**Role of Science in Raising the Standard of Living**

INTRODUCTION

Scientific and technological development has made life comfortable and raised the standard of living. Science has opened several avenues for pursuing different vocations. Study of science has helped us to shower gifts of electricity, nuclear energy and inquest space. Science has added to human comfort, longevity and security. It has broken the barriers of distance and social structure. Science has shrunk the world and totally changed the human outlook. Science is liberating and enriching the mind and enlarging the human spirit. Learners of science develop faculties through reasoning and experimentation. Science affects us all, everyday of the year, from the moment we wake up, all day long and all through the night. The digital alarm clock, the weather report, the asphalt we drive on, the bus we ride in, the decision to eat a baked potato instead of fries, the cell phone, the antibiotics, the clean water that comes from the faucet, and the light that we turn off at the end of the day have all been brought to us- courtesy of science. The modern world would not be modern at all without the understanding and technology enabled by science.

**Bringing Science to Home and Community**

**Electricity**

From Ben Franklin’s studies of static electricity and lightning rods in the 1700s, to Alessandro Volta’s first battery, to the key discovery of the relationship between electricity and magnetism, science has steadily built up our understanding of electricity, which today carries our voices over telephone lines, brings entertainment to our televisions, and keeps the lights on.

**Modern agriculture**

Science has transformed the way we eat today. In the 1940s, biologists began developing high yield varieties of corn, wheat and rice, which when paired with new fertilizers and pesticides developed by chemists, dramatically increased the amount of food that could be harvested from a single field, ushering in the Green Revolution. These science based technologies triggered striking changes in agriculture, massively increasing the amount of food available to feed the world and simultaneously transforming the economic structure of agricultural practices.

**Modern medicine**

In the late 1700s, Edward Jenner first convincingly showed that vaccination worked. In the 1800s, scientists and doctors established the theory that diseases are caused by germs. In 1920, the antibiotic was discovered. From the eradication of small pox to the prevention of nutritional deficiencies to successful treatments for once deadly infections, the impact of modern medicine on global health has been powerful. In fact, without science, many people alive today would have died of diseases that are easily treated.

***Scientific knowledge can improve the quality of life at many different levels- from the routine working of our day to day lives to global issues.***

**Role of Science in Raising the Standard of Living**

Standard of living refers to the level of wealth, comfort, material goods and necessities available to a certain socioeconomic class in a certain geographic area. The standard of living includes factors such as income, quality and availability of employment, class disparity, poverty rate, quality and affordability of housing, hours of work required to purchase necessities, gross domestic product, inflation rate, number of vacation days per year, affordable (or free) access to quality healthcare, quality and availability of education, life expectancy, incidence of disease, cost of goods and services, infrastructure, national economic growth, economic and political stability, political and religious freedom, environmental quality, climate and safety. The standard of living is closely related to quality of life.

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Advancements in the field of medical sciences and better living conditions has helped to lower the death rate and contributed much to life expectancy or increased life span of common person.

***Longevity of life***

The term longevity is sometimes used as a synonym for life expectancy in demography. However, this is not the most popular or accepted definition. The word generally connotes ‘long life’ especially when it concerns someone living longer than expected. It is a measure to increase life; overall considerations to extend life span of people- health, social, environmental etc. There are many difficulties in authenticating the longest human lifespan ever, due to inaccurate birth statistics; though fiction, legend and mythology have proposed or claimed vastly longer lifespan in the past or future and longevity myths frequently claim them to exist in the present.

The speed of science is very slow. But over the last decade we’ve made significant steps in medical research, disease treatment and the improvement of the patients’ quality of life.

**Stem Cell Research**

Stem cells can essentially be programmed to become any type of cell in the body. As such, researchers say they have enormous potential for curing diseases and repairing damaged tissues. In 2006, scientists showed that adult cells – including skin cells – can be turned back into stem cells, which are called induced pluripotent stem cells. Scientists have also cloned human stem cells and have made promising developments in stem cell therapies for heart repair and eye disease.

**Laparoscopic Surgery**

Better known as minimally invasive surgery, laparoscopic surgery has become the norm for many operations, including gallbladder removal and hernia repair. Patients who undergo laparoscopic surgeries generally endure less pain, smaller scars and a shorter recovery time.

**Diabetes**

A century ago, a diagnosis of juvenile diabetes was an almost certain death sentence. Children affected by diabetes rarely lived more than a few years. However, thanks to the discovery of insulin in the early 1920s, along with subsequent scientific breakthroughs in genetic engineering that allowed insulin to be mass-produced, that statistic has completely turned around: *diabetic’s now livelong lives.*

Diabetes is just one of many diseases and health concerns for which science has helped treatments, preventions, or cures.Without science, we wouldn’t know how to make an X-ray machine, how to build an artificial knee, or even, at the most basic level, that hand washing can prevent the spread of germs. In many thousands of ways, science has supplied us with tools to improve human health.

**Organ Transplants**

Over the last century, organ transplantation, which began as a lofty and far-fetched idea, has been transformed into a real and practicable achievement of modern medicine. The idea behind organ transplantation is simple: replace a failing organ with one that is functional. Despite this simple premise, organ transplants are scientifically complex. From innumerable failed attempts, we have reaped unprecedented knowledge and achieved tremendous successes. Two Nobel prizes and much of modern day immunology have been based on knowledge discovered in the effort to make organ transplantation feasible. Now transplant medicine has blossomed to the point where more than 95 percent of patients with kidney transplants survive beyond 1 year, and the majority of the tissue grafts last for the recipient's entire lifetime. Incredibly, 74 lives are saved each day as a result of this medical innovation.

**Targeted Cancer Therapies**

Targeted cancer therapies are drugs that usually work in one of two ways: they either interfere with the spread of cancer by blocking cells involved in tumor growth, or they identify – and kill – the deadly cancer cells. These therapies are much more direct than treatments like chemotherapy or radiation, which also attack healthy cells. Targeted therapies have been the focus of cancer research over the last decade; the FDA (Food and Drug Administration) has approved more than 25 drugs.

**April 2003 -- Human Genome Project Completed**

In April 2003, scientists announced that they had sequenced the entire human genome two years ahead of schedule. The 13-year international project set out to identify the 20,000 to 25,000 genes in human DNA. When the International Human Genome Sequencing Consortium announced that they had finished sequencing the human blueprint, they said the task had been likened to splitting the atom or going to the moon. The project has helped shed light on human migration, common diseases, new energy sources and many other scientific fields

**Infant mortality rate**

 The state of health and development of a country can simply be judged by mortality rate of its children. It may be expressed in the following two ways-

* Infant mortality rate (IMR) – corresponds to the death rate of children below the age of one year.
* Under 5 mortality rate (U5 MR) - corresponds to the death rate of children below the age of 5 years.

In both cases, the rates are expressed as the number of deaths per 1000 live births. A high mortality rate of children in a country indicates that a country is under developed.

**Ways to Minimise Mortality Rate among Small Children**

1. The infants should be properly vaccinated at suitable intervals as recommended by doctor.
2. The mother should be given adequate amount of balanced diet during pregnancy and lactation period.
3. Pregnancy should be planned and family welfare methods should be adopted to keep gap between first and second pregnancy.
4. People should be made aware about the advantages of breastfeeding as well as about diseases and their preventive methods.