The musical mosaic of science

Description

Two weeks ago during my first post in my **September Series**, I wrote about how television, especially educational programs, made a significant impact in my life. I got a lot of positive reaction to that post, as well as other people chiming in about their favourite programs watched as a kid.

While I only discussed two animated programs, Loony Toons and Animaniacs, there are countless others that I used to love watching that would entertain and educate. And, I believe that is part of the reason why I love talking about science and the natural world as much as I do. There **is** a way to educate someone about complex subjects such as science and math that can be entertaining as well as informative. A perfect example happened to me just a few days earlier.

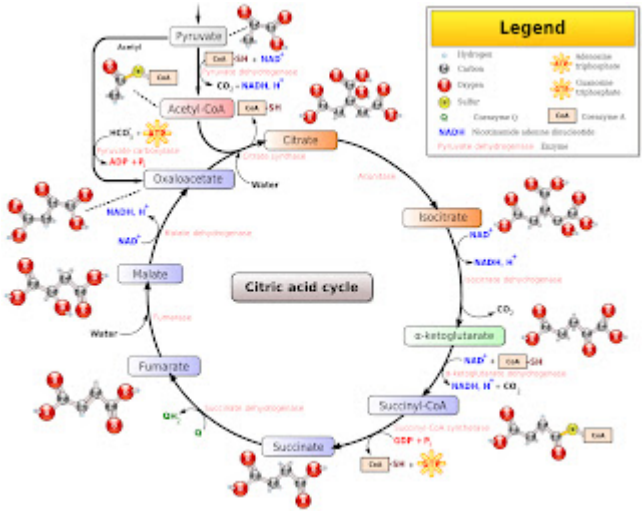
On September 16th, a discussion began with people regarding Albert Szent-GyÃ¶rgyi, who would have turned 118 that day. The conversation began thanks to Google choosing to celebrate his accomplishments with a Google Doodle.

Szent-GyÃ¶rgyi is well known from a variety of accomplishments, most notably discovering Vitamin C, as well as the components and reactions that occur during the infamous citric acid cycle.

The CAC

The Citric Acid Cycle (Or Krebâ€™s Cycle) is a very complex set of reactions that occur in your body at all times to turn digested food into energy. Simply put, the cycle breaks carbohydrates, fats and proteins into carbon dioxide, water and usable energy (known as ATP).

As demonstrated in the figure below, the process is extremely complex to understand. But, it is even more difficult to learn properly.



Looks complicated, doesnâ€™t it? Believe me â€¦ it IS

In grade 11, during the cellular energy unit of the curriculum, the entire class was presented with the CAC. My teacher, Mr. Thomson, knew what a daunting task it was, so he broke it up into steps and explained only what we needed to know to understand precisely what was going on (namely, tracking the amount of Carbon). I remember the teacher going over the process again and again in order to drill it into our heads. We did assignments where we had to draw the whole process of big pieces of paper and calculations tracking the amount of energy gained â€“ all done to help us memorize the complex cycle for the test.

And, boy did I study for that.

I was up in my room for hours memorizing it, having my parents quiz me over and over until I had it down cold for the test. The result?
Ninety percent.

But, is there an easier way to learn such a complex topic?

According to Robert Krulwich from NPR, yes and no.

In fact, there are many ways in the technological age we live in today where you can find new and interesting ways to learn something. Just type a subject into Google and youâ€™ll find a plethora of options showcasing everything from books to videos to interactive websites.

In the case of the Citric Acid Cycle, you can take a look at some videos on YouTube like this and this (which is by far my favorite). But, you donâ€™t get the full understanding and details that can be provided by teachers, like Mr. Thomson, who genuinely care about getting you to understand the material.

Some students learn better in a classroom or with a textbook, while others excel using a more audio-visual technique. There is no wrong way to learn; just find the way learn the best and stick to that.

Expanding your mind

Looking up a video or reading a book when you have a specific problem in a field or subject is pretty easy, but what is you want to learn about something bigger? What if you want to learn a little bit about such complicated topics as astrophysics, cosmology or quantum mechanics?

Such topics are extremely complicated to understand, much less teach. I only know a tiny bit about quantum mechanics and the universe, just enough to understand a televised documentary on the Discovery Channel, PBS and the like.

But then, Joanne Manaster over Twitter introduced me to something of an experiment entitled, The Symphony of Science.

Created by John Boswell, the Symphony of Science are a series of music videos used to, according to his website, â€œscientific knowledge and philosophy to the public, in a novel way, through the medium of music.â€•

Not only are the music videos entertaining, but they also serve as a great way to introduce individuals to complex areas of science and the researchers that explore them. Boswell uses a vast array of methods to bring complex topics to life using archival footage, new documentaries and interviews with notable scientists like Richard Feynman, Brian Cox, Carl Sagan, Stephen Hawking and more.

What exactly is science?

Where did we come from?

Or what exactly quantum mechanics is?

There are a total of 11 videos, each of which focuses on a different aspect of science and research. The first few videos are a little rough, but entertaining all the same. Each one has a message that is worthwhile and of note.

But the most amazing thing is that each and everyone will teach you something (and the songs are pretty catch too)!

To watch all eleven, as well as free downloads of them all, be sure to visit the website!

Category

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