

Science and Mathematics for a comfortable life

Dr. Jayalath Edirisinghe
Senior Lecturer, Faculty of Engineering
University of Peradeniya

It is a well known fact that Science and Mathematics makes your life very comfortable.

Do you agree with me? If not, let me take very simple arguments. Hope you will relate these to your basic Science studies and try to convince on what I stated.

You may not appreciate it much, as you already have TV, computers, Ipods, cellular phones, comfortable vehicles in and around you. Have you ever thought that if the Science and Technology was not developed up to this level, what could have been the surrounding?

Few decades ago, making a telephone call even to a nearby city took few minutes because it takes time for the line to get connected. Today, from a pocket sized mobile phone, you can call any part of the world. In 70s when we heard cricket matches live over the radio, we never thought of sitting in a sofa and watch a cricket match or the Olympics game happening few thousand kilometers away from us.

In addition to those, electricity, space technology, nano Science, CT scanners, MRI scanners, brain machine interfaces, personalized medicines, etc. etc. contributes significantly to improve the comfort of our lives.

Think the application of computers. At times where the manual calculations were done days and months were spent to complete one assignment. Extra time had to be spent to recheck the validity of the answer. Maintaining large data bases like, for airline industry, accounts in banks were undoubtedly a huge burden on workers. Today, computers play a very important role in our life. Internet facility opens doors to a world class library to stay on your table. Any kind of information is in your fingertips upon pressing some key words. Communicating with friends, relatives and officials using e-mail is not uncommon to many around us. Don't you think that these makes our lives comfortable and easy. There is no end, it is continuously developing. Today, with the help of computers and latest related technologies, banks can provide facilities to customers for longer hours, make various transactions possible even in

late hours and government holidays. It is possible to make bill payment and various other transactions even without going to a bank. It makes you to save your valuable time and pay attention to your duties or at least to rest at home. Credit card facilities opens you an opportunity to travel around the world without worrying about cash losses. Those are few benefits human beings enjoy due to development of Science and Technology.

Development in traffic and transportation field due to Science and Technology is also enormous. In good old days our great grand fathers used to say good bye and handover many responsibilities before departing for a pilgrimage tour even within the island. Today, not only it makes possible to travel around comfortably at a low cost in a shorter time period but also keeping regular contacts with the loved ones. Even travelling abroad is not a difficult task for some people .

Science and Technology is not limited only to scientists or Science specialists. It opens doors for non-scientists also to perform their duties much efficiently and precisely.

Benefits of Science is not limited only to materialistic items as described above. Science makes your life totally different.

Science is a way of life. Science is a perspective. Science is the process that takes us from confusion to understanding in a manner that's precise, predictive and reliable — a transformation, for those lucky enough to experience it, that is empowering and emotional. To be able to think through and grasp explanations — for everything from why the sky is blue to how life formed on earth — not because they are declared dogma but rather because they reveal patterns confirmed by experiment and observation, is one of the most precious of human experiences.

Let's look at some traits of good Science:

Science *requires evidence*.

Science *applies critical thinking* to the evidence.

Science tries to *falsify* a theory.

Science tests *novel predictions* made by a theory.

Science performs *controlled, repeated experiments*.

Science prefers *simple* explanations.

Science is *tentative and progressive*.

Science wants reliable knowledge. That's why Science demands evidence. Evidence helps us to separate truth from bullshit. If we didn't require evidence to back up a claim, then literally anything goes, as long as someone claims it.

Our ignorance is never evidence. Think about it. In the early ages, we didn't understand how lightning worked. Was that evidence for Zeus? Just because something looks mysterious or magical to us doesn't mean it's evidence of supernatural agents.

Ignorance means we don't have knowledge. It means we shouldn't make claims. Ignorance is the opposite of knowledge. If you're ignorant, that is the time you shouldn't make a knowledge claim.

So there's plenty of evidence around. You have to apply critical thinking to find out what it's evidence for. Critical thinking helps to make knowledge more reliable.

Human brain is mainly divided in to two hemispheres, namely left and right. Those who are strong in left hemisphere of the brain are good at Mathematics, logics and Science. Those who are known as right brain people are good at artistic, creative activities. If you investigate very carefully, the functions of left side of the brain helps you to make your life organized, planned well and acquire better results.

So, Science provides you the ability to think critically, and demands reasons for any incident.

Again similar to Science, Mathematics is a definite subject. No ambiguities. No grey areas in the answers. Straight forward and precise answers. Through mastering Mathematics you start making your life systematic and definite. Such qualities will reduce your time waste, plan well ahead of time to reach target, object oriented, etc..

Not only that, those who are good in Mathematics can make reasonable assumptions to reach reasonable answers. Things like checking your balance after making a payment. You can add the amount payable to the balance received to check whether calculation is correct. In case of complicated calculations, making the closer but easy calculations and bringing down to the actual values.

Value of trigonometry and geometry is known only to those who have studied those subjects. Let it be making a small change or addition to your home garden, improving a part of your house, the value of Mathematics is known only to mathematicians when others make their life miserable due to lack of those subjects.

Well, true that Science, Technology and Mathematics make your life easy and comfortable. But the doubt arises, with the vast development of Science and Technology, whether we are ready to move with those developments at the same rate. Sometimes, these comforts make us lazy and less prepared.

For example, very often we find people going half way the travel without confirming the directions to destinations thinking that they will make clarifications half way using the mobile phone. But, when they get lost, either the battery is worn-out, or the signal strength is not adequate or sometimes the other party is not contactable.

Same as with computers. While computers make our life comfortable, certain facilities can take us to a totally new and different world. Specially youngsters get lost at such places and find difficult to return to the actual world like 3D animations, virtual worlds etc.. Getting addicted is a serious problem. Excessive use of internet, chat, and various other online services waste lot of valuable time. The most dangerous problem with computer usage is getting unaware about the size of numbers. Those who are limited to computer packages produce results only in terms of numbers without having any idea about the meaning of it. Without having proper practical applications, change of one decimal place will not notice at all and leaving a serious outcome to the society. It is in addition to the development of cyber terrorism (spreading deadly viruses destroying the content of hard disks).

So, with the development of Science, the normal abilities of human beings should not be undervalued and destroyed. Science and Technology together with Mathematics makes the life comfortable, when we very clearly understand the limitations and necessity to get prepared for latest developments.