

Life Lessons I've Learned from Science

Hello Spectrum Academy: faculty, staff, students, and members of our families and communities. I feel much honored to be given the opportunity to represent the teachers in delivering a message to these graduating seniors of 2015. I have given deep thought to words of encouragement and wisdom that I would like to share with you tonight. I decided to split my speech into two parts. First, I want to use science to explain several principles of wisdom for life after high school. The last half of my speech will be devoted to three encouraging thoughts.

Part 1 - Principles of Wisdom from Big Ideas in Science

Let me reveal the secret behind what I'm about to do here. Again, I want to use a list of scientific theories to demonstrate important life lessons. Yes, this is kind of a quiz, but you have studied these theories several times during the last years of high school science. Relax, though, I'm not going to reteach any of these theories tonight. Neither will you get one more grade... <pause> Eight times, I will state a simple principle of wisdom, then say the name of a big idea in science that teaches that principle. I will pause to give you a moment to try to remember everything you have ever learned about the theory. I will then go on to explain how each theory holds lessons of wisdom you will be able to use throughout your lives. Okay... ready, set, give a crap!

1. **All things have a beginning and an ending.** This principle is taught by cosmology theories such as the Big Bang and the potential Heat Death of the Universe... <pause>. Knowing that all things have a beginning and an ending, we need to remember to celebrate happy events and, as needed, grieve quickly and effectively when something good ends. Conversely, we can remember that bad experiences eventually end, and welcome relief often follows.

2. **Everything changes over time.** This truth is described by the theories of Universal Expansion, Space-Time Equivalency, and Evolution... <pause>. These theories teach us that the only true constant in the Universe is change. Most humans struggle with such transitions. We must learn to adapt when things change, to learn new things on purpose, and to overcome challenges with skill and determination.

3. **Attraction and repulsion can exist between all things... even people.** Newton's laws of gravitation, Einstein's Relativity, and Quantum Theory all suggest that there are predictable patterns of attraction and repulsion between all things... <pause> Learning from these patterns, we can anticipate and avoid unpleasant circumstances... and people. We can learn to see all these things from multiple frames of reference, or points of view. With social skills instruction, we can deal gracefully with all interactions, hopefully attracting the best things in life.

4. **There are laws of cause and effect.** Newtonian Mechanics and the Laws of Thermodynamics demonstrate relationships between cause and effect... <pause>. Avoiding mathematical and technical details, these laws point out four truths: (1st) we are all intimately and unavoidable connected to everyone and everything around us, (2nd) we can't get something for nothing - there is always a price to pay, (3rd) we can't always break even when we gamble... *and* NOTHING lasts forever, and (4th) we can't ever quit the game of existence - there is no escape from natural consequences. So make choices carefully... look before you leap; think before you speak. If we are mindful of these laws of action and consequence, we avoid the embarrassment of foot in mouth disease.

5. **Things tend to rise or fall in order to find where they belong.** Archimedes' Principle of Buoyancy and properties of Density show us that things in life find their level... <pause>. We all seek to find our comfort zones in life: physically, socially, financially, spiritually, etc. It is positive to appreciate the wide diversity of these things. The principle of buoyancy also speaks to the quality of our leaders. We must always ask ourselves, "What had to be displaced for them to wind up in power?" An old dairy-farm saying goes, "Cream rises to the top; but so does scum." Our leaders can be heroes or villains. It is our responsibility to figure out which of the two we wish to put in charge of things.

6. **We can't know everything.** The Heisenberg Uncertainty Principle explains that we can't observe or discover everything all at once... <pause>. It is important to be aware of our limitations. Humility is one of the most important tools of a good scientist, but it is also an essential trait of civilized people. It's okay to admit you don't know. It's safer – and less exhausting – than trying to be right all the time.

7. **The universe does not revolve around us.** Copernican Heliocentrism, and all astronomy discoveries since, teach us to remember that we are not the center of the universe. We never have been. We never will be. So, deal with it! ... <pause>. A sincere study of astronomy makes us feel very small, but it also opens our eyes to the beauty of all existence around us. It gives us a sense of our place in the larger scheme of things. Becoming aware of one another and our environment... recognizing the intimate and unavoidable connection between all things... standing in awe of the complex and energetic beauty of it all... This is a far richer human experience than remaining wholly consumed with self. When we remember that we are part of a community, and not always its most important member, we can learn to be polite. We can solve problems together. We can help one another through the rough patches of our existence.

8. **The world changes around us.** Plate Tectonic Theory suggests that the world is much different today than it was in the past. Continents drift, mountain ranges rise and disappear, sea levels change, polar ice caps grow and shrink, etc. The world is different today than it was yesterday. This leads the curious mind to wonder, “What will happen tomorrow?” The history of human science teaches us that we can participate in molding the world around us. We can take hold of the forces and patterns of nature and make our dreams come true.

..... LET’S HAVE A QUICK SENSORY BREAK BEFORE SWITCHING MENTAL GEARS

Okay, everyone sit down. You know I love and respect you, but let's have a very high degree of "shut-up-age" please.

Part 2 – Three Encouraging Thoughts

We love you. We are proud of you. And... Go do good in the world.

First - We love you.

It has been my marvelous privilege to watch you grow and mature over the past four years. Most of you have been one of my students at least once or twice in that time period. I have talked with you in the halls, celebrated your good news, laughed with you about the funny parts of life, cried with you in times of tragedy, done my best to teach you about science and life, reprimanded you when you needed it, met with your parents numerous times, hoped and dreamed for your futures, and prayed for each one of you countless times. Miss Anna and I feel like proud parents much of the time; exasperated and exhausted parents on other occasions. We have fed you, fixed your cuts and scrapes, put an arm around your shoulders when you needed it, and have continuously discussed and planned how to be the most helpful to you in private meetings. You were born to other families and are cared for by many other adults, but in our minds you are our kids. I am sure there is not one teacher/para partnership here or administrator or staff member that does not feel the same way.

Next - We are proud of you.

We often marvel as we discuss the progress that each of you makes from year-to-year. We are in awe of your intelligence, abilities, and potential. The collection of challenges our students face, Autistic and otherwise, have proven only to be developmental delays. You are not disabled. The word "disabled" means you lack ability... that you can't do something no matter how hard you try. The charter of this school is a stubborn rejection of this notion of disability. Despite the

expectations of many, we see you do the impossible every day. You grow. You learn. You dream. You succeed. We are proud of these traits in you all.

I asked Miss Anna to identify the biggest way she is proud of you all. Her answer, "How they understand and have compassion for one another." I saw this on the day I came to interview for my job. I saw students helping one another. I saw students who didn't want to leave at the end of the day because Spectrum Academy feels like home to them.

I am personally very proud of our school community. Since the day I was lucky enough to be asked to teach here, nothing has enriched my life and my character so much as the therapeutic approach we take to educating our students. When the quality of student behavior and academic work is not what we had hoped, we work very hard to say with sincerity, "Today was a bad day. Let's try again tomorrow." The magic is that, on average, the next day IS better. Again... You grow. You learn. You dream. You succeed.

The expectations we have of personal growth and the faith we have in you are justified in countless ways every day. In addition to all the wild stories I get to tell my wife when I get home in the evenings, I brag about you to her and to others whenever I get the chance. I'm sure all of us do. We are proud of you... I promise, if you NEVER settle for anything less than the very best version of yourselves, we will always be proud of you.

Last - Go do good in the world.

Our beloved English teachers may find my choice in grammar lacking in that last sentence. I did not say, "Go do well in the world." I said, "Go do good in the world." Let's contrast these ideas.

Our species, Homo sapiens, has seen its share of individuals that do well; those of us who survive and reproduce because they are a success within their respective environments. Survival of the fittest produces successful individuals, but the cost is suffering... pain, fear, hunger, and self-doubt experienced by those who fail to adapt and compete. This world of ours ...our families, our

communities, our nations... has plenty of "Do Wellers." They have their reward and are hero-worshipped for it. What we desperately need right now and for the foreseeable future is "Do Gooders."... <pause>

Miss Anna, once explained, "Most of us do not have a BIG CALLING... No, in fact, if we stop and pay attention to *what* is around us, to *what* needs our immediate compassion and love, to *what* needs our attention deeply and desperately... how can that not be a calling? Not a calling to greatness, but a calling to small, beautiful things that can be improved upon right away. We have enough people in the world who are struggling for greatness, to be on top, in charge and in control, enough people wanting fame... But it is the tender words of encouragement, often whispered quietly that will heal the heart, sooth the soul, and very possibly pull some living being out of suffering. This is not an act of greatness, this is an act of a kind human being." (Miss Anna Grant, edited for grammar and spelling)

I believe that one of the worst things we can do is to pretend that we are better than we are; while one of the best things we can ever do is to try to be better than we are. Often, the best way to improve the world is to improve ourselves personally... <pause>. Anne Frank understood this principle. As a famous German author, she wrote great things under the worst of circumstances. She had every reason to believe that the world will always be a bad place. Yet, she insisted hopefully, "How wonderful it is that nobody need wait a single moment before starting to improve the world."

Related to the idea of doing good in the world, I wish to say a few words about being polite. My students know this word has special meaning to me... <pause>. In whatever adventure or occupation you find yourselves, I challenge you to be polite. This word “polite” has been a theme in most of the social skills lessons that Miss Anna and I teach. We have refined our definition of polite over many years.

To be polite is to notice the needs of others around you, and then care enough about them to make sure they are comfortable. If you do this, every rule of civilized behavior is automatically satisfied. There is no need to memorize long lists of expected behaviors for each social circumstance. Again, notice the needs of others around you, and then care enough about them to get involved and make sure they are comfortable. Albert Einstein stated this principle beautifully: “Only a life lived for others is worth living.”

We teachers, administrators, and parents have worked to prepare you to live your adult lives with the needed skills, both social and academic. We’ve done our best, and now the rest is up to you.

Let my last official words as your teacher be these:

“Go do good in the world.”