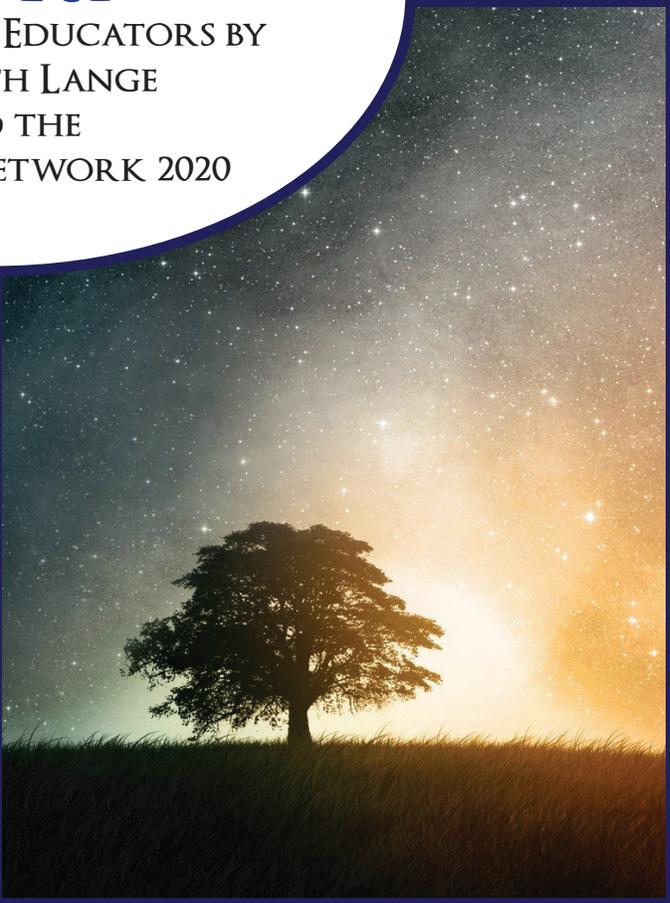
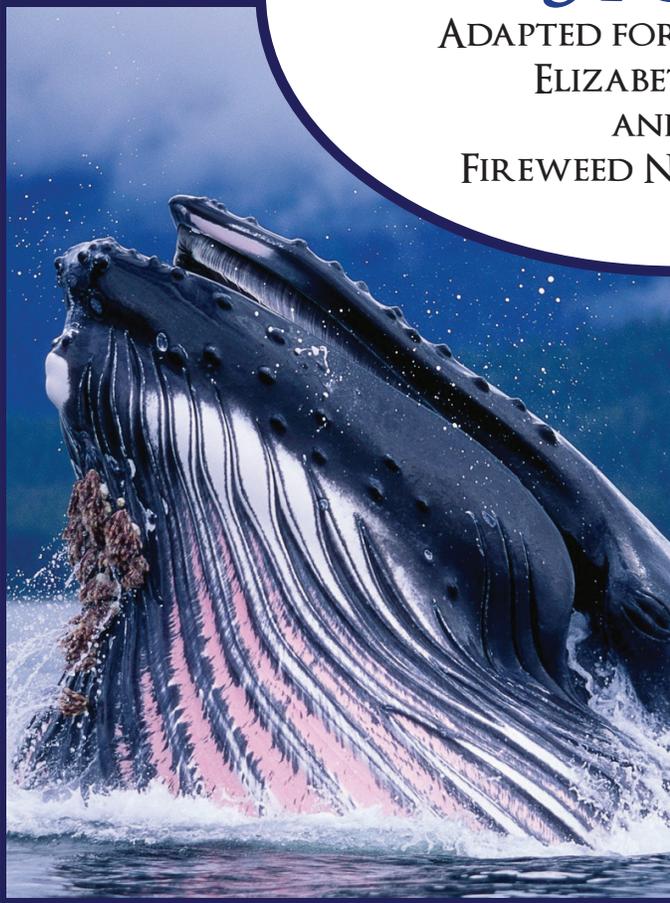




# A COSMIC STORY

ADAPTED FOR EDUCATORS BY  
ELIZABETH LANGE  
AND THE  
FIREWEED NETWORK 2020



# PREFACE

This is the story of the origins of our cosmos. Every “thing” that exists in the universe came from one common origin. Our human ancestry stretches back through all life forms, back through the stars, back to the primeval fireball. This Big Story tells us we are one small but inseparable part of the unfolding process that is our Earth and solar system.

The universe is a whole, and it is a developing being, just as we are. This origin story can help awaken us to the planetary dimensions of our being. It can nurture our future as a respectful, responsible species.

Using stories, humans throughout history have attempted to articulate our place in a powerful, wonderful cosmos and in a life-giving natural world. The New Science is one story, told by a physicist, but it is now converging with many ancient wisdom traditions, told by a cultural historian, toward an understanding of the great mystery of our cosmos. It is one step back to a mythic consciousness.

This story can help shift the Western mind toward the findings of New Science, which now connect with what Indigenous people have always known, including that:

- we live in an alive world, it is not dead or inert,
- the Earth maintains her own conditions for life,
- all parts of the natural world are connected into a dynamic, everchanging web of life,
- the water, trees, animals, plants have their own language and communicate with us,
- time is not linear but curved,
- space is not three-dimensional but has many dimensions which interface,
- there is an underlying unity to the universe that is energy-based, and
- two subjects separated in space can impact each other (called nonlocal coherence).

There are many cultural Creation stories which typically tell how a particular people came to reside in a particular place. They often give guidance for living in life-giving ways.

## ACKNOWLEDGMENTS

This text comes from two original sources: *The Universe Story* (1992) by Brian Swimme and Thomas Berry, and *The Universe is a Green Dragon* by Brian Swimme (1984). Please consult the two primary sources for more complete information.

This information was adapted into *The Cosmic Walk* by Genesis Farm in New Jersey (founded in 1980 by the Dominican Sisters for ecoliteracy and understanding the Universe and Earth as a single, unfolding process). Further adaptations are by Ron Berezan, *The Urban Farmer* in Canada, 1996, and are used with permission. Further adaptations and additions are made by Dr. Elizabeth Lange, 2020, into an edubooklet for educator use.

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## ***The Beginning***

In the beginning was No-thing-ness, The Void, Emptiness and Silence. Out of this infinite mystery, the universe was dreamed into being. Power burst forth into the dance that would become the universe. All the energy that would ever exist in the entire course of time erupted as a singular gift – Existence. Being. Matter.



Expanding Universe

### ***15 Billion Years Ago: The Primal Flaring Forth***

In a great flash, the universe flared forth into being. All things had their birth in this great moment. It was the dawning of time and space. While this unimaginable eruption of intense energy and light occurred some fifteen billion years ago, it continues to expand outwards, part of every moment of the universe past, present, and to come.

Thick with its power, the universe billowed out in every direction, producing the first atomic elements of hydrogen and helium. After a million turbulent years, the frenzied particles calmed themselves enough for the primeval fireball to dissolve into the dark cosmic skies. All the atoms soar away from each other, opening up the beginning time. From the very beginning, the emergence of the universe revealed a profound creativity, fecundity, and purposefulness.

### ***14 Billion Years Ago:***



Milky Way

### ***The Primal Stars and Galaxies are Formed***

A billion years of uninterrupted night prepared the universe for its next transformation. Out of the depths of its silence, the universe shuddered with the immense creativity necessary to fashion the galaxies—one hundred billion galaxies in all, including our own Milky Way. These gigantic structures pinwheeled through the emptiness of space and swept up all the hydrogen and helium into self-organizing systems, and clusters of systems. Each galaxy presented its unique form to the universe and had its own dynamics. Each brought forth billions upon billions of primal stars.

### ***5 Billion Years Ago: The Mother Star of our Galaxy goes Supernova***



Helix Nebula

The most brilliant stars rushed through their natural transformations, exploding in colossal supernovas and spewing stellar materials throughout the galaxy. New elements are created – carbon, nitrogen, oxygen, calcium and all the other elements. Our mother star Tiamat emerges in our spiral galaxy, but in a supernova explosion, showers our Milky Way galaxy with all the riches that would become the seeds for the unfolding of our solar system.

Everything that constitutes our world—from our bodies, to the air we breathe, the food we eat, the houses we live in, the birds that fly by the windows, tall pines and spruce, salmon and whales, rocks and soil—all was birthed from the elements of this star which in turn arose from the primal “cosmic egg” of creation. We and all else, are variations on the same thing—stardust.

The atoms in our bodies, and all atoms everywhere, are born from the supernova explosions of early stars. Everything has been radically “kin” from the very beginning.

#### ***4.5 Billion Years Ago: Our Solar System is Born***

Out of this cloud of Tiamat's remnants, our Milky Way gives birth to ten thousand new stars. The universe, insisting upon diversity, brought forth our own star, the Sun. Once given existence, the Sun spun into being the planets of our solar system community: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, and Pluto. Our solar system is unlike any other universe that we know. A family of planets and moons of exquisite beauty, jewels in the evening sky, woven together in relationship to the Sun, whose energy source continues to radiate throughout the solar system.

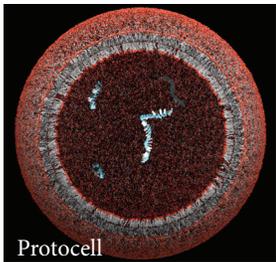


#### ***4.45 Billion Years Ago: The Earth Cools, Land and Oceans Form***

The early planets churned as molten and gaseous materials. Some planets cooked, creating crusts of rock that did not allow much further creativity. Other planets continued to swirl and churn only as gases and liquids. Only Earth cooled and alone generated the countless miraculous conditions for solids, liquids, and gases to exist. The only planet with the proper size enabling gravitational and electromagnetic balance. The only planet positioned in relation to the Sun to establish a temperature range where complex molecules can be formed.



The Earth begins to develop into land and oceans, creating an incredibly creative chemical womb out of which future life could emerge.



#### ***4 Billion Years Ago: Simple Cells Emerge, Life on Earth Awakens***

The early Earth is plagued with meteor collisions and severe electrical activity that charges the Earth's chemical matter with new possibilities. In this seeming chaos, elements organize themselves into meaningful patterns. Out of the cauldron of the Earth's oceans, the simplest of cells emerges, bringing the adventure of the universe to new levels of possibility. Life on Earth awakens.

#### ***3.9 Billion Years Ago: Cells develop Photosynthesis***

These cells undertake a dramatic innovation, the ability to fashion a chemical glove to catch the packets of energy hurled by the Sun, and to use them as food. With the advent of photosynthesis, life on Earth flourishes.



#### ***2.3 Billion Years Ago: First Ice Age***

The first of the great ice ages begins, taking many species in their wake, but giving new shape to the landscape. They carve out great valleys, riverbeds and shape the world's great mountain chains.

#### ***2 Billion Years Ago: Cells can Respire; Create Earth's Atmosphere***

The climate on Earth begins to warm as the glaciers recede. The early cells evolve to a simple stage of respiration, producing the atmospheric oxygen on which we now depend. We are linked today in a critical chain of give and take. Our lives rely on all these oxygen-producing plants and cells.

## ***1 Billion Years Ago: Simple Cells begin Sexual Reproduction***

Single-celled life begins the process of sexual reproduction, resulting in the sharing of genetic material. This produces greater diversity and enormous potential for an increasingly complex flow of life. At the same time, cells develop the capacity to use each other for food, and so emerges the complex intimacy of the predator-prey relationships and the interdependence that defines the Earth community.



## ***700 Million Years Ago: Cambrian Explosion, First Multicellular Organisms Emerge***

In a burst of creativity, cells use their growing intelligence to organize themselves into complex, multicellular systems, such as sponges. They have capacities far exceeding earlier life. From the first formation of the planet until the arrival of multicellular life, has been 7/8<sup>th</sup> of Earth's history.

The Cambrian Period, the first geological period, was the time of ancient life. Billions of cells, arranged in countless patterns and structures, give rise to small fish-like creatures of infinite variety, some developing shells. As some developed shells, others developed teeth.



In this Cambrian Explosion, multicellular life diversifies into corals, worms, starfish, clams, spiders, leeches and many other creatures long extinct. Some learn locomotion.

The single supercontinent Rodinia breaks apart and by the mid-Cambrian there are two continents, Gondwana near the South Pole, and Laurentia near the equator.

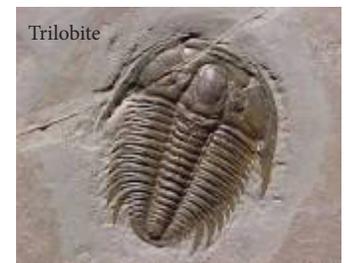


## ***570 Million Years Ago: Cambrian Extinctions***

The galaxy is an immense home and disasters regularly visit Earth, most poignantly when other heavenly bodies collide with Earth, disrupting her delicate fabric of life. This leads to mass extinctions where all forms of life reinvent themselves once again.

## ***510 Million Years Ago: Backbones Develop Protecting Early Nervous Systems of Sea Organisms***

Life develops a skeletal system, particularly a backbone to protect increasingly complex nervous systems of sea organisms. The first vertebrate is like a lamprey. Trilobites appear.



## ***425 Million Years Ago: Migration onto Land, Soil Develops***

Until now, life has been limited to the oceans. But a dramatic migration onto land begins as animals start to explore the land. Ocean waves leave sea plants stranded on hot rocks. Unable to crawl home they invent the wood cell and learn to stand up straight. This march onto land was only made possible by the fungal kingdom, large chains of single cells joined together into fast growing organisms that can decompose woody plants and recycle nutrients back into plant and animal life, developing soil. The fungi kingdom develops a synergy with plant life that results in old growth forests, the great plains, the tropics, the savannahs, all knit together through massive underground fungal networks.





### ***395 Million Years Ago: Insects Develop***

Worms learn to wiggle and move in pursuit of soft prey, then sprout flesh wings to guide them through the oceans. Now, the oldest known insect appears. The first four-legged animals appear in shallow freshwater.

### ***370 Million Years Ago: The First Trees***

Some plants develop woody stems. Lycopod or scale trees live along the shores of oceans and rivers. With ferns and horsetails, they are the backbone of terrestrial ecosystems. By the Devonian Period, gymnosperm or vascular plants, such as branching trees and shrubs, cover entire continents with life.



### ***250 Million Years Ago:***

### ***Age of Reptiles, Dinosaurs and Birds; Flowers and Seeds***

Soon the Earth's mantle heaves with amphibians and reptiles, including dinosaurs and flightless birds. The great dinosaurs with gleaming eyes reach up to the sunlit leaves of the forest canopy. Flowers and seeds begin to emerge.

### ***216 Million Years Ago: First Mammals***

When the mammals entered Earth's community of life, they developed emotional sensitivity, a new capacity within their nervous systems for feeling the universe – the beauty and terror of the world, the lusciousness of fruits, the intoxicating display of the flowers, and the frights of a forest night.

### ***210 Million Years Ago: Pangea Breaks Up***

The continents Gondwana and Laurentia continuously break up into smaller land masses, and continuously recombine, now as the supercontinent Pangea. This supercontinent holds the origins of today's continents. As it breaks apart for a final time, it forms the distinct land masses, oceans and seas that we know today.



### ***150 Million Years Ago: First Birds take Flight***

Birds take flight, filling the skies with grace and wonder.

### ***70 Million Years Ago: Early Primates***

Early primates live extensively in trees with a complex family and social organization. The dinosaurs reach their peak size.



### ***65 Million Years Ago: Dinosaurs Die Out***

After 165 million years of existence, dinosaurs die out, making way for the species we now know.

### ***35 Million Years Ago: Early Cats and Dogs***

Mammalian life is extraordinarily developed and diverse, with all the early species of present-day mammals, including cats and dogs. The creative outpouring of the universe results in increasing diversity of life, favouring novelty and plurality over uniformity.



### **25 Million Years Ago: Whales Become Largest Mammals**

The great whales emerge as the largest mammals becoming the majesty of the world's great oceans.

The strength of the mother-infant bond leaves a deep impression on the psychic nature of all the mammals – whales, rodents, sea lions, bears, buffalo, porcupine, horses, deer, chimpanzees and humans. With some advanced mammals, particularly primates, emotional sensitivity deepens toward conscious self-awareness.



### **2.6 Million Years Ago: Earliest Humanoid – Homo Habilis**

Our closest relatives, early hominids leave their footprints across the plains of Northern Africa, as two-leggeds, *homo erectus*. *Homo erectus* migrates out of Africa.

A variation of hominids is *homo habilis* who forms a community of humans developing clothing and use of tools. This life transforms into a hunting-gathering society. They eventually begin the very early use of fire.



### **300,000 Years Ago: Homo Sapiens Emerge**

While humans were relatively few and quite marginal to other mammal species, numbers quickly increase. *Homo sapiens* emerge and then leave Africa. Early humans develop controlled use of fire, with enormous implications for our emergence as a species.



### **40,000 Years Ago: Human Language and Culture Emerges**

Humans create complex worlds of culture and language. Our abilities to see the world around us and reflect on it is a new moment for the development of life on Earth. Humans celebrate their existence in cave paintings deep within the Earth. Yet, our existence alone is in debt to the countless billions of cosmological, geological and biological events that preceded us. Never has the Earth been more abundant with life than when humans arose to become part of this community. Our intuitions of our place within this great and mysterious Earth community is painted on cave walls, chanted in song, whispered in story, and danced around fire. Aboriginal people establish life on Australian continent.



If the history of the Earth was conceived as a 10-volume set of books, each with 500 pages representing 1 million years, *homo sapiens* would appear on page 499 of the 10<sup>th</sup> volume.

### **30,000 Years Ago: Humans live on North American Continent**

First Peoples occupy the North American continent as the last Ice Age recedes. They live within its seasons and geography, tell its stories, and draw from it the symbols and archetypes that define their existence.



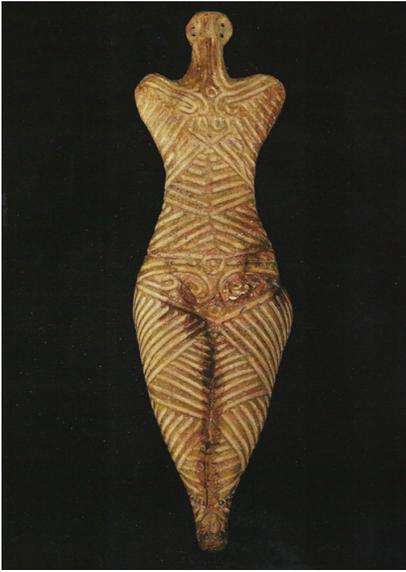
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### **11,000 Years Ago: Early Agriculture, Village Life Begins**

Humans begin to domesticate animals and plants: wheat, barley, goats, rice, pigs, corn, beans and the alpaca. The Agriculture Revolution joins humans and the Earth in new intimate ways. Settled village life secures a supply of food enabling populations to surge.

The first Neolithic villages sustain populations of more than a thousand people, from Jericho to Çatal Hüyük to Minoan Crete. This is the most radical transformation in the human journey. Pottery, weaving, calendars, and shrines to the Great Mother

Goddess are developed, adding to reverence for totemic animals. Developments in language, religion, cosmology, the arts, music and dance occur.



Great Mother Goddess

### **5000 years ago: Ancient Civilizations and Urban Life**

Ancient civilizations emerge with the beginnings of urban life. The earliest cities arise in Mesopotamia, or the Fertile Crescent, including Sumer and Babylon. Other Ancient civilizations include Egypt. The first stage of Stonehenge is built in what is now the British Isles. Worship of the Great Mother Goddess spans over twenty thousand years.

Eventually, five civilizational complexes will arise in the Middle East, Europe, India, China and the Maya in Central America. The alphabet begins with Egyptian hieroglyphs, then Minoan, then Phoenician, leading to Greek and Roman alphabets.

### **3000 Years Ago: Great Religions Emerge**

Buddhism arises in Ancient India based on the teachings of Siddhārtha Gautama. The Hebrews or Ancient Israelites are liberated from Ancient Egypt, one of the great stories in the religious tradition of Judaism, recorded in the *Torah*. The earliest versions of the Sumerian epic of *Gilgamesh* are written. The oldest of the *Upanishads*, ancient Sanskrit texts, are written sharing the spiritual teaching and ideas of Hinduism, but also Buddhism and Jainism. The earliest Confucian writing emerges. The *Tao Te Ching* is written as the foundational text of Taoism. Socrates is put to death in Classical Greece. Imperial China emerges.



Ancient Mayans

### **2000 Years Ago:**

#### ***Jesus lives in Nazareth***

Jesus lives and teaches in Palestine, shaking the establishments of his time and establishing another religious tradition, Christianity. The *Bible* is written over the next few centuries.



Siddhartha Gautama Buddha



Adoration of the Shepherds by Rembrandt



**1500 Years Ago:  
Western Roman Empire Declines; Islam Emerges**

As the Roman Empire is increasingly taken over by northern tribes, Europe enters the Dark Ages, where the knowledge of Classical Greece and Rome is “lost” and the power of the Roman Catholic Church is primary.

Muhammad ibn ‘Abdullāh lives and 100 years later, the *Qur’an* is compiled as the sacred Muslim text. The first Crusade captures Jerusalem.

The Nubian Empire begins in Africa. The Incan empire rises in South America. The Olmecs then Zapotecs establish their civilization as well as the Aztec; the Mayans continue in Central America. The Mississippian civilization arises in North America. Later, the Great Zimbabwe and Ghanaian empires emerge.

**500 Years Ago:  
Scientific Revolution, Colonization, Industrial Revolution**

The great scientific, social and industrial revolutions, that define the Modern Era, set Western culture on the path of “progress”. Factory machines take over handcraft. Rivers become irrigation systems for plowed fields. Commercial transactions engage the energies of entire nations as caravans crisscross the world. Forests are changed into shipping enterprises and papermaking.



In one more great wandering, the Europeans encounter humans wherever they go. Equipped with overpowering technologies and bureaucratic social systems, they begin an extensive colonization of the lands and peoples all around the planet. Tremendous loss of biodiversity and cultural diversity ensues. The nation-state replaces many other social arrangements, plunging many regions into ongoing warfare.

**200 Years Ago: Fossil Fuel Age Begins**

The discovery and exploitation of fossil fuel energies accelerates human domination over living systems. The multinational corporation continues the plunder through economic colonization. Despite many gains, widespread destruction of species and ecosystems begins. Humans multiply into billions. In geological terms, humans now have the largest impact, initiating the Anthropocene era.



**80 Years Ago: The Universe is Known as Expanding and Emerging**



Atomic physics begins to understand the life of atoms. The universe is perceived as a cosmos that is expanding and continuously emerging. A radically new understanding of the universe emerges, not simply as a cosmos, but as cosmogenesis, a developing community of life. Beliefs in the sacredness of life and human relations with all life forms, long present in Indigenous cultures, re-emerges.



**60 Years Ago: Earth Seen from Space**

Humanity sees, for the first time, the luminous blue and green marble of Earth from space. No borders, no boundaries. A living, whole planet, a shining island in black space. New understandings of living systems and the interconnectedness of the Earth community emerge. We slowly reawaken to this mystery, to the sacredness of life, to our role in this sacredness.

# THRESHOLD OF THE FUTURE

We stand at a threshold of a new moment in the unfolding story of the universe — either continuing the desecration or becoming nurturers, protectors, and healers of life on the planet, as part of a Great Turning.

This epic of 15 billion years, from the great flaring forth to the intricacies of life on Earth, is our story. All life shares a common origin and a profound interconnectedness. Humanity is a creation of the Earth process. We were brought forth to enrich the total life of the planet. To contemplate the origins of the universe is to marvel at the mystery of our own origins. We are part of this great community of life. The Earth is our home.

The Earth has been calling to humans, as it needs our heart and mind. It needs us to intensely feel the existence of this marvelous community. As humans—creatures who can know and reflect on this mystery—our role as self-conscious beings is to show wonder, gratitude and compassion, as well as actively care for this sacred life community. We are much indebted to the outpouring of creativity and mystery that has come before us in the universe. We are the universe reflecting and celebrating itself. We are this story. Today, you can say, I know the story of myself.

