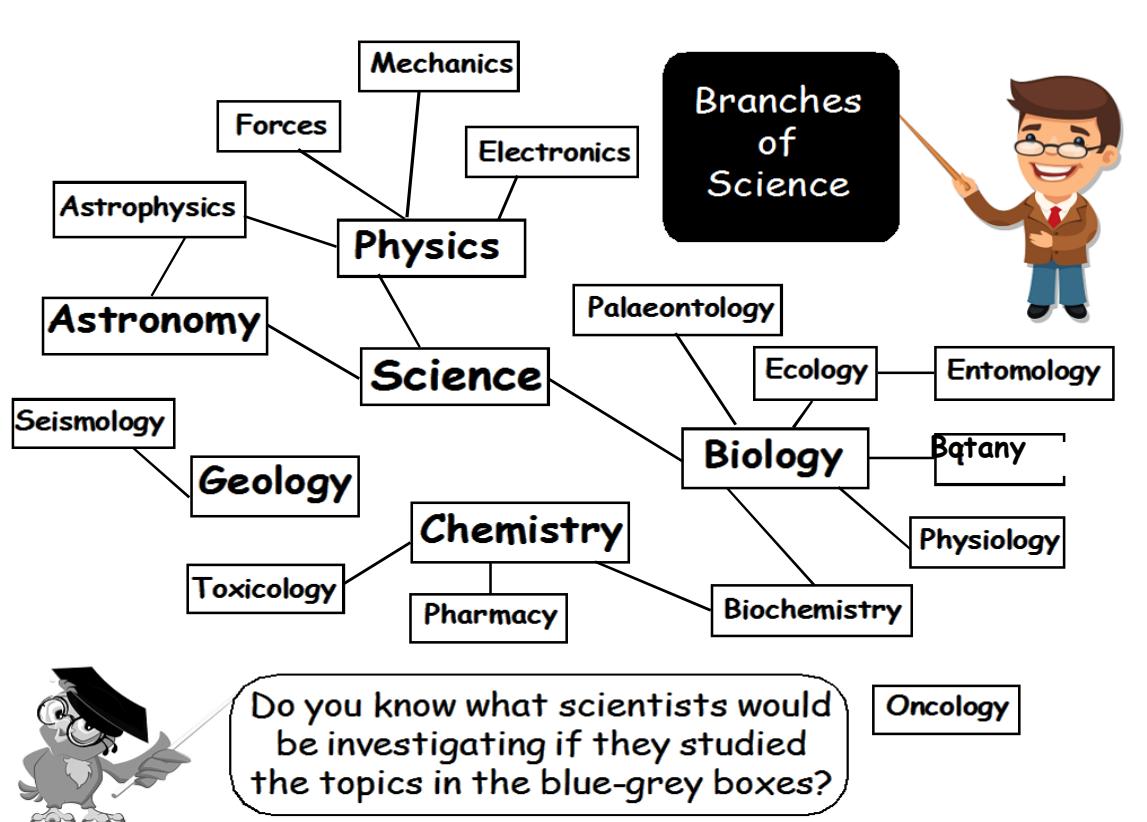


# FUNNDAMENTALS OF PHYSICS

Isaac Newton was a physicist and mathematician who developed the principles of modern physics, including the laws of motion, and is credited as one of the great minds of the 17th century Scientific Revolution. In 1687, he published his most acclaimed work, *Philosophiae Naturalis Principia Mathematica* (Mathematical Principles of Natural Philosophy), which has been called the single most influential book on physics. In 1705, he was knighted by Queen Anne of England, making him Sir Isaac Newton.



## CONCEPT MAP



### CONCEPT 1.1

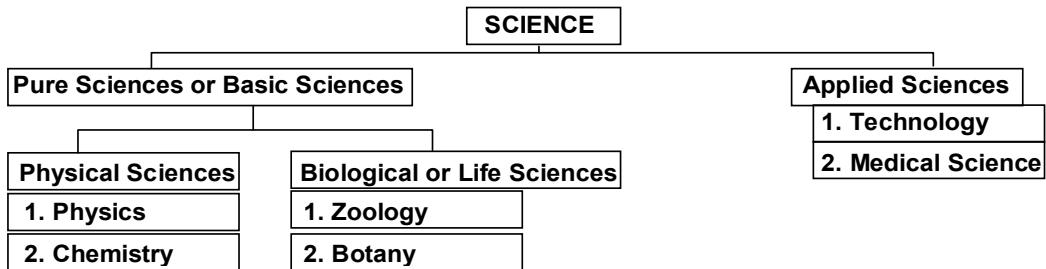
#### Introduction:

1. From the minute we rise in the morning till we go to bed and asleep, a large number of gadgets are working for us.
2. The bed we sleep on, the alarm clock that tries to wake us up, the glass containing water, the book that we were trying to read before falling asleep, have all been made by man.
3. Some objects like rocks, fruits or flowers occur naturally. Many other objects like plastics or bricks are man-made.
4. These objects and materials have made our life more comfortable and enjoyable.
5. They have also increased our ability to develop other useful materials and fabricate more useful gadgets.
6. All this knowledge and skill has been accumulated over the past thousands of years.
7. Let us look at a few gadgets of the growth of science and technology over the age.



8. Science is a collection of systematic and organised knowledge about the various things around us obtained through observations and experiments.

### Branches of Science:



### Pure Sciences or Basic Sciences:

Sciences related to matter, or the non-living objects are termed as Physical Sciences and the sciences related to the living objects is termed as Life Sciences. Thus, pure science is further divided into three branches:

1. Physics
2. Chemistry
3. Life Sciences

### Applied Sciences:

It is animal nature to make use of materials found in nature. For example, the birds use natural materials to make their nests. Similarly, man has brain and skill. He used it initially for making tools from sharp or pointed stones and used them in hunting for food and from here started the applied science. Applied science has two branches:

1. **Technology:** It is mechanical application for developing machines and generating energy.
2. **Medical Science:** The medical science is used for developing medicines and for the treatment of human beings and animals to keep them in good health.

### Scope of Science:

You might have known from your grandparents about their lives during olden days. They would have told you about the type of houses and the mode of travelling and communications prevailing in the olden days. You will know that since then things around us have changed a lot. Things which we are using in our daily life such as stainless steel, plastic, fibre glass, television and jet aeroplanes were not known to them. Our way of life has considerably improved such as the quality of clothes, medicines, mode of communications and entertainment.

Have you ever thought how these improvements have come about? In fact, science helps us in bringing new things and knowledge about happenings around us. Today, the scientists all over the world through their hard work and systematic approach have solved many problems. In fact, scientific thinking helps us invent new devices which are useful in our daily life.



## CLASSROOM DISCUSSION QUESTIONS

CDQ  
1.1

- What is the primary focus of Pure Sciences or Basic Sciences?
  - (A) Matter and non-living objects
  - (B) Living objects
  - (C) Weather patterns
  - (D) Historical events
- Which branch of science deals with the mechanical application for developing machines and generating energy?
  - (A) Physics
  - (B) Chemistry
  - (C) Technology
  - (D) Life Sciences
- How is science defined in the text?
  - (A) A random collection of facts
  - (B) A systematic and organized knowledge obtained through observations and experiments
  - (C) An ancient belief system
  - (D) A form of art
- Which branch of science is primarily concerned with the study of matter and its properties?
  - (A) Physics
  - (B) Chemistry
  - (C) Life Sciences
  - (D) Astronomy
- What distinguishes Physical Sciences from Life Sciences?
  - (A) Physical Sciences focus on non-living objects, while Life Sciences focus on living organisms
  - (B) Physical Sciences focus on living organisms, while Life Sciences focus on non-living objects
  - (C) Physical Sciences focus on both living and non-living objects equally
  - (D) Physical Sciences focus solely on the study of energy
- According to the text, what has science helped improve in our daily lives?
  - (A) Quality of food
  - (B) Quality of clothes
  - (C) Quality of music
  - (D) Quality of transportation
- Which branch of science focuses on the study of medicines and the treatment of living organisms?
  - (A) Chemistry
  - (B) Physics
  - (C) Technology
  - (D) Medical Science
- What is the primary focus of Technology, as described in the text?
  - (A) Developing medicines
  - (B) Generating energy
  - (C) Studying matter and its properties
  - (D) Exploring outer space
- How does the text describe the evolution of science and technology over time?
  - (A) As a linear progression with no setbacks
  - (B) As a haphazard development
  - (C) As a result of systematic thinking and hard work of scientists
  - (D) As a purely accidental discovery process
- According to the text, what role does scientific thinking play in everyday life?
  - (A) It complicates simple tasks
  - (B) It hinders progress
  - (C) It helps invent new devices useful in daily life
  - (D) It is irrelevant to daily activities

MARK YOUR ANSWERS WITH PEN ONLY. Time Taken in Minutes

1	(A) <input type="radio"/>	(B) <input type="radio"/>	(C) <input type="radio"/>	(D) <input type="radio"/>	2	(A) <input type="radio"/>	(B) <input type="radio"/>	(C) <input type="radio"/>	(D) <input type="radio"/>	3	(A) <input type="radio"/>	(B) <input type="radio"/>	(C) <input type="radio"/>	(D) <input type="radio"/>	4	(A) <input type="radio"/>	(B) <input type="radio"/>	(C) <input type="radio"/>	(D) <input type="radio"/>	5	(A) <input type="radio"/>	(B) <input type="radio"/>	(C) <input type="radio"/>	(D) <input type="radio"/>
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## CONCEPT 1.2

## Physics and Its Scope:

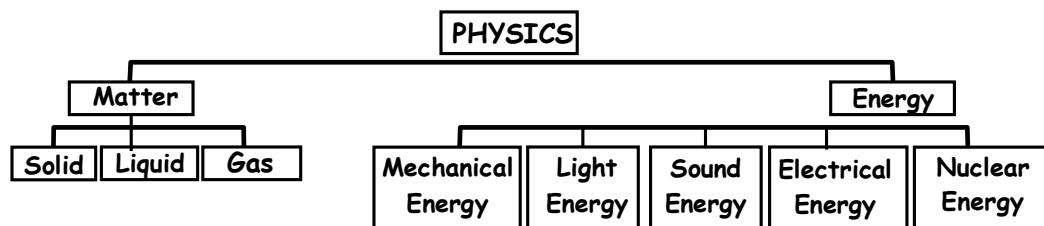
1. The word physics is taken from Greek word “Physikos” which means natural.
2. It is the science of nature in broader sense.
3. Physicists study the behaviour and interactions of matter and force.
4. The laws of physics are generally expressed as mathematical relations.
5. The branch of physics can be defined as “Physics is a branch of science which deals with the study of matter and energy.”
6. Physics is the study of matter — the substance from which our whole Universe is made — and how it relates to the forms of energy in nature. Therefore, we must know about matter and energy.

## Matter:

Matter is that which occupies space and possesses mass. For example, book, glass, chair and table etc.

## Energy:

Energy cannot be seen. It could be felt only. For example, electricity, light, sound and heat etc. Energy can be defined as ‘Capacity of doing work’.



## Branches Physics:

1. Physics emerged as a separate science only in the early 19th century; until that time the physicist was often also a mathematician, philosopher, chemist, biologist, engineer, or even an artist.

Today the field has grown to such an extent that for its systematic study the subject is subdivided into various branches - (i) Mechanics, (ii) Heat and Thermodynamics, (iii) Light, (iv) Sound, (v) Electricity, (vi) Magnetism, (vii) Modern Physics and Electronics.

There are few other branches of physics, such as - meteorology, astronomy, geophysics, biophysics etc.

## PHYSICS IN DAILY LIFE:

The advancement in physics has enabled us to improve our lifestyle. Applications of physics has an impact on almost every aspect of our daily lives.

**Discoveries in the field of physics have affected our everyday life by the invention of thousands of machines.**

From the moment we wake up in the morning till long after we have gone to bed at night, it is quite difficult to put them in a list. However, some very common applications are given below:

- Health and medicine:** X-rays, sonography, CT scan, MRI etc. are used to diagnose diseases. Stethoscope, thermometer, E.C.G. machine etc. are also used by doctors.
- Transport:** Cars, buses, trains, aeroplanes etc. made the world smaller by reducing travelling time.
- Communications:** Telephones, telegraphs, internet, mobile telephones, satellites etc. made communications faster and better.
- Household appliances and gadgets:** Electric bulbs, tubes, fans, refrigerator, washing machine, geyser, heaters, etc. have made our life comfortable.
- Energy production:** Electrical energy is one of the most important development in our modern life.

The solar energy, wind energy, tidal energy, atomic energy etc. are now replacing the conventional sources of energy.

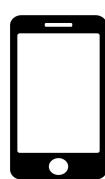
- Dress materials:** Different types of fashionable and comfortable dresses are produced by the machines developed by physicists and engineers.
- Entertainment:** Physics has gone a long way in the field of entertainment. Cinematography, radio, TV, video games, music systems, VCDs, etc. are the main source of entertainment.
- Scientific research:** Telescope, microscope, and other instruments based on principles of physics are utilized for research in different branches of science.



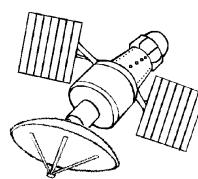
Microscope



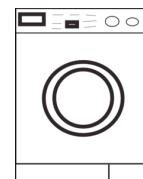
Telescope



Mobile Phone



Satellite



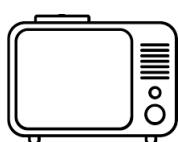
Washing machine



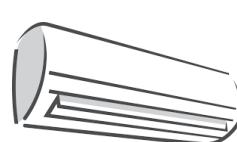
Camera



Music System



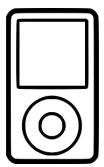
Television



Air Conditioner



Computer



MP3 Player



## CLASSROOM DISCUSSION QUESTIONS

CDQ  
1.2

1. **What is the etymological origin of the word "physics"?**
  - (A) Latin
  - (B) French
  - (C) Greek
  - (D) English
2. **How is physics defined in the text?**
  - (A) The study of living organisms
  - (B) The study of nature in a broad sense
  - (C) The study of chemical reactions
  - (D) The study of historical events
3. **What do physicists primarily study?**
  - (A) Living organisms
  - (B) Matter and force interactions
  - (C) Historical events
  - (D) Abstract concepts
4. **How are the laws of physics often expressed?**
  - (A) Descriptively
  - (B) Narratively
  - (C) Mathematically
  - (D) Symbolically
5. **Which statement best defines physics?**
  - (A) The study of living organisms and their environments
  - (B) The study of matter and energy
  - (C) The study of historical events
  - (D) The study of language
6. **What is matter defined as in the text?**
  - (A) That which occupies space and possesses mass
  - (B) That which emits light and sound
  - (C) That which is intangible
  - (D) That which is invisible
7. **Which branch of physics focuses on the study of light?**
  - (A) Mechanics
  - (B) Thermodynamics
  - (C) Optics
  - (D) Magnetism
8. **What impact has the advancement in physics had on health and medicine?**
  - (A) Faster transportation
  - (B) Improved communication
  - (C) Better diagnosis of diseases
  - (D) Enhanced entertainment
9. **What role does physics play in energy production, according to the text?**
  - (A) It has no role in energy production
  - (B) It has increased the use of conventional energy sources
  - (C) It has led to the development of alternative energy sources
  - (D) It has decreased the overall energy consumption
10. **How has physics contributed to entertainment?**
  - (A) By creating new forms of communication
  - (B) By improving transportation
  - (C) By developing new instruments for scientific research
  - (D) By providing technologies for cinema, radio, TV, and music systems

MARK YOUR ANSWERS WITH PEN ONLY. Time Taken in Minutes 

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6	(A) <input type="radio"/>	(B) <input type="radio"/>	(C) <input type="radio"/>	(D) <input type="radio"/>	7	(A) <input type="radio"/>	(B) <input type="radio"/>	(C) <input type="radio"/>	(D) <input type="radio"/>	8	(A) <input type="radio"/>	(B) <input type="radio"/>	(C) <input type="radio"/>	(D) <input type="radio"/>	9	(A) <input type="radio"/>	(B) <input type="radio"/>	(C) <input type="radio"/>	(D) <input type="radio"/>	10	(A) <input type="radio"/>	(B) <input type="radio"/>	(C) <input type="radio"/>	(D) <input type="radio"/>

## CONCEPT 1.3

**Scientific Method:**

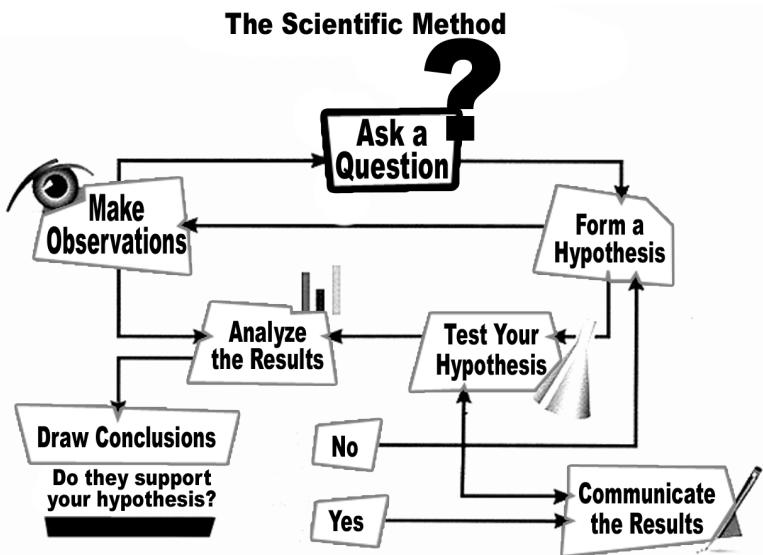
The systematic method followed by a scientist in finding out fact is called scientific method. The scientific method consists of the following steps:

**1. Making observations:**

A scientist observes carefully what is happening in the nature. We know a body falls down when dropped from a height. In fact, most of the people do not give importance to what they see but, a scientist goes deep into the happening observed by him.

For example, **Sir**

**Issac Newton** discovered the well-known **Law of Gravitation** by a simple observation while he was sitting under an apple tree, that an apple had fallen from the apple tree.

**2. Collecting information:**

A scientist keeps an accurate record of all the observations and measurements made by him. He also gathers all the available information about the problem from various sources and records it properly.

**3. Suggesting an explanation (theory or hypothesis or law):**

A scientist thinks over all the observations, measurements and other information available to him about the problem. He thinks of various possibilities and probable causes. After a careful consideration of all the facts and evidence, the scientist suggests a reasonable explanation of the problem. This explanation may be a **hypothesis** or a **theory** or a **law**.

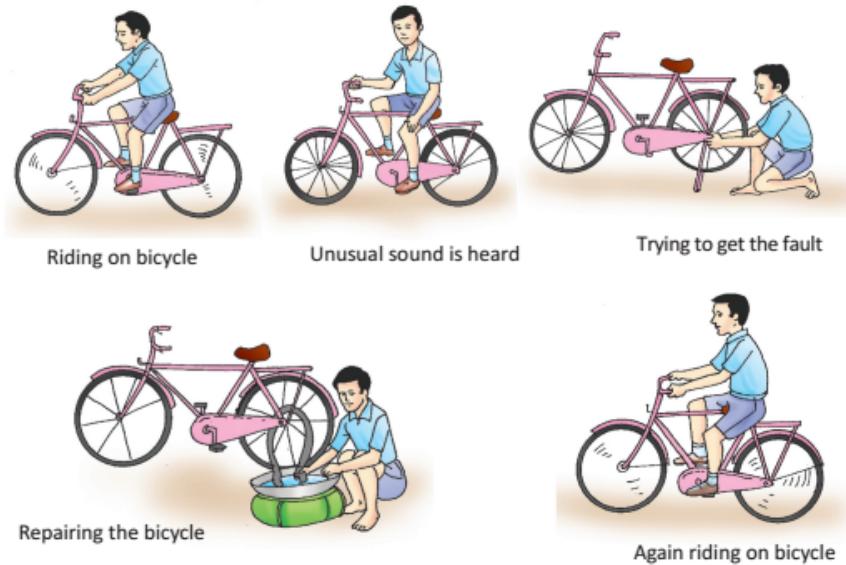
#### 4. Experimenting:

The scientist performs experiments to test his explanation. You might have heard the name of **Galileo**. He performed number of experiments regarding falling bodies. He dropped different bodies, different in shapes, sizes and weights from the Leaning Tower of Pisa—his well-known experiment ‘Feather and Stone’ in the history of science.



#### 5. Forming a conclusion:

If the results of the experiments support the explanation by the scientist, then he makes a conclusion about the problem. But, however, if the results of the experiment do not support his explanation, then this explanation is rejected. When a hypothesis is proved, it becomes a law or theory. We also use scientific methods in cooking and other household activities. A farmer ploughing the field and a bicycle maker also use scientific methods. Even when you notice some harsh sound in your bicycle, you use a scientific method to find the cause of the unusual sound and then get it repaired.



#### SCIENTIFIC METHOD IN OUR DAILY LIFE:

The scientific method is used by us in our daily life.

- A farmer working in the field uses scientific method to grow crops.
- We use scientific method to detect and repair the fault in our bicycle.
- A mechanic uses scientific method to detect and repair the fault in a machine.
- A potter uses scientific method to make earthen pots.
- In cooking and other household activities we make use of scientific method.
- You know a doctor is also a scientist. Usually, a doctor adopts the scientific method to examine a patient.



## CLASSROOM DISCUSSION QUESTIONS

CDQ  
1.3

1. **What is the scientific method?**
  - (A) A random process of making observations
  - (B) A systematic method followed by scientists to find facts
  - (C) A religious ritual
  - (D) An artistic expression
2. **What is the first step of the scientific method?**
  - (A) Forming a conclusion
  - (B) Suggesting an explanation
  - (C) Experimenting
  - (D) Making observations
3. **What did Sir Isaac Newton observe that led to the discovery of the Law of Gravitation?**
  - (A) An apple falling from a tree
  - (B) A stone skipping across water
  - (C) A bird flying overhead
  - (D) A leaf floating in the wind
4. **What does a scientist do after making observations?**
  - (A) Suggests an explanation
  - (B) Forms a conclusion
  - (C) Collects information
  - (D) Performs experiments
5. **Which step involves gathering all available information about the problem from various sources?**
  - (A) Making observations
  - (B) Collecting information
  - (C) Suggesting an explanation
  - (D) Experimenting
6. **What does a scientist do after suggesting an explanation of a problem?**
  - (A) Performs experiments
  - (B) Forms a conclusion
  - (C) Makes more observations
  - (D) Gathers additional information
7. **What did Galileo famously do to test his explanation regarding falling bodies?**
  - (A) Dropped various objects from a height
  - (B) Climbed the Leaning Tower of Pisa
  - (C) Observed the stars
  - (D) Conducted experiments with magnets
8. **When does a hypothesis become a law or theory?**
  - (A) When it is first suggested
  - (B) When it is proven by experiments
  - (C) When it is observed in nature
  - (D) When it is rejected
9. **How is the scientific method applied in daily life, according to the text?**
  - (A) Only in academic research
  - (B) Only in industrial settings
  - (C) In various activities like farming, cooking, and bicycle repair
  - (D) Strictly in laboratory experiments
10. **Which of the following professions uses the scientific method in their work?**
  - (A) Artist
  - (B) Farmer
  - (C) Musician
  - (D) Chef

MARK YOUR ANSWERS WITH PEN ONLY. Time Taken in Minutes

1	2	3	4
(A) (B) (C) (D)			
5	6	7	8
(A) (B) (C) (D)			
9	10		
(A) (B) (C) (D)	(A) (B) (C) (D)		

## CONCEPT 1.4

## Is Science Good or Bad Master?

1. The scientists try to apply their knowledge in a useful way. Scientists of different countries have contributed to the progress of science. The people of the Asian countries had taken a lead in scientific discoveries in earlier times.
2. Aryabhata was a well-known Indian mathematician. Nagarjuna, an ancient Indian scientist, discovered many methods of curing diseases using plants as medicines. This method of treatment is called Ayurveda. It is practised in many places in our country, China and several other regions of the world.
3. In recent times, Jagadish Chandra Bose studied the sensitivity of plants in detail.
4. The hard work of scientists such as Sir C.V. Raman, S. Ramanujan, S.N. Bose, M.N. Saha, D.N. Wadia, B. Sahni, P. Maheshwari G.N. Ramachandran, T.R. Sheshadri, Homi J. Bhabha and Vikram Sarabhai has helped our country to progress in many fields.
5. At present, there is a large number of scientists in India helping significantly in the growth of science and the development of the country.
6. A scientist named Edward Jenner worked very hard and found out a vaccine to protect people from getting some diseases. This vaccine protected many people against diseases all over the world.
7. Similarly, Alexander Fleming discovered a very effective medicine called penicillin. Penicillin has cured many people from various infectious diseases.
8. You must have heard of Madame Marie Curie, a Polish scientist. She worked very hard and discovered Radium and Polonium.
9. A scientist, Leeuwenhoek, prepared a microscope and observed many tiny objects. Microscopes proved useful in studying different types of germs, examining the blood, and so on.
10. Methods to preserve milk, jam, etc. were found out by Louis Pasteur. These methods are being used by food industries.

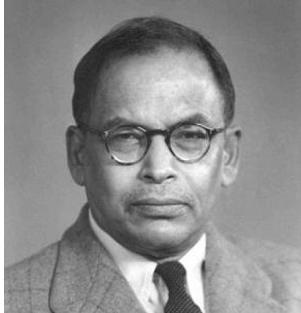
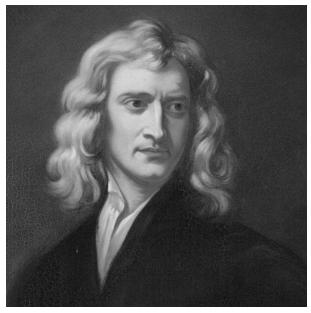
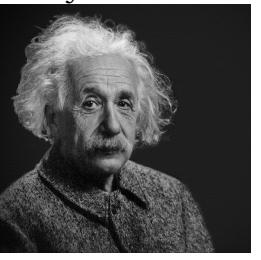
An old person can use a stick for support. A stick helps a blind man to move on a right path. Somebody can use a stick to damage glassware, toys or flowerpots. Sometimes science, too, is used in harmful ways. Once people learnt that certain substances explode easily, they made bullets, bombs

## Fundamentals of Physics

and crackers. These were devised for our safety and security. Some people misused bullets to kill animals in the forests and to commit dacoities. The existence of some beautiful animals and birds are in danger. A powerful bomb used in a war can kill many innocent people. It can destroy buildings and factories. Some people try to use poisonous gases in war. These gases kill animals, plants and innocent people. The crops are destroyed, and land becomes infertile. All such destructive uses of science must be avoided. It is rightly said that, **“Science is a good servant but a bad master”**.

### Some Eminent Physicists:

Today, we are living in the age of science and enjoying the modern technology. Do you know who made it possible by their continuous efforts.

<b>Sir C.V. Raman</b> <b>(1888-1970):</b> Won Nobel Prize for discovering Raman Effect.  	<b>Dr. Meghnad Saha</b> <b>(1893-1956) :</b> Discoverer of ionised molecules around the sun.  	<b>Dr. Homi Jahangir Bhabha</b> <b>(1909-1966) :</b> Pioneer of atomic research in India. A nuclear reactor 'Apsara' was built in India under his guidance.  
<b>Dr. Vikram Sarabhai</b> <b>(1919-1971):</b> Pioneer in Space Research in India.  	<b>Sir Issac Newton</b> <b>(1642-1727):</b> Discoverer of law of gravitation  	<b>Albert Einstein (1879-1955) :</b> A great scientist who discovered Theory of Relativity, the photo electric effect and won Nobel Prize in 1921. Originator of mass energy formula; $E=mc^2$ . He is known as the father of Modern Physics.  



## CLASSROOM DISCUSSION QUESTIONS

CDQ  
1.4

1. According to the passage, who were some prominent Asian scientists of earlier times?
  - (A) Newton and Galileo
  - (B) Aryabhatta and Nagarjuna
  - (C) Marie Curie and Alexander Fleming
  - (D) Leeuwenhoek and Edward Jenner
2. What method of treatment, discovered by Nagarjuna, is practiced in many places around the world?
  - (A) Homeopathy
  - (B) Ayurveda
  - (C) Acupuncture
  - (D) Naturopathy
3. Which Indian scientist studied the sensitivity of plants in detail?
  - (A) Jagadish Chandra Bose
  - (B) C.V. Raman
  - (C) S.N. Bose
  - (D) S. Ramanujan
4. Who among the following scientists is known for his work in the field of vaccines?
  - (A) Marie Curie
  - (B) Alexander Fleming
  - (C) Edward Jenner
  - (D) Louis Pasteur
5. What did Edward Jenner discover?
  - (A) Microscope
  - (B) Penicillin
  - (C) Ayurveda
  - (D) Vaccine
6. Who discovered the effective medicine called penicillin?
  - (A) Aryabhatta
  - (B) Nagarjuna
  - (C) Alexander Fleming
  - (D) Leeuwenhoek
7. What did Madame Marie Curie discover?
  - (A) Radium and Polonium
  - (B) Penicillin
  - (C) Microscope
  - (D) Vaccine
8. Which scientist prepared a microscope and observed many tiny objects?
  - (A) Edward Jenner
  - (B) Alexander Fleming
  - (C) Leeuwenhoek
  - (D) Louis Pasteur
9. Who found out methods to preserve milk and jam?
  - (A) Louis Pasteur
  - (B) Edward Jenner
  - (C) Alexander Fleming
  - (D) Leeuwenhoek
10. What is the moral of the story conveyed in the passage?
  - (A) Science should be used responsibly for the betterment of society
  - (B) Science is inherently evil and should be avoided
  - (C) Scientists should focus more on destructive uses of science
  - (D) Science has no impact on society

MARK YOUR ANSWERS WITH PEN ONLY. Time Taken in Minutes 

1	(A) (B) (C) (D)	2	(A) (B) (C) (D)	3	(A) (B) (C) (D)	4	(A) (B) (C) (D)	5	(A) (B) (C) (D)
6	(A) (B) (C) (D)	7	(A) (B) (C) (D)	8	(A) (B) (C) (D)	9	(A) (B) (C) (D)	10	(A) (B) (C) (D)

1. Science is an organised and systematic knowledge about the various things around us.
2. Science is divided in two branches—pure and applied.
3. Physics deals with matter and energy.
4. Matter is that which occupies space and possesses mass.
5. Energy is the capacity of doing work.
6. Scientific phenomenon or scientific method consists of the following four steps:
  - (i) Observation
  - (ii) Experimentation
  - (iii) Theory or Formation of hypothesis
  - (iv) Analysing the data and reaching the conclusion (or drawing inference)
7. Sir C.V. Raman was the discoverer of 'Raman Effect', a new phenomenon of light.
8. Dr. Meghnad Saha did constructive work on Astrophysics, a physics which deals with the space.
9. Sir Issac Newton had told 'Law of gravitation', a law which deals with the attraction between planetary bodies.
10. Dr. Homi Jahangir Bhabha was the pioneer in the field of 'Atomic Research in India'.
11. Dr. Vikram Sarabhai was awarded with Padma Bhushan.
12. Albert Einstein a German born American physicist who was awarded the 1921 Nobel Prize in Physics. His major contribution was the theory of RELATIVITY and the inter conversion of mass and energy in the formula  $E= mc^2$ , where E is energy, m is mass and c is velocity of light. Also known as father of Modern Physics.
13. According to the concepts of the theory of relativity, no material object can travel with a speed greater than that of light.

## ADVANCED WORKSHEET



## LEVEL 1

## Single Correct Answer Type (S.C.A.T)

- The mass energy formula  $E = mc^2$  was formulated by**
  - Issac Newton
  - Albert Einstein
  - H.J. Bhabha
  - None of these
- Physics is a branch of**
  - Pure science
  - Applied science
  - Biology
  - Space science
- 'APSARA' a nuclear reactor was built in India under the guidance of Indian scientist**
  - Homi Jahangir Bhabha
  - Dr. Vikram Sarabhai
  - Dr. Meghnad Saha
  - J.C. Bose
- The Indian Institute of Science is located at**
  - Bombay
  - Ahmedabad
  - Bangalore
  - Delhi
- The branch of science which deals about the study of 'Energy and its transference' is called**
  - Physics
  - Chemistry
  - Biology
  - Space-science

- An instrument used for seeing aeroplane beyond the sight of vision, is called:**
  - Telescope
  - Television
  - Radar
  - Periscope
- By studying reference material, we are able to**
  - Identify the problem
  - Collect basic information
  - Work out a hypothesis
  - Draw conclusion and generalisation
- We measure the temperature of a substance with the help of a device called**
  - Sonometer
  - Barometer
  - Lactometer
  - Thermometer
- A hypothesis is a**
  - Collection of related problems
  - Possible explanation of a problem
  - Correct explanation of a problem
  - Rejected explanation of a problem
- For man, science is**
  - Only good
  - Only bad
  - Neither good nor bad
  - Both good and bad

## Fundamentals of Physics

**11. Discoveries in the composition of matter are made by**

- (A) Physicists
- (B) Botanists
- (C) Chemists
- (D) Zoologists

**12. A device which keeps you connected to the world anywhere, is:**

- (A) Television
- (B) Telephone
- (C) Cell phone
- (D) Radio

**13. The first step in scientific method is:**

- (A) Making theory
- (B) Making hypothesis
- (C) Experimentation
- (D) Identifying the problem

**14. A microscope is based on the principle of:**

- (A) Mechanics
- (B) Optics
- (C) Magnetism
- (D) Electromagnetic waves

**15. The fastest mode of travel is:**

- (A) Cruise ship
- (B) Bullet train
- (C) Aeroplane
- (D) Car

**16. The Latin word *Scientia* from which the word 'Science' has developed means \_\_\_\_\_**

- (A) Understanding
- (B) Reasoning
- (C) Knowledge
- (D) Logic

**17. After experimenting and observing, scientists need \_\_\_\_\_ as a basis of their scientific studies.**

- (A) Praying
- (B) Logical reasoning
- (C) Reading
- (D) Thinking

**18. Natural Science deals with \_\_\_\_\_**

- (A) Living things
- (B) Nature
- (C) Stars and Satellites
- (D) Non-living things

**19. Medical diagnostic technique such as \_\_\_\_\_ is a boon of Physics.**

- (A) Radar
- (B) Satellite imaging
- (C) MRI scanning
- (D) Aroma therapy

**20. Science which deals with the study of composition of matter is called**

- (A) Physics
- (B) Chemistry
- (C) Biology
- (D) Geography

**21. We can see far-off objects clearly with a device called**

- (A) Microscope
- (B) Stethoscope
- (C) Telescope
- (D) Microphone

**22. The device used for forecasting weather is**

- (A) Satellite
- (B) Radar
- (C) Telephone
- (D) Television

**23. To see very minute things clearly, we use a device called**

- (A) Radar
- (B) Telescope
- (C) Microscope
- (D) Computer

**24. We have developed telescope by understanding the principles of**

- (A) Optics
- (B) Gravitation
- (C) Mechanics
- (D) Magnetism



**LEVEL 2**

**Multi Correct Question (M.C.Q)**

**25. Which of the following statements are true?**

- (A) Physics is the study of all phenomena taking place around us.
- (B) One can become a good physicist by studying the works of other physicists.
- (C) Sense of sight is not always reliable.
- (D) Physicists use tools to make more accurate observations.

**26. Which of the following statements are false?**

- (A) We can develop our five senses by training and practice.
- (B) A person good in memorising can be a good physicist.
- (C) Nuclear radiations are highly dangerous to living beings.
- (D) Zoology is systematic study of matter and energy.

**27. Which of the following statements are true?**

- (A) Physics is a branch of science, which deals with living matter.
- (B) A good scientist makes careful observations.
- (C) We can see small objects with the help of telescope.
- (D) A theory proved correct by experiments, is called hypothesis.



**LEVEL 3**

**Matrix Matching Type (M.M.T.)**

**Column - I**

- 28.** Radiotherapy
- 29.** Lightning
- 30.** Satellite imaging
- 31.** Limited energy resource
- 32.** X-ray imaging

**Column - II**

- (A) Natural Phenomenon
- (B) Treatment of cancer
- (C) Detecting Fractures
- (D) Weather Forecasting
- (E) Fossil fuels

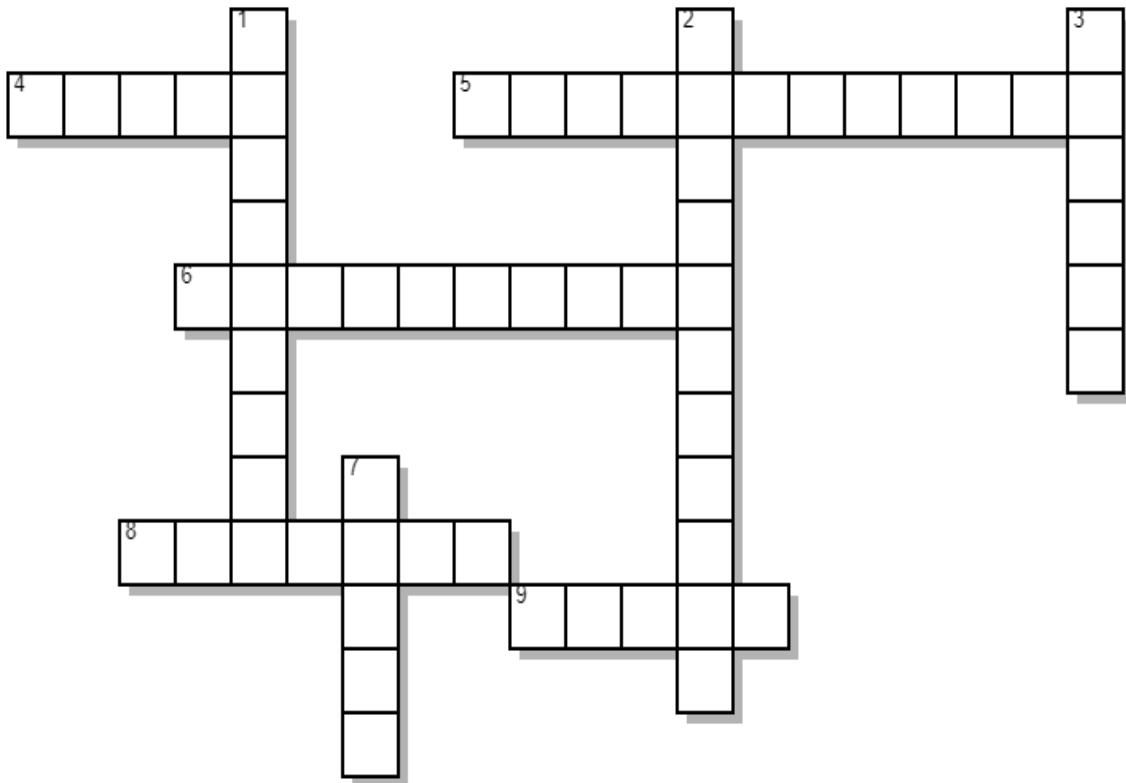
**II. Column - I**

- 33.** Study of animals
- 34.** Study of plants
- 35.** Study of composition of matter
- 36.** Study of matter and energy

**Column - II**

- (A) Physics
- (B) Chemistry
- (C) Geography
- (D) Civics
- (E) Botany
- (F) History
- (G) Mathematics
- (H) Zoology

# Puzzle Time



**Across (→)**

4. Albert Einstein was awarded with \_\_\_\_\_ prize in 1921.
5. Dr. Vikram Sarabhai was awarded with \_\_\_\_\_.
6. Alexander Fleming discovered \_\_\_\_\_.
8. \_\_\_\_\_ deals with matter and energy.
9. Astrophysics deals with \_\_\_\_\_.

**Down (↓)**

1. Law of gravitation deals with the attraction between \_\_\_\_\_ bodies.
2. Sir C.V. Raman discovered \_\_\_\_\_.
3. The capacity to do work is called \_\_\_\_\_.
7. No material matter can travel with a speed greater than \_\_\_\_\_.