

The Crow and the Pitcher

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Keynote address delivered at *Expanding Your Horizons through Mathematics and Science* conference, March 20, 2010.

Good morning. Thank you for your lovely introduction. I am delighted to be here to start you off on a day that's guaranteed to be filled with a lot of fun, learning, and opportunities that will expand your horizons.

About ten years ago I was sitting in your seat, as a student at the annual EYH conference. Like many of you, I enjoyed science, but I was not sure what the future had in store for me. When I thought about growing up, I wanted to be everything from a jellyfish scientist to an international ambassador to an astronaut. Attending EYH helped me to get a sense for what real people do, and I hope that you have the same positive experience as I did. Today I am a high school physics teacher, and I get the opportunity to do all of the things I love, including scientific research, international travel, and, hopefully in the future, experiments with weightlessness.

Even if you don't quite know yet what you want to be, you likely have an internal desire to get something great out of life, to make a big contribution, to make a difference, and to enjoy yourself while doing it.

No matter the person, we all *want* something to make our lives whole and complete.

Think about any dream that you have – you dreams can appear far away and impossible to achieve. Fortunately for us, people have striven for their dreams since the dawn of time, so we can learn some age-old lessons that are still true today. The story I am about to tell is about getting what you want through persistence and hard work. This story was written around 500 BC – over 2,500 years ago. Listen closely...

It had not rained for many weeks, and all of the streams and ponds had dried up. A Crow, half-dead with thirst, came upon a Pitcher which had once been full of water; but when the Crow put its beak into the mouth of the Pitcher he found that only very little water was left in it, and that he could not reach far enough down to get at it. He tried, and he tried, but at last had to give up. Knowing that his life was at risk if he could not find anything to drink, he looked around in despair. Then a thought came to him – he noticed that the dry ground around him was littered with many little pebbles. Finally, he took a pebble and dropped it into the Pitcher. Noticing that the water level had risen, he suddenly realized that he had solved his dilemma, and began picking up pebbles one at a time and dropped them into the pitcher. Seeing his progress, he worked more and more quickly. At last, he saw the water mount up near him, and

after casting in a few more pebbles, he was able to quench his thirst and save his life.

What is the moral of the story? There are many. We all are in desperate need of something that makes our lives complete, like the crow in need of the water. No matter our circumstances in life, achieving what we want is not easy. Like the crow's idea to place pebbles in the pitcher, sometimes we have to be creative to make our dreams come true. The crow, exhausted with dehydration, had to work hard to get the water – and we, likewise, cannot achieve what we want without lots of effort. Fortunately, the story teaches us yet another thing – in the words of the Greek storyteller, Aesop, “little by little does it.” In modern language, getting what you want in life is not easy, but just take it “one step at a time” and you'll get there. We do not need lots of money, privileges, or even luck to become successful – all we need are little pebbles.

The first little pebble that people need who decide to pursue a future in science, math, and technology is a **sense of awe and wonder** for the world. Sometimes, when we want to be “sophisticated,” we want others to think that we are unimpressed by the little things. Strive not for sophistication – it is the simple people who see great things. Look at the world around you. Let yourself be amazed by the immensity of the universe, and realize that when you look into the deep darkness of the night sky, that you are looking into infinity – it has no end. Realize your

smallness. It is often said that the wise become wise only by realizing how little they actually know! In the words of the astronomer Carl Sagan, the earth is nothing more than a “small blue marble,” and we, living upon that small blue marble, are unrecognizable, insignificant, to the universe around us. You can only become great by realizing your smallness.

Scientists, mathematicians, and engineers take it a step farther, however. They look at the world with a sense of awe, and it stimulates their minds to ask questions. The second pebble you need to attain your dreams is to be **curious**. We are in awe of the world when we allow our hearts to be overcome with a sense of wonder, but curiosity begins when you actively choose to pursue your interests by asking questions. Scientists, mathematicians, and engineers are imaginative, and we must nurture our imaginations from the time we are very young. Our global society is at a point of great challenge. Scientists, mathematicians, and engineers are all asking themselves questions such as, “How will we supply the world with enough energy for a growing population? How will we adapt to a changing climate? How can we eliminate the pain and suffering that accompanies poverty, hunger, and disease? How can life for humankind be improved?”

While a sense of curiosity may come naturally to you, the third pebble, a **love for learning**, often takes a lot of effort. Interest and curiosity are only worthwhile if they motivate you to seek the answers to your questions. Some of you may find certain subjects very easy – but do not be fooled, science is not always easy even for scientists! While it is important that you find something you are passionate about, don't be discouraged if you are not the best. The only things worth doing challenge you, because challenge is what gives you the opportunity to be creative and step outside of the mold. Social scientists and mathematicians work together to monitor population changes, scientists and politicians work together to study the impact of global warming, and doctors attempt to create new medicines. These achievements take years of research, collaboration, and discussion to accomplish. Sometimes these people feel as though there are no solutions to their problems, but they don't give up.

Like the thirsty crow, these pebbles help scientists, mathematicians, and engineers to quench their thirst in their desire to change the world, but they would not attain their goals without a few more pebbles.

Successful people tend to be risk takers – not necessarily that they risk their lives or do silly things that could hurt them, but that they take the chance at failing. Engineers often describe their profession as “success

through failure,” given that more projects are failures than are actually successes. Their failures are often small, but their successes are monumental, all because they take chances. Essentially, all successful people are **adventurous**. Adventure entails stepping outside of your comfort zone, taking risks, meeting new people, and going to new places. I encourage all of you to travel, be it to the big city or to a foreign country. As you grow up, go to college, start a career and a family, change can be very scary. Embrace the change and the new possibilities it brings. Don’t be afraid to fail!

In a world of change, you must hold to something steadfast. Ultimately, you must commit to what you want in life. Commitment takes loyalty and trust. The commitments you make will be based upon your personal set of ethics, morals, and values, and these become increasingly important as you decide how you want to live out your life. Decide on your **principles, and stick to them**. Choose today who you want to be tomorrow.

Lastly, a pebble we all need for success is a support network of **family and friends**. No one accomplishes anything alone. If you want good things out of life, then surround yourself with friends who are good people and encourage – not discourage you – from getting what you want. Make friends with people who want you to be your best, both in

school and in your relationship with others. Of all the influences you will have in your life, your friends can make the biggest positive or negative impact.

So, you may be asking yourself how these “pebbles” apply to you. Perhaps you already possess many of these pebbles. No matter what you want to pursue, be it science, mathematics, engineering, or any other field, I offer a few points of suggestion:

1) Think about what you might want for your future career, and then find a mentor in your area of interest. It is okay if you are not sure – that’s the point! When I considered my future career, I wanted to be so many things that I had to spend my time trying to find out what I did not want to be. I participated in job-shadows, talked to people in different careers, participated in career field trips with organizations such as the Girl Scouts, and attended events such as EYH. If you know what you want to be in the future, the best resource you can have is a person in that field who can mentor you and give you the advice that you need.

2) Take as wide a variety of courses as you can in high school. Challenge your mind. Take as many advanced-level courses as you can, but do some for fun.

3) Contribute to your community through leadership and service. Some people say that doing service for another person makes them “feel good.” Learn to serve others, not for the “good feeling” that results, but out of love. Learn what it means to do something purely because you are passionate about a cause. Once you know what it feels like to do something out of love, that’s how you’ll know when you’ve made the right career decision.

4) Take care of your whole person – become strong academically, physically, and emotionally. Exercise your mind, body, and heart. Scientists, mathematicians, and engineers need a diverse set of skills. When people think of scientists, they often imagine a crazy white-haired man wearing a lab coat – I can tell you, scientists don’t look like that! Many of my own scientist and mathematician friends play in bands, participate in sports, or make TV shows. Many of them need to know about much more than their subject area – some of them need to understand politics, economics, and history to be successful. Many of them use art in their careers.

5) Lastly, do something every day to fill your pitcher with pebbles. Start with the smallest of pebbles: Study for school. Pay attention and participate in class. Be organized. Do not waste time. Do your homework, *every* day. If you don’t understand something or are

struggling, ask for help. As a teacher myself, when I see students do these things, I see them become successful, no matter if they think they are “good” or “bad” at science. Don’t sell yourself short – just because you find a class hard doesn’t mean you can’t learn or that it’s not for you. I have the blessing of being here today with Dr. Benson, my math teacher from high school. Honestly, she was a great teacher, but I struggled, and that didn’t make me happy. However, instead of giving up, I persevered. One day, sitting in AP Calculus, everything clicked. After four years of hard work, I “got it,” and have loved mathematics ever since, part of which led me to become the physics teacher I am today. Learn all you can, but don’t forget to build relationships along the way. Show your appreciation for others, and don’t be afraid to ask for favors. It has often been said that “it’s not *what* you know, it’s *who* you know” that really counts. Having friends, such as Ms. Johns, whom you met earlier, can open a world of opportunities to you. It is so important to have someone “watch your back” and look out for prospective programs and scholarships that can have a tremendous impact on your life.

Just remember, grades do count! Listen to people who know what is best for you, be it your parents or your teachers, and ask them for advice before you make big decisions.

Here's the take-home message: I encourage you highly to consider a career in math, science, or technology. You have the potential to realize your dreams by being creative and making major contributions to the world. Whatever you decide, work hard to quench your thirst. Start now with the little things – appreciate the world through a sense of awe, curiosity, and working hard to learn in school. Be adventurous, stick to your principles, and surround yourself with family and good friends.

As you go through the day, take time not only to participate in the fun events, but get to know the women who represent the wide range of careers in science, mathematics, and technology. They are here today because they love what they do – they have filled their pitcher with pebbles.

Achieve your dreams one step at a time. Like the crow, every small effort you make now contributes to raising the water level a bit higher in your pitcher, a bit closer to success. By the time you begin the career of your dreams, your pitcher will have overflowed. Remember, “Little by little does it.”