

# TEACHING THE PERIODIC TABLE AS THE EVOLUTION OF MATTER FROM ENERGY TO LIFE, USING POETRY

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## Abstract

*I'm on top of the table and what do I see?  
The vast expanses of space, the primary polarity.  
Hydrogen and Helium, being born at the start,  
Both light and tiny but with natures apart...*

Most science Nobel Laureates before 2010 were actively engaged in the arts, with many saying that this was important for their scientific success. The use of the arts at the cutting edge in science suggests that innovative thought is helped by creative approaches in our teaching. Researched effectiveness in the use of the arts in science education stimulated the development of this Periodic Table poem. Construction of the poem drew upon researched differences in elemental reactivity, holism evolution, and the use of story. The resultant poem is a story of the birth, maturation and death of matter, designed to stimulate the interest of specialist and non-specialist chemistry students at all levels.

Holism evolution, as developed by Smuts (1926), describes evolution as an emerging sequence of substances/levels; of energy, matter, life, consciousness (like that of the higher animals), and the human personality. By viewing the Periodic Table through the lens of holism evolution, the poem tells a story that begins with the big bang formation of Hydrogen and Helium at the top (first-born and most youthful of the elements), and ends with the radioactive elements at the bottom (old-age and death of matter).

Children love stories, and stories have carried the wisdom of all cultures over the millennia. The poem in this research was designed to tell an imagination-rich story of matter that carries many important scientific ideas to students. This poem was tested in a high school chemistry class with those who had selected science as a subject, and those who had not. The findings revealed that almost all participants appreciated being taught science in this way, with many expressing that the science taught them about human life and that human life could conversely be helpful to understanding science. This paper presents the development and experience of the Periodic Table story-poem, and how holism evolution and poetry can be used in science education.

*What was seen at the start with the sun shining bright,  
Giving life to the plants and Earth chemistry,  
Now changes to death in the dim glowing light,  
Or explosion of accelerated radioactivity.*

*Ashes to ashes, dust to dust, right?  
No! Energy to matter, matter to life!*

**Keywords:** *Science education, holism evolution, science poetry, story, periodic table.*

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