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By Jeff Anderson

LEARNING CAN BE A TREASURE

In the busyness of our lives today we can lose sight of the vastness of the world we live. Can you imagine NASA sending an interplanetary space probe 'New Horizons' on a multi-decade long fact finding and photographic mission towards the outer reaches of our solar system? Then after eleven years of travel 'New Horizons' was finally close enough to record photos of the dwarf planet Pluto. Yet it was traveling so fast that it had less than twenty-four hours to photograph its findings as it flew by Pluto and its moon Charon.

A Chinese proverb says "Learning is a treasure which accompanies its owner everywhere." This year, the Dynamic Learning Institute Classes produced many treasured learning insights for Class participants. In the weeks ahead we will share learning insights from DLI Classes. We hope you find the sharing of treasured insights interesting and request that if you have a personal DLI insight which you treasure that you will share it by sending a note to jeff@ServKerrville.com.

The discovery of new information can be fun and stimulating. Lifelong learning is most effective when it becomes fun. Fun being defined as "an experience that provides enjoyment." This year, each DLI Class has provided participants fun and stimulating learning experiences. Looking back, the DLI Class taught by Dr. Kim Arvidsson "Pluto and Friends - Smaller Solar System Bodies" was a Class that truly stretched my knowledge and stimulated new desires to learn.

I must admit that this topic originally left me lukewarm in regards to personal interest. Yet, I found myself spell-bound as Kim, a native of Sweden, led a full classroom, on the Schreiner University Campus through a fascinating study focused upon the smaller bodies of our solar system. Understanding the smaller



Pluto and its largest moon Charon compared with the size of Earth Credit: Nasa

faraway bodies provides clarity to better understanding our own planet Earth and the forces that shape the other parts of our solar system.

Pluto's orbit is elliptical, making the orbit a stretched out circle, requiring 248 extra years to orbit our Sun. As a result of its elongated pathway, Pluto lies between 2.6 and 4.6 billion miles from Earth over that 248 year circuit. Pluto's highly elliptical path means that the atmosphere of the dwarf planet changes overtime, expanding and contracting as its components freeze and melt. With its icy crust and rocky core, Pluto is the largest known object in what is known as the

Kuiper Belt. Most planets sweep the area around them clean of smaller bodies after their formation, Pluto lacked the critical mass and gravitational force necessary to do so. This is perhaps one of the reasons it was demoted to the status of being a dwarf planet in 2006.

When NASA scientists send probes to planets and other bodies, the spacecraft rarely travel in straight lines. Visiting the more distant parts of our solar system, these satellites often use the gravity of moons, planets, and even the sun to provide them with fuel-less acceleration. The constant motion of the solar system means that the bodies aren't always in the most ideal position at the time of launch and with bodies such as Pluto, waiting for the ideal lineup could mean a delay of decades or even centuries. As such, it sometimes takes longer to travel to a distant body with faster rockets than it may have decades ago, simply because one journey may utilize a straighter line.

The most distant-traveling spacecraft in our solar system, the Voyager and Pioneer missions, never made it to Pluto. Thus, NASA's New Horizons mission is the only spacecraft that has visited near Pluto. Launched in 2006, New Horizons arrived at the Pluto-Charon system on July 14, 2015, more than 11 years after leaving Earth. New Horizons' passed by Mars and used Jupiter for a gravity assist on its way to Pluto. When it passed within 7,800 miles of Pluto's surface, it was traveling at a relative velocity of 30,800 mph.

Our universe is vast beyond my comprehension! The University of California estimates "there are 10 billion galaxies in the observable universe! The number of stars in a galaxy varies, but assuming an average of 100 billion stars

per galaxy means that there are about 1 billion trillion stars in our observable universe."

If I had known that I was interested in learning more about space, I might have studied information on the web or visited the Library. Yet, in my distracted life my interest in space was latent. I needed the catalyst of a talented DLI instructor like Schreiner University Professor Kim Arvidsson to stimulate my desire to learn more about the vastness of our world. This happened when the lightbulb went off in my mind that what we know about Pluto comes largely from a spacecraft that traveled eleven years within our solar system to gather one day's worth of new photographic information.

The Chinese proverb, "Learning is a treasure which accompanies its owner everywhere" has proven true as I have shared this learning insight about Pluto with scores of Hill Country friends and now with you.

Our willingness to learn is a choice and I hope you will make the choice to learn something fun today and then share what you learned with others in the weeks ahead.

About Anderson - DLI Chairman Jeff Anderson is servant pastor of SERV Kerrville, a nonprofit collaborating with community partners to empower lifelong learning.

Dynamic Learning Institute - The Fall Semester of DLI will return after Labor Day with an exciting roster of Classes featuring Hill Country neighbors with interesting lifetime experiences to share with you.