

## Sayings:

Tell me and will I forget; show me and I may remember; involve me and I will understand.

"Never argue with an idiot. They bring you down to their level, and then beat you with experience."

## Folks:

The National Teaching and Learning Forum (NTLF) is worth checking out at: <http://www.ntlf.com>. Among the many interesting items on its web site is an extensive listing of quotations on teaching, learning, and education. Below are 15 of my favorites chosen from the list. Complete citations can be found at the web site.

Regards,

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UP NEXT: Student Evaluations: Gender Bias and Teaching Styles

<http://www.quotationspage.com/quotes/>

----- 532 words -----

## QUOTATIONS ON TEACHING, LEARNING, AND EDUCATION

### ON TEACHING

- \* The task of the excellent teacher is to stimulate "apparently ordinary" people to unusual effort. The tough problem is not in identifying winners: it is in making winners out of ordinary people. K. Patricia Cross
- \* We teach what we like to learn and the reason many people go into teaching is vicariously to reexperience the primary joy experienced the first time they learned something they loved. Stephen Brookfield
- \* The teachers who get "burned out" are not the ones who are constantly learning, which can be exhilarating, but those who feel they must stay in control and ahead of the students at all times. Frank Smith
- \* At present the universities are as uncongenial to teaching as the Mojave Desert to a clutch of Druid priests. If you want to restore a Druid priesthood, you cannot do it by offering prizes for Druid-of-the Year. If you want Druids, you must grow forests. W. Arrowsmith,
- \* Setting an example is not the main means of influencing another, it is the only means. Albert Einstein
- \* Teachers affect eternity because they never know where their influence will stop. Mitch Albom

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## ON LEARNING

\* Where I grew up, learning was a collective activity. But when I got to school and tried to share learning with other students that was called cheating. The curriculum sent the clear message to me that learning was a highly individualistic, almost secretive, endeavor. My working class experience . . . was disparaged. Henry A Giroux

\* Learning is not so much an additive process, with new learning simply piling up on top of existing knowledge, as it is an active, dynamic process in which the connections are constantly changing and the structure reformatted. K. Patricia Cross

\* Sometimes the last thing learners need is for their preferred learning style to be affirmed. Agreeing to let people learn only in a way that feels comfortable and familiar can restrict seriously their chance for development. Steven Brookfield

\* Memorization is what we resort to when what we are learning makes no sense. Anonymous

\* Every act of conscious learning requires the willingness to suffer an injury to one's self-esteem. That is why young children, before they are aware of their own self-importance learn so easily; and why older persons, especially if vain or important, cannot learn at all. Thomas Szasz

## ON EDUCATION

\* Education is not preparation for life; education is life itself. John Dewey

\* All education springs from some image of the future. If the image of the future held by a society is grossly inaccurate, its education system will betray its youth. Alvin Toffler

\* What we must decide is perhaps how we are valuable, rather than how valuable we are. F. Scott Fitzgerald

\* How can we help students to understand that the tragedy of life is not death; the tragedy is to die with commitments undefined and convictions undeclared and service unfulfilled? Vachel Lindsay

## Albert Einstein Quotes

Albert Einstein

$$E = M C^2$$

Albert Einstein

The most beautiful thing we can experience is the mysterious. It is the source of all true art and all science. He to whom

this emotion is a stranger, who can no longer pause to wonder and stand rapt in awe, is as good as dead: his eyes are closed.

Albert Einstein

A man's ethical behavior should be based effectually on sympathy, education, and social ties; no religious basis is necessary. Man would indeed be in a poor way if he had to be restrained by fear of punishment and hope of reward after death.

Albert Einstein

The further the spiritual evolution of mankind advances, the more certain it seems to me that the path to genuine religiosity does not lie through the fear of life, and the fear of death, and blind faith, but through striving after rational knowledge.

Albert Einstein

Now he has departed from this strange world a little ahead of me.

That means nothing. People like us, who believe in physics, know that the distinction between past, present, and future is only a stubbornly persistent illusion.

Albert Einstein

You see, wire telegraph is a kind of a very, very long cat. You pull his tail in New York and his head is meowing in Los Angeles. Do you understand this? And radio operates exactly the same way: you send signals here, they receive them there. The only difference is that there is no cat.

Albert Einstein

One had to cram all this stuff into one's mind for the examinations, whether one liked it or not. This coercion had such a deterring effect on me that, after I had passed the final examination, I found the consideration of any scientific problems distasteful to me for an entire year.

Albert Einstein

...one of the strongest motives that lead men to art and science is escape from everyday life with its painful crudity and hopeless dreariness, from the fetters of one's own ever-shifting desires. A finely tempered nature longs to escape from the personal life into the world of objective perception and thought.

Albert Einstein

He who joyfully marches to music rank and file, has already earned my contempt. He has been given a large brain by mistake, since for him the spinal cord would surely suffice. This disgrace to civilization should be done away with at once. Heroism at command, how violently I hate all this, how despicable and ignoble war is; I would rather be torn to shreds than be a part of so base an action. It is my conviction that killing under the cloak of war is nothing but an act of murder.

Albert Einstein

A human being is a part of a whole, called by us 'universe', a part limited in time and space. He experiences himself, his thoughts and feelings as something separated from the rest... a kind of optical delusion of his consciousness. This delusion is a kind of prison for us, restricting us to our personal desires and to affection for a few persons nearest to us. Our task must be to free ourselves from this prison by widening our circle of compassion to embrace all living creatures and the whole of nature in its beauty.

Albert Einstein, Sign hanging in Einstein's office at Princeton

Not everything that counts can be counted, and not everything that can be counted counts.

Albert Einstein

Imagination is more important than knowledge.

Albert Einstein

Gravitation is not responsible for people falling in love.

Albert Einstein

I want to know God's thoughts; the rest are details.

Albert Einstein

The hardest thing in the world to understand is the income tax.

Albert Einstein

Reality is merely an illusion, albeit a very persistent one.

Albert Einstein

A person starts to live when he can live outside himself.

Albert Einstein

I am convinced that He (God) does not play dice.

Albert Einstein

God is subtle but he is not malicious.

Albert Einstein

Weakness of attitude becomes weakness of character.

Albert Einstein

I never think of the future. It comes soon enough.

Albert Einstein

The eternal mystery of the world is its comprehensibility.

Albert Einstein

Sometimes one pays most for the things one gets for nothing.

Albert Einstein

Science without religion is lame. Religion without science is blind.

Albert Einstein

Anyone who has never made a mistake has never tried anything new.

Albert Einstein

Great spirits have often encountered violent opposition from weak minds.

Albert Einstein

There are two ways to live your life - one is as though nothing is a miracle, the other is as though everything is a miracle.

Albert Einstein

Everything should be made as simple as possible, but not simpler.

Albert Einstein

Common sense is the collection of prejudices acquired by age eighteen.

Albert Einstein

Science is a wonderful thing if one does not have to earn one's living at it.

Albert Einstein

The secret to creativity is knowing how to hide your sources.

Albert Einstein

The only thing that interferes with my learning is my education.

Albert Einstein

God does not care about our mathematical difficulties. He integrates empirically.

Albert Einstein

The whole of science is nothing more than a refinement of everyday thinking.

Albert Einstein

Technological progress is like an axe in the hands of a pathological criminal.

Albert Einstein

Peace cannot be kept by force. It can only be achieved by understanding.

Albert Einstein

The most incomprehensible thing about the world is that it is comprehensible.

Albert Einstein

We can't solve problems by using the same kind of thinking we used when we created them.

Albert Einstein

Education is what remains after one has forgotten everything he learned in school.

Albert Einstein

The important thing is not to stop questioning. Curiosity has its own reason for existing.

Albert Einstein

Do not worry about your difficulties in Mathematics. I can assure you mine are still greater.

Albert Einstein

Equations are more important to me, because politics is for the present, but an equation is something for eternity.

Albert Einstein

If A is a success in life, then A equals x plus y plus z. Work is x; y is play; and z is keeping your mouth shut.

Albert Einstein

Two things are infinite: the universe and human stupidity; and I'm not sure about the the universe.

Albert Einstein

As far as the laws of mathematics refer to reality, they are not certain, as far as they are certain, they do not refer to reality.

Albert Einstein

Whoever undertakes to set himself up as a judge of Truth and Knowledge is shipwrecked by the laughter of the gods.

Albert Einstein

I know not with what weapons World War III will be fought, but World War IV will be fought with sticks and stones.

Albert Einstein

In order to form an immaculate member of a flock of sheep one must, above all, be a sheep.

Albert Einstein

The fear of death is the most unjustified of all fears, for there's no risk of accident for someone who's dead.

Albert Einstein

Too many of us look upon Americans as dollar chasers. This is a cruel libel, even if it is reiterated thoughtlessly by the Americans themselves.

Albert Einstein

Heroism on command, senseless violence, and all the loathsome nonsense that goes by the name of patriotism -- how passionately I hate them!

Albert Einstein

No, this trick won't work...How on earth are you ever going to explain in terms of chemistry and physics so important a biological phenomenon as first love?

Albert Einstein

My religion consists of a humble admiration of the illimitable superior spirit who reveals himself in the slight details we are able to perceive with our frail and feeble mind.

Albert Einstein

Yes, we have to divide up our time like that, between our politics and our equations. But to me our equations are far more important, for politics are only a matter of present concern. A mathematical equation stands forever.

Albert Einstein

The release of atom power has changed everything except our way of thinking...the solution to this problem lies in the heart of mankind. If only I had known, I should have become a watchmaker.

Albert Einstein

Great spirits have always found violent opposition from mediocrities. The latter cannot understand it when a man does not thoughtlessly submit to hereditary prejudices but honestly and courageously uses his intelligence.

Albert Einstein Education Quotes

Albert Einstein

Most teachers waste their time by asking questions which are intended to discover what a pupil does not know, whereas the true art of questioning has for its purpose to discover what the pupil knows or is capable of knowing.

Albert Einstein

Never regard your study as a duty, but as the enviable opportunity to learn to know the liberating influence of beauty in the realm of the spirit for your own personal joy and to the profit of the community to which your later work belongs.

Albert Einstein

Humiliation and mental oppression by ignorant and selfish teachers wreak havoc in the youthful mind that can never be undone and often exert a baleful influence in later life.

Albert Einstein

The aim (of education) must be the training of independently acting and thinking individuals who, however, can see in the service to the community their highest life achievement.

Albert Einstein

Teaching should be such that what is offered is perceived as a valuable gift and not as a hard duty.

Albert Einstein

In the teaching of geography and history a sympathetic understanding (should) be fostered for the characteristics of the different peoples of the world, especially for those who we are in the habit of describing as "primitive.

Albert Einstein Intuition Quotes

Albert Einstein

It is better for people to be like the beasts...they should be more intuitive; they should not be too conscious of what they are doing while they are doing it.

Albert Einstein Life Quotes

Albert Einstein

Only a life lived for others is a life worthwhile.

Albert Einstein

The life of the individual has meaning only insofar as it aids in making the life of every living thing nobler and more beautiful. Life is sacred, that is to say, it is the supreme value, to which all other values are subordinate.

Albert Einstein

The most precious things in life are not those one gets for money.

Albert Einstein Peace Quotes

Albert Einstein

He who cherishes the values of culture cannot fail to be a pacifist.

Albert Einstein

The conscientious objector is a revolutionary. On deciding to disobey the law he sacrifices his personal interests to the most important cause of working for the betterment of society.

Albert Einstein

My pacificism is an instinctive feeling, a feeling that possesses me because the murder of people is disgusting. My attitude is not derived from any intellectual theory but is based on my deepest antipathy to every kind of cruelty and hatred.

Albert Einstein

There are two ways of resisting war: the legal way and the revolutionary way. The legal way involves the offer of alternative service not as a privilege for a few but as a right for all. The revolutionary view involves an uncompromising resistance, with a view to breaking the power of militarism in time of peace or the resources of the state in time of war.

Albert Einstein

It is characteristic of the military mentality that nonhuman factors (atom bombs, strategic bases, weapons of all sorts,

the possession of raw materials, etc) are held essential, while the human being, his desires, and thoughts - in short, the psychological factors - are considered as unimportant and secondary...The individual is degraded...to "human material.

Albert Einstein

To my mind, to kill in war is not a whit better than to commit ordinary murder.

Albert Einstein

Nationalism is an infantile disease. It is the measles of mankind.

Albert Einstein

Nationalism, on my opinion, is nothing more than an idealistic rationalization for militarism and aggression.

Albert Einstein

He who joyfully marches to music rank and file, has already earned my contempt. He has been given a large brain by mistake, since for him the spinal cord would surely suffice. This disgrace to civilization should be done away with at once. Heroism at command, how violently I hate all this, how despicable and ignoble war is; I would rather be torn to shreds than be a part of so base an action. It is my conviction that killing under the cloak of war is nothing but an act of murder.

Albert Einstein Philosophy Quotes

Albert Einstein

Everything is determined by forces over which we have no control. It is determined for the insect as well as for the star. Human beings, vegetables, or cosmic dust - we all dance to a mysterious tune, intoned in the distance by an invisible piper.

Albert Einstein Science Quotes

Albert Einstein

After a certain high level of technical skill is achieved, science and art tend to coalesce in esthetics, plasticity, and form. The greatest scientists are always artists as well.

Albert Einstein

You cannot love a car the way you love a horse. The horse brings out human feelings the way machines cannot do. Things like machines may develop or neglect certain things in people ... Machines make our life impersonal and stultify certain elements in us and create an impersonal environment.

Albert Einstein

I believe that the horrifying deterioration in the ethical conduct of people today stems from the mechanization and dehumanization of our lives - the disastrous by-product of the scientific and technical mentality. Nostra culpa. Man grows cold faster than the planet he inhabits.

Albert Einstein

Betterment of conditions the world over is not essentially dependent on scientific knowledge but on the fulfillment of human traditions and ideals.

Albert Einstein Youth Quotes

Albert Einstein

People do not grow old no matter how long we live. We never cease to stand like curious children before the great Mystery into which we were born.

Albert Einstein

I am content in my later years. I have kept my good humor and take neither myself nor the next person seriously.

### Other Albert Einstein Quotes

Albert Einstein

Human beings can attain a worthy and harmonious life only if they are able to rid themselves, within the limits of human nature, of the striving for the wish fulfillment of material kinds. The goal is to raise the spiritual values of society.

Albert Einstein

I admit thoughts influence the body.

Albert Einstein

Nothing is more destructive of respect for the government and the law of the land than passing laws which cannot be enforced. It is an open secret that the dangerous increase of crime in this county is closely related with this.

Albert Einstein

I am absolutely convinced that no wealth in the world can help humanity forward, even in the hands of the most devoted worker in this cause. The example of great and pure personages is the only thing that can lead us to find ideas and noble deeds. Money only appeals to selfishness and always irresistibly tempts its owner to abuse it. Can anyone imagine Moses, Jesus or Gandhi with the moneybags of Carnegie?

Albert Einstein

Anger dwells only in the bosom of fools.

Albert Einstein

The tragedy of life is what dies inside a man while he lives.

Albert Einstein

A photograph never grows old. You and I change, people change all through the months and years but a photograph always remains the same. How nice to look at a photograph of mother or father taken many years ago. You see them as you remember them. But as people live on, they change completely. That is why I think a photograph can be kind.

Albert Einstein

The gift of fantasy has meant more to me than my talent or absorbing positive knowledge.

***“It’s useless to speculate until we’re sure.” |***

Physics is becoming so unbelievably complex that it is taking longer and longer to train a physicist. It takes so long to train a physicist to the place where he understands the nature of physical problems that he is already too old to solve them.

Eugene Wigner (1902-1995)

I like people. I like animals, too -- whales and quail, dinosaurs and dodos. But I like human beings especially, and I am unhappy that the pool of human germ plasma, which determines the nature of the human race, is deteriorating.  
Linus Pauling (1901-1994)

When I worked on the polio vaccine, I had a theory. I guided each [experiment] by imagining myself in the phenomenon in which I was interested. The intuitive realm . . . the realm of the imagination guides my thinking.  
Jonas Salk (1914-1995)

Common sense is judgment without reflection, shared by an entire class, an entire nation, or the entire human race.  
Giambattista Vico (1668-1744)

Anybody who has been seriously engaged in scientific work of any kind realizes that over the entrance to the gates of the temple of science are written the words: 'Ye must have faith.' It is a quality which the scientist cannot dispense with.

Max Planck (1858-1947)

Science seldom proceeds in the straightforward logical manner imagined by outsiders. Instead, its steps forward (and sometimes backward) are often very human events in which personalities and cultural traditions play major roles.

James D. Watson (1928-\_\_\_\_)

Science moves with the spirit of an adventure characterized both by youthful arrogance and by the belief that the truth, once found, would be simple as well as pretty.

James D. Watson (1928-\_\_\_\_)

In God I trust. All others, show me your data.

**I expect to pass through this world but once;  
any good thing therefore that I can do,  
or any kindness that I can show  
to any fellow creature,  
let me do it now,  
let me not defer or neglect it,  
for I shall not pass this way again.**

**John Wesley**

"We shall never cease from exploring, and when we return to the place from which we started, we shall know it for the first time."

T.S. Eliot

*The scientific method allows ordinary people to do extraordinary things...*

According to my info, the quote already submitted "Humans live by geologic consent, revokable at any time" is by Will Durant.

"The wonder of the world, the beauty and the power,  
The shapes of things, their colors, lights, and shades,  
These I saw.  
Look ye also, while life lasts."  
--Author unknown

To go with an Earth photo:

"To see the Earth as it truly is, small and blue and beautiful in the eternal silence where it floats, is to see ourselves as riders on the Earth together, brothers on that bright loveliness in the eternal cold - brothers who know now they are truly brothers." -- Archibald MacLeish

"Nature, to be commanded, must be obeyed." -- Francis Bacon

"We stand on the wrong side of the tapestry - a confusion of colors, knots, and loose ends. But, be assured, on the other side there is a pattern." -- Author unknown

"We have met the enemy, and he is us. We are confronted with insurmountable opportunities." -- Pogo (cartoon character by Walt Kelley)

"We don't inherit the Earth from our ancestors, we borrow it from our children." -- David Brower

"Earth does not belong to man - man belongs to the Earth. Man did not weave the web of life, he is merely a strand in it; whatever he does to the web he does to himself." -- attributed to Chief Seattle, but it's my understanding that this was written into a play (author unknown) to be read by an Indian character.

My favorite, bringing together the physical & moral parts of

sustainability, before it became a popular term:

"We travel together, passengers on a little space ship, dependent on its vulnerable reserves of air and soil, committed for our safety to its security and peace, preserved from annihilation only by the care, the work, and I will say, the love we give our fragile craft.

We cannot maintain it half fortunate, half miserable; half confident, half despairing, half slave to the ancient enemies of mankind, half free in a liberation of resources undreamed of until this day. No craft, no crew, can travel safely with such vast contradictions. On their resolution depends the survival of us all." -- Adlai Stevenson

"Losers quit when they're tired. Winners quit when they've won."

Never forget: We are alive within mysteries. - [Wendell Berry](#)

Nothing shocks me, I'm a scientist. - [Indiana Jones](#)

I have never seen a wild thing sorry for itself. A small bird will drop frozen dead from a bough without ever having felt sorry for itself. - [D.H. Lawrence](#)

It's all about striving to live a rich life with deep meaning, and realizing one's potential to become a moral being. - [Paul Pinet](#)

*Pluralitas non est ponenda sine neccesitate*. Or, simply translated, "All things being equal, the simplest solution tends to be the best one." - [Occam's Razor](#)

May your trails be crooked, winding, lonesome, dangerous, leading to the most amazing view. May your mountains rise into and above the clouds. - [Edward Abbey](#)

According to the map we've only gone 4 inches. - [Harry Dunne](#)

The most beautiful thing we can experience is the mysterious. It is the source of all true art and all science. He to whom this emotion is a stranger, who can no longer pause to wonder and stand rapt in awe, is as good as dead: his eyes are closed. - [Albert Einstein](#)

In this house, we obey the laws of thermodynamics! - [Homer Simpson](#)

A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise. - [Aldo Leopold](#)

It is not the strongest of the species that survives, nor the most intelligent, but the one most responsive to change. - [Charles Darwin](#)

Darkness cannot drive out darkness; only light can do that. Hate cannot drive out hate; only love can do that. - [Martin Luther King, Jr.](#)

Things do not change; we change. - [Henry David Thoreau](#)

We still talk in terms of conquest. We still haven't become mature enough to think of ourselves as only a tiny part of a vast and incredible universe. - [Rachel Carson](#)

If you ever drop your keys into a river of molten lava, forget em', cause, man, they're gone. - [Jack Handey](#)

If by some fiat I had to restrict all this writing to a single sentence, this is the one I would choose: The summit of Mt. Everest is marine limestone. - [John McPhee](#)

No amount of experiments can ever prove me right; a single experiment may at anytime prove me wrong. - [Albert Einstein](#)

Growth for the sake of growth is the ideology of the cancer cell. - [Edward Abbey](#)

In order to make an apple pie from scratch, you must first create the universe. - [Carl Sagan](#)

Oh, Andy loved Geology. I guess it appealed to his meticulous nature. An ice age here, million years of mountain building there. Geology is the study of pressure and time. That's all it takes really, pressure, and time. - [Red](#)

The ultimate measure of a man is not where he stands in moments of comfort, but where he stands at times of challenge and controversy. - [Martin Luther King, Jr.](#)

Go big or go home. - [Colin Borst](#)

The answer is never the answer. What's really interesting is the mystery. If you seek the mystery instead of the answer, you'll always be seeking. I've never seen anybody really find the answer -- they think they have, so they stop thinking. But the job is to seek mystery, evoke mystery, plant a garden in which strange plants grow and mysteries bloom. The need for mystery is greater than the need for an answer. - [Ken Kesey](#)

We are just a speck, on a speck, orbiting a speck, in the corner of a speck in the middle of nowhere. - [Bill Nye](#)

I've got an idea -- an idea so smart that my head would explode if I even began to know what I was talking about. - [Peter Griffin](#)

Finally we shall place the Sun himself at the center of the Universe. All this is suggested by the systematic procession of events and the harmony of the whole Universe, if only we face the facts, as they say, "with both eyes open." - [Nicolaus Copernicus](#)

This is a very simple game. You throw the ball, you catch the ball, you hit the ball. Sometimes you win, sometimes you lose, sometimes it rains. - [Nuke LaLoosh](#)

Give me a lever long enough, and a fulcrum on which to place it, and I shall move the world. - [Archimedes](#)

May you build a ladder to the stars, and climb on every rung. May you stay forever young. - [Bob Dylan](#)

You can't fix by analysis what you bungled by design. - [Light, Singer, and Willett](#)

In the confrontation between the river and the rock, the river always wins...not by strength, but by perseverance. - [Louis Agassiz](#)

The two most common elements in the universe are hydrogen and stupidity. - [Chris Visco](#)

Unless someone like you cares a whole awful lot, nothing is going to get better. It's not. - [Dr. Seuss, "The Lorax"](#)

Don't take life seriously, because you can't come out of it alive. - [Warren Miller](#)

Scientists and research:

- Equipped with his five senses, man explores the universe around him and calls the adventure Science. ~ Edwin Powell Hubble, *The Nature of Science*, 1954
- Research is what I'm doing when I don't know what I'm doing. ~Wernher Von Braun
- The important thing in science is not so much to obtain new facts as to discover new ways of thinking about them. ~William Lawrence Bragg
- Scientists should always state the opinions upon which their facts are based. ~Author Unknown

Science itself:

- Science, in the very act of solving problems, creates more of them. ~Abraham Flexner, *Universities*, 1930

- Science is always wrong. It never solves a problem without creating ten more. ~George Bernard Shaw

and probably my favorite:

- Science is simply common sense at its best. ~Thomas Huxley

There are risks and costs to a program of action, but they are far less than the long-range risks and costs of comfortable inaction. - John F. Kennedy

"Biology is the only science in which multiplication means the same thing as division."

The mediocre teacher tells; The good teacher explains. The superior demonstrates. The GREAT teacher inspires.

By learning you will teach; by teaching you will learn.

~~Latin Proverb

"Hence, both in space and time, we seem to be brought somewhat near to that great fact - that mystery of mysteries - the first appearance of new beings on this earth."

Charles Darwin

Nothing in Biology makes sense except in the light of evolution. Theodosius Dobzhansky

Hear and bless thy beasts and singing birds, and guard with tenderness small things that have no words....

"The only place success comes before work is in the dictionary". (Vince Lombardi)

"You get the best out of others when you give the best of yourself." (Harry Firestone)

Let us face a pluralistic world in which there are no universal churches, no single remedy for all diseases, no one way to teach or write or sing, no magic diet, no world poets, and no chosen races, but only the wretched and wonderfully diversified human race.  
-Jacques Barzun, professor and writer

"It's difficult to get a man to understand something when his salary depends on his not understanding it." (Upton Sinclair)

We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect. - Aldo Leopold

"The key to managing is to keep the guys that don't like you away from the guys that are undecided". Casey Stengel

"90% of this game is half mental." ---Yogi Berra

"My goal is to try and turn this team around 360 degrees." ---Jason Kidd

*Few are those who see with their own eyes and feel with their own hearts.--Albert Einstein*

*"Let my teaching fall like rain and my words descend like dew, like showers on new grass, like abundant rain on tender plants." Deuteronomy 32:2*

The greenest energy is the energy we don't use (I think it was Amory Lovins who said that).

"Entomologists are the most gentle people on earth - until a taxonomic problem crops up; it then transforms them into tigers."  
Vladimir Nabokov, 1971

"The teacher is just a boat to take the student over the river."  
Gautama Buddha

'You will know you're old when you cease to be amazed.'  
Glenn Ford

"I want to stay as close to the edge as I can without going over. Out on the edge you see all kinds of things you can't see from the center." -Kurt Vonnegut, Jr.

"Own what you can always carry with you; know languages, know countries, know people. Let your memory be your bag." A. Solzhenitsyn

*"We have forgotten how to be good guests, how to walk lightly on the Earth as its other creatures do."*  
Barbara Ward, *Only One Earth* – 1972

"public need before private greed"

"In tropical forests, when quietly walking along the shady pathways, and admiring each successive view, I wished to find language to express my ideas. Epithet after epithet was found to weak to convey to those who have not visited the intertropical regions the sensation of delight which the mind experiences."

Charles Darwin

The world is a book, and those who do not travel, read only a page.  
--Saint Augustine

The traveler sees what he sees, the tourist sees what he has come to see.  
--Gilbert K. Chesterton

In America there are two classes of travel--first class, and with children.  
--Robert Benchley

"Sometimes we are lucky enough to know that our lives have been changed, to discard the old, embrace the new, and run headlong down an immutable course," he wrote. "It happened to me ... on that summer's day, when my eyes were opened to the sea." Cousteau

The man who goes out alone can start today; but he who travels with another must wait till that other is ready.  
--Henry David Thoreau

Never a ship sails out of bay but carries my heart as a stowaway.  
--Roselle Mercier Montgomery

A man travels the world over in search of what he needs, and returns home to find it.  
--George Moore

I travel not to go anywhere, but to go. I travel for travel's sake, the great affair is to move.  
--Robert Louis Stevenson

Two roads diverged in a wood and I, I took the one less traveled by. And that has made all the difference.  
--Robert Frost

Live each day as if it was going to be your last because someday you're going to be right.  
--Benny Hill

**The real discovery trip not only aims at seeing new places, but at looking with new eyes.**

Our leisure time in the actual world is short, therefore choose wisely.

"We can find happiness in protecting the world around us not only because we cherish it for its awesome beauty, power, and mystery, but because we cherish our fellow humans, those who live today and those who will live tomorrow."  
Jacques Cousteau (1910-1997)

"Too much sanity may be madness. And maddest of all, to see life as it is, and not as it should be!"  
Miguel de Cervantes, "Don Quixote"

...only after the last tree has been cut down, only after the last river has been poisoned, only after the last fish has been caught, only then will you find that money cannot be eaten...

Only when the last tree has died & the last river has been poisoned & the last fish has been caught will we realize that we cannot eat money.  
Cree Native American Prophecy

Every morning I awake torn between a desire to save the world and an inclination to savor it. This makes it hard to plan the day.  
E.B. White

Our purpose is to consciously, deliberately evolve toward a wiser, more liberated and luminous state of being; to return to eden, make friends with the snake and set up our computers among the wild apple trees.  
Tom Robbins 1936

"What is life? It is the flash of a firefly in the night. It is the breath of a buffalo in the wintertime. It is the little shadow that runs across the grass and loses itself in the sunset."

Chief Crowfoot

William Arthur Ward

"Never doubt that a small group of thoughtful committed citizens can change the world; indeed it's the only thing that ever has."

Margaret Mead

"Everyone is subject to the laws of Darwinism whether or not they believe in them, agree with them, or accept them. There is no trial, no jury, no argument, and no appeal." (Unknown)

"The boy throws the rock in jest; but the frog dies in earnest."

Oscar Wilde

The Paradox Of Our Age:

We have taller buildings, but shorter tempers; wider freeways, but narrower viewpoints; we spend more, but have less; we buy more, but enjoy it less.

We have bigger houses and smaller families; more conveniences, but less time; we have more degrees, but less sense; more knowledge, but less judgment; more experts, but more problems; more medicine, but less wellness.

We spend too recklessly, laugh too little, drive too fast, get too angry too quickly, stay up too late, get up too tired, read too seldom, watch TV too much, and pray too seldom. We have multiplied our possessions, but reduced our values. We talk too much, love too seldom

and lie too often.

We've learned how to make a living, but not a life; we've added years to life, not life to years. We've been all the way to the moon and back, but have trouble crossing the street to meet the new neighbor.

We've conquered outer space, but not inner space; we've done larger things, but not better things; we've cleaned up the air, but polluted the soul; we've split the atom, but not our prejudice; we write more, but learn less; plan more, but accomplish less. We've learned to rush, but not to wait; we have higher incomes; but lower morals; more food but less appeasement; more acquaintances, but fewer friends; more effort but less success.

We build more computers to hold more information, to produce more copies than ever, but have less communication; we've become long on quantity, but short on quality.

These are the times of fast foods and slow digestion; tall men, and short character; steep profits, and shallow relationships.

These are the times of world peace, but domestic warfare; more leisure and less fun; more kinds of food, but less nutrition.

These are days of two incomes, but more divorce; of fancier houses, but broken homes.

These are days of quick trips, disposable diapers, throwaway morality, one-night stands, overweight bodies, and pills that do everything from cheer, to quiet, to kill.

It is a time when there is much in the show window, and nothing in the stockroom.

Indeed it's all true. Think about it...read it again.

As a result of an overwhelming lack of requests, and with research help from that renowned scientific journal SPY magazine (January, 1990) - I am pleased to present the annual scientific inquiry into Santa Claus.

1) No known species of reindeer can fly. BUT there are 300,000 species of living organisms yet to be classified, and while most of these are insects and germs, this does not COMPLETELY rule out flying reindeer which only Santa has ever seen.

2) There are 2 billion children (persons under 18) in the world. BUT

since Santa doesn't (appear) to handle the Muslim, Hindu, Jewish and Buddhist children, that reduces the workload to 15% of the total - 378 million according to Population Reference Bureau. At an average (census) rate of 3.5 children per household, that's 91.8 million homes. One presumes there's at least one good child in each.

3) Santa has 31 hours of Christmas to work with, thanks to the different time zones and the rotation of the earth, assuming he travels east to west (which seems logical). This works out to 822.6 visits per second.

4) This is to say that for each Christian household with good children, Santa has 1/1000th of a second to park, hop out of the sleigh, jump down the chimney, fill the stockings, distribute the remaining presents under the tree, eat whatever snacks have been left, get back up the chimney, get back into the sleigh and move on to the next house.

5) Assuming that each of these 91.8 million stops are evenly distributed around the earth (which, of course, we know to be false, but for the purposes of calculations we will accept), we are now talking about .78 miles per household, a total trip of 75-1/2 million miles, not counting stops to do what most of us must do at least once every 31 hours, plus feeding and etc.

6) This means that Santa's sleigh is moving at 650 miles per second, 3,000 times the speed of sound. For purposes of comparison, the fastest man-made vehicle on earth, the Ulysses space probe, moves at a pokey 27.4 miles per second - a conventional reindeer can run, tops, 15 miles per hour.

7) The payload on the sleigh adds another interesting element. Assuming that each child gets nothing more than a medium-sized Lego set (2 pounds), the sleigh is carrying 321,300 tons, not counting Santa, who is invariably

described as overweight. On land, conventional reindeer can pull no more than 300 pounds. Even granting that "flying reindeer" (see point #1) could pull TEN TIMES the normal amount, we cannot do the job with eight, or even nine. We need 214,200 reindeer. This increases the payload - not even counting the weight of the sleigh - to 353,430 tons. Again, for comparison - this is four times the weight of the Queen Elizabeth (the ship, not the woman!).

8) 353,000 tons traveling at 650 miles per second creates enormous air resistance - this will heat the reindeer up in the same fashion as spacecraft re-entering the earth's atmosphere. The lead pair of reindeer will absorb 14.3 QUINTILLION joules of energy (for the scientifically challenged, that's 1-4-3 followed by 21 zeros, or more precisely: 143,000,000,000,000,000,000,000 - a number which, I might add, is larger than the number of atoms in the known universe).

9) Per second.

10) Each.

11) In short, the lead reindeer will burst into flame almost instantaneously, exposing the reindeer behind them, and create deafening sonic booms in their wake. The entire reindeer team will be vaporized within 4.26 thousandths of a second. Santa, meanwhile, will be subjected to centrifugal forces 17,500.06 times greater than gravity. A 250-pound Santa (which seems ludicrously slim) would be pinned to the back of the sleigh by 4,315,015 pounds of force.

12) In conclusion - if Santa ever DID deliver presents on Christmas Eve,

he doesn't anymore

"Creation is a masterpiece, deserving our devout stewardship."

"There are many great nations in the world, with the greatness of each being judged primarily by the greatness of its leaders. As with most great leaders they are but a product of the dedication and inspiration of the great teachers from whom they learned. And so the question begs asking, 'What makes a great teacher?' It is this one unifying thought; that each day, as they rise before the sun, and stare into the mirror before them, they ask themselves this one great question: 'Oh G-d, do I really have to do this again today?'"

Items of interest for when your class is dragging:

The next time you are washing your hands and complain because the water temperature isn't just how you like it, think about how things used to be. Here are some facts about the 1500s:

Most people got married in June because they took their yearly bath in May, and still smelled pretty good by June. However, they were starting to smell, so brides carried a bouquet of flowers to hide the body odor. Hence the custom today of carrying a bouquet when getting married.

Baths consisted of a big tub filled with hot water. The man of the house had the privilege of the nice clean water, then all the other sons and men, then the women and finally the children. Last of all the babies. By then the water was so dirty you could actually lose someone in it. Hence the saying, "Don't throw the baby out with the bath water."

Those with money had plates made of pewter. Food with high acid content caused some of the lead to leach onto the food, causing lead poisoning death. This happened most often with tomatoes, so for the next 400 years or so, tomatoes were considered poisonous.

Bread was divided according to status. Workers got the burnt bottom of the loaf, the family got the middle, and guests got the top, or the upper crust.

Lead cups were used to drink ale or whiskey. The combination would sometimes knock the imbibers out for a couple of days. Someone walking along the road would take them for dead and prepare them for burial. They were laid out on the kitchen table for a couple of days and the family would gather around and eat and drink and wait and see if they would wake up. Hence the custom of holding a wake.

England is old and small and the local folks started running out of places to bury people. So they would dig up coffins and would take the bones to a bone-house, and reuse the grave. When reopening these

coffins, 1 out of 25 coffins were found to have scratch marks on the inside and they realized they had been burying people alive. So they would tie a string on the wrist of the corpse, thread it through the coffin and up through the ground and tie it to a bell. Someone would have to sit out in the graveyard all night (the graveyard shift). To listen for the bell; thus, someone could be saved by the bell or was considered a dead ringer.

Houses had thatched roofs-thick straw-piled high, with no wood underneath. It was the only place for animals to get warm, so all the cats and other small animals (mice, bugs) lived in the roof. When it rained it became slippery and sometimes the animals would slip and fall off the roof. Hence the saying "It's raining cats and dogs."

There was nothing to stop things from falling into the house. This posed a real problem in the bedroom where bugs and other droppings could mess up your nice clean bed. Hence, a bed with big posts and a sheet hung over the top afforded some protection. That's how canopy beds came into existence.

The floor was dirt. Only the wealthy had something other than dirt. Hence the saying, Dirt poor. The wealthy had slate floors that would get slippery in the winter when wet, so they spread thresh (straw) on floor to help keep their footing. As the winter wore on, they added more thresh until, when you opened the door, it would all start slipping outside. A piece of wood was placed in the entrance way. Hence the saying a thresh hold.

"An education cannot be received, it must be achieved!"

"Fortune favors the prepared mind." Louis Pasteur

"There is no such thing as an experiment that didn't (doesn't?) work." Thomas Edison, approximately

The important thing is not to stop questioning.  
Albert Einstein

It has become appallingly obvious  
that our technology has exceeded our humanity.  
Albert Einstein

The future depends on what we do in the present.  
Mahatma Gandhi

Don't go through life, GROW through life.  
Eric Butterworth

Imagination is the highest kite one can fly.  
Lauren Bacall

We are what we repeatedly do.  
Excellence, therefore, is not an act but a habit.  
Aristotle

"Look at those cows and remember that the greatest scientists in the world  
have never discovered how to make grass into milk."  
Michael Pupin

"Surprise, pleasant or unpleasant,  
is more informative than predictability."  
Matt Ridley

"What could be more important than the study of life, to any intelligent  
being who has the good fortune to be alive?" Isaac Asimov

"It has been said that the primary function of schools is to impart  
enough facts to make children stop asking questions. Some, with whom the  
schools do not succeed, become scientists."  
Knut Schmidt-Nielsen (Animal physiologist, 1916 - 2007)  
This quote is good for beginning a discussion about questions: what kind  
of questions do scientists ask, what's a good question, is there really  
such thing as a stupid question, etc.

"I love fools' experiments. I am always making them." --Charles Darwin

"Before I came here I was confused about this subject. Having listened to your lecture I am still confused... but on a higher level"--  
Enrico Fermi

"Geek is chic"

"Support bacteria...it's the only culture some people have"

"Fortune favors the prepared mind." Louis Pasteur  
Actually, its "Fortune (chance) favors only the prepared mind."

I have many quotes framed and posted (4x5 size) throughout my classroom and lab. A former student spoke out in class one day and said that my quote was wrong. His grandfather always said, "Chance favors only the prepared mind." We placed a wager. He wrote to the Pasteur Institute and received an explanation, with the original quote (in French), the reference and a translation. The letter now hangs above the quote in my classroom and is a topic for discussion every year.

*Dans les champs de l'observation le hasard ne favorise que les esprits préparés*

Another favorite is "I am on the verge of mysteries and the veil is getting thinner and thinner." Pasteur

All three hang near the famous picture of Pasteur near his workbench.

Research is what you're doing when you don't know what you're doing

Wener von Braun

I had rather attempt something great and fail, than to attempt nothing at all and succeed.  
Robert Schuller

We may marvel at the process of an egg becoming an adult, but we accept it as an everyday fact. It is merely then a lack of imagination to fail to grasp how changes in this process that are assimilated over a long period of time, far longer than the span of human experience, shape life's diversity.

Thomas H. Huxley

Study nature not books. —Louis Agassiz, 1807-1873

*Naturam expelles furca tamenusque recurret.* — Horace, 20-30 BC

(Drive out nature with a pitchfork nevertheless she will rush back.)

It was adversity that made New England great. That and codfish. — Gov. Winthrop, 1588-1649

Ocean, n. A body of water occupying two-thirds of a world made for man— who has no gills.

-- Ambrose Bierce, from *The Devil's Dictionary*

One of my favorites is from C. S. Lewis:

...on the path of every science the lion Mathematics waits for you.

This quote is painted on my "illustrated" classroom: "It's amazing that imagination can survive formal education." Einstein.

I use the following quote from Edward Jenner to illustrate the idea that scientists have a long tradition of being concerned about the practical and ethical effects of their work. It is so easy to forget that the whole purpose of doing science is to make life better for people. Jenner's discovery of the smallpox vaccine has probably be responsible for saving hundreds of millions or even billions of lives, yet before he knew it was going to be so successful he expressed great concern that it not do "a public injury".

"Ere I proceed let me be permitted to observe that truth, in this and every other physiological inquiry that has occupied my attention, has ever been the object of my pursuit, and should it appear in the present instance that I have been led into error, fond as I may appear of the offspring of my labours, I had rather see it perish at once than exist and do a public injury."

Edward Jenner, 1799

Developer of the Smallpox Vaccine

"I do not think evolution is supremely important because it is my specialty. On the contrary, it is my specialty because I think it is supremely important." - /George Gaylord Simpson/

JJ Le Roux