

# Introduction

Science covers the broad field of knowledge that deals with observed facts and the relationships among those facts. The word science comes from the Latin word *scientia*, which means knowledge. Scientists study a wide variety of subjects. For example, some scientists search for clues to the origin of the universe. Other researchers examine the structure of molecules in the cells of living plants and animals. Still others investigate why we act the way we do, or try to solve complicated mathematical problems. But in whatever field they work, all scientists explore the workings of the world.

Scientists use systematic methods of study to make observations and collect facts. They then work to develop theories that help them order or unify related facts. Scientific theories consist of general principles or laws that attempt to explain how and why something happens or happened. Science advances as scientists accumulate more detailed facts and gain a better understanding of these fundamental principles and laws.

A theory developed by a scientist cannot be accepted as part of scientific knowledge until it has been verified by the studies and experiments of other researchers. In fact, for any knowledge to be truly scientific, it must be repeatedly tested experimentally and found to be true. This characteristic of science sets it apart from other branches of knowledge. For example, the humanities, which include religion, philosophy, and the arts, deal with ideas about human nature and the meaning of life. Such ideas cannot be scientifically proved. There is no test that tells whether a philosophical system is “right.” No one can determine scientifically what feeling an artist tried to express in a painting. Nor can anyone perform an experiment to check for an error in a poem or a symphony. Science can and does do all these. Although science differs from other types of knowledge, it has valid applications in all areas, especially in our daily life.

Pretty much anything you do has some science underlying it. For instance, the computer, as well as the Internet, are products of science. Your television, gamebox, and telephone are as well.

Using many of these devices does not require a knowledge of much science any more, however. Although to use a telephone, for instance, you have to have an understanding of logic, numbers, and geography (area codes), and setting up a gamebox requires a basic understanding of some principles of electrical and mechanical engineering.

There are other so many areas in daily life where knowledge of science is applied directly:

## *Applied Mathematics:*

- \* Using a calculator
- \* Calculating a tip in a restaurant
- \* Measuring ingredients or dimensions

*Economics:*

- \* Banking
- \* Writing cheques
- \* Drawing up a budget/determining what you can afford
- \* Paying income tax or VAT

*Applied Physics:*

- \* Cooking
- \* Baking
- \* Working out

*Applied Cartography/Orienteering:*

- \* Choosing routes to drive, walk, or ride a bus
- \* Determining locations using addresses or milestones
- \* Hiking
- \* Using a map

*Applied Semiotics or Linguistics:*

- \* Deciphering signs and symbols everywhere in life
- \* Deciding how to punctuate or write human speech
- \* Reading books or magazines

*Nutritional Science:*

- \* Preparing food and making decisions on what is good or bad to eat

*Medical Science:*

- \* Self-medicating (e.g. taking an aspirin)
- \* Understanding potential interactions of over-the-counter products
- \* Bandaging and basic triage (treating pimples, cuts, burns, bruises)
- \* Taking a temperature
- \* Stretching and preparing muscles for exercise
- \* Knowledge and application of proper hygiene
- \* Knowledge of diseases and how they are transmitted (e.g. flu, cold, etc.)
- \* Knowledge of birth control and disease prevention

*Sociology:*

- \* Understanding how to behave in certain contexts
- \* Knowing what kinds of behaviour to expect from others
- \* Understanding rules of etiquette and politeness in different contexts
- \* Following and understanding political discussions or news reports
- \* An awareness of how the individual fits into larger and larger groups of people

*Psychology:*

- \* Taking measures to improve one's own or someone else's mental health (e.g. exercise, relaxation, stress management, etc.)

# 1 Science in Daily Life

Science has changed the very mode of our daily life. Science has stepped up the tempo of life; it has widened the range of our occupations, extended immensely the limits of our curiosity, it has increased the ways of utilising our leisure ; it has given us comforts and amenities undreamt of by our forefathers. Yet science is now the handmaiden of a privileged few who can purchase the service.

As regards our *food*, science has given us correct ideas of nutritive and calorie value of the food that we take. It has analysed and classified the various constituents of our diet according to vitamin content, caloric value, mineral basis etc. It has explained to us the factors that make a balanced diet. With the help of all this knowledge, the State can provide schoolchildren with cheap but nutritive food in order to build up the physique of future generations. This shows how much science can contribute to the improvement of national well-being. Science even has started producing synthetic food in the Laboratory, to supplement our food deficit.

Next item of our necessity is our *dress*. Modern science has taught us the utility of light dress in a tropical country. Our knowledge of science has helped up to manufacture dress materials more comfortable, more enduring and in the long run more economical and adjusted to the prevailing environment. Today we are certainly better clothed than ever before.

Also science has shown us how we can do a *greater volume of work in shorter time* and with less physical strain and sweat. It has placed at our disposal innumerable labour-saving devices, so that, life can become far less difficult than it is.

Electric light and fan have made *home-life more comfortable* today. The computer, washing machine, the telephone, the motor car, refrigerator, all these and many others show how much work we can do with minimum labour. They save us from the drudgery of manual work to recuperate and thus enable us to do much more work with greater output than our ancestors. At the same time, scientific process creates plenty of leisure, which we may devote to cultural pursuits. The modern man is thus able to live a fuller and many-sided life.

In our sickness, we feel more than ever the benefits of science. The physician and the surgeon are today much more sure in their diagnosis of diseases through clinical tests, brain scanning and supersonic devices. The physicians are now more confident in their ability to cure or to control them.

The microscope, the X-ray, the radium, ultra sonography—all these have come as real blessings to humanity. With the growth of chemical and bacteriological sciences, the treatment of diseases has been very much sophisticated and yet simplified. Wonder drugs like penicillin and streptomycin and other anti-biotics have proved specific medicines in the cure of diseases, which were formerly intractable.