The Second Presentation of the Time Line of Life: The Story of Life

In the Creation Story, we saw how the Earth was formed, each particle of it obeying the laws that had been given. Through these rules, God made the earth full of wrinkles and crinkles. Solids to become land, liquids to fill the valleys, and gasses in the air. But the air was nothing like the air of today.

Remember how Earth had cooled enough for rain to fill all the hollows and how the volcanoes still burst through the crust? Well, the air was made up of methane, hydrogen, ammonia, carbon dioxide, nitrogen and sulfur. This (open a bottle of ammonia) will give you an idea of how it smelled. Now imagine the rotten egg smell of sulfur mixed in. This made rain acidic and began to wash the minerals from the rocks. The soupy seas were full of the elements from the air and minerals from the rocks. This was late in the Proterozoic Era in the Precambrian Period. (Show on the clock.)

After about 500 million years of this earth-building had passed, God made something very new. It was so tiny that it could hardly be seen. There came into being, somewhere in the warm, shallow pea-soup oceans, a little blob of jelly. God created LIFE. He gave it a set of rules, just like everything else that was created and its rule is to "**Eat and multiply**." And so it did.

The little blobs of life, which we call BACTERIA, ate and multiplied and ate and multiplied. And do you know they ate up all that awful stinky air? And when they ate the stinky air they gave back oxygen so other life could come? This is their "Cosmic Work". Everything in nature has this cosmic work. Cosmic Work is things in nature following the rules God gave them, being totally unaware that they are helping others.

And the work of the bacteria helped make a home for another life, we call PROTISTS. After the stinky air was clean, God decided it was time to clean up the water. He made PROTISTS that loved the new oxygen made by the bacteria and they started eating up the soupy minerals in the water, making shells for themselves, which was doing their Cosmic Work, cleaning up the waters.

So when the air and water were all cleaned up, the water was ready for more complicated life. The story of life really gets going here, (show the clock) in what we call the Paleozoic Era. Paleo means old and zoic means life. The Paleozoic is divided into 6 periods.: Cambrian, Ordovician, Silurian, Devonian, Carboniferous, and Permian. The Paleozoic Era is blue to represent life in the sea.

A. The Cambrian Period

This first period is called the Cambrian period because the first fossils were found in Cambria, a part of Great Britain, now known as Wales. Later fossils of this period were found everywhere.

Everything that lived in this time lived in the water. Now remember, everything God made in nature did millions of years of work to get our home ready for us. Some cleaned up for us, some got the food ready, and some practiced the new rules God was making for life over and over so that everything would be safe and stable for us.

Here is a PROTIST, called the amoeba, a one-celled creature with no shell. All of the life you see around you has cells. These were the very first ones. Nature practiced and practiced with cells until it didn't would never forget how they work. (point to the amoeba)

Here's another, called a flagellate, with two little whips to help it move about. (point to the flagellate)

Once the cells were well established and had plenty of practice, God made a new creature with a new rule. (point to the sponge) **Stay Together.**

PORIFERA, like this sponge, live in colonies. They are made of a group of cells. All the cells do all the jobs: eating, reproducing. Some of the PROTISTS, called algae live in colonies too, and they floated on top of the ocean so they could collect the sunlight more easily.

We are made of cells and we stay together, so this was very important work for nature to master.

Then God created another set of creatures here (point to the sea anemone) and added another rule. **Share the Work.**

In CNIDARIANS (NI-dair-ee-uns), like this anemone, the cells share work. Some cells do the eating, some do the breathing and some do the moving about. This was very new. Sea anemones stay in one place. In order to get food, they moved the water with these long thin body parts so tiny creatures in the water would come into their mouths.

We have many different types of cells in our body, so again, it was very important for nature to practice this new rule until it was easy.

Cells got fancier and fancier as they shared jobs. They began to specialize. Instead of just having one type of cell to move, they had more than one type.

And instead of just having one type of cell for digestion, they had more than one. FLATWORMS, ROUND WORMS, and ANNELIDS (like our earthworms) at had muscles and blood and moved around in search of food. They were very fancy indeed!

But MOLLUSKS, like this snail (point to snail), in addition to having everything the worms had, got something special**. Protection**. They could make shells to cover their soft little bodies.

Our bodies aren't soft like worms, right? They have stiff parts that keep all those cells with all those different jobs from sloshing around and getting squished. So again, God made sure nature had plenty of practice with this new rule.

All of these creatures in the Cambrian are invertebrates. This is the beginning of the AGE OF INVERTEBRATES (point to line at the top across that says it). But there's one more type of invertebrate that we need to talk about.

Now, look at the animals that are pictured all along the red line which is rising.

These are special invertebrates called ARTHROPODS. Remember that arthropod means "jointed feet". These animals could swim, but they could also move along the bottom on their stiff jointed feet. They could **WALK!** Walking is very important and like the other new skills needed to be practiced until nature was full of things that could walk. The trilobites were the most important animal of this period so it is called The Age of the Arthropods or Age of the Trilobite.

B. Ordovician Period

The name of this next period comes from an ancient tribe of people known as the Ordovices who lived in a part of England where the first fossils of this period were found.

During this period, it is marked by the decline of the trilobites, but other animals appeared for the first time.

There were large MOLLUSKS, cephalopods, like this one, (point) with its feet attached to its head!

There were starfish (echinoids) and scorpions. This is called the Age of Echinoderms because they were the most dominant animal of this time. And echinoderms added something new to our world. Some of them had stiff parts inside, instead of on the outside.

One type of echinoderm was the most important of all: the crinoids, or SEA LILIES.

They were called sea lilies, because they were so colorful and looked like flowers, but they were animals, not plants. They stayed in one place like the anemones. Some built rings of stone out of the salts in the in the sea water. These rings held their soft jelly-like bodies. They had long arms that waved in the current and a mouth at the center. When an animal passed by that he would like to eat, the sea lily would open its arms, wrap its arms around it tightly and pull the animal into its mouth. They always had food.

The waters were full of life at this time! Large crabs, horseshoe crabs and starfish. All these animals consumed great amounts of calcium to make their shells, thus cleaning the water.

C. Silurian Period

The Silurian Period was named after the Silures. They lived in a part of England where the first fossils of this period were found.

This period seems to be short, but it is very important. The sea lilies which were so huge in the Ordovician Period decline here and disappear. Animals were still needed to consume the calcium in the oceans, so the corals arrived. They ate lots of calcium and gradually built islands. Coral was very important. The corals began in the Silurian period. The line continues. They still exist today, but they are in danger of extinction.

We've said that the Silurian Period was very important. If you look very carefully, you will see something very small. It is the first fish. Fish were first creatures that have bones. Theirs were not as hard as ours and was made of cartilage (show the child that their ears and nose are made of cartilage).

The second reason that the Silurian Period is so important is that for the first time, plants appeared on the land! (point to the Silurian/Devonian marsh plants) God was doing lots of good work getting the earth ready for his new friends to come and making sure nature had *plenty* of practice at all of the rules our bodies use.

These marsh plants were the first land plant, but plants without roots, stems and leaves. This plant had a small stem and tiny leaves, but no roots. It still had to put its feet in the water. These plants were the first **mosses**.

On land, they had plenty of sunshine and air, which contained a gas called carbon dioxide that they needed to make food. They attached themselves to the land, from which they could get water and mineral salts.

At this time, the earth still didn't have atmosphere. The atmosphere came about because the plants came out of the water. The plants used the CO2 and gave off oxygen. They were making life possible for animals on earth. This is their "Cosmic Work".

At the end of this period is the second ice age. Under it we see the disappearance of the trilobites and the sea lilies (crinoids).

D. Devonian Period

The name Devonian comes from Devon in England where the first fossils of this period were found. The period coincides with The Age of the Fishes. The most important animals of this period are fish. Each fish had a hard rod in its body. Up until now, the hard part was always outside the body. This was the beginning of animals with

backbones. This animal eventually developed into the fish, but these fish were different from those we have today. They were enormous fish with hard plates on the outside to protect themselves. (point to the Devonian, armored, jawless fish)

They buried themselves in the bottom of the sea with only hard plates sticking out, and waited until a bit of dinner floated by, and then they would open up their mouths and gobble it up. Some could swim very swiftly, and they developed movable fins which helped them to swim better.

This line of armored fish only lasts in this period. The other types of fish continue and still exist today.

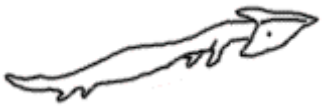
We also see the appearance of an insect very similar to the modern insects of today. Although many of the ancient insects have changed, this cockroach has not changed at all. It is the oldest insect we know. The cockroaches lived in the dampness of the swamps when the world was ruled by fish.

In this period, the oceans receded and seas were formed between the different areas of land. The swamp lands began to dry up and the plants had to put down roots in order to hold themselves upright and to go in search of water.

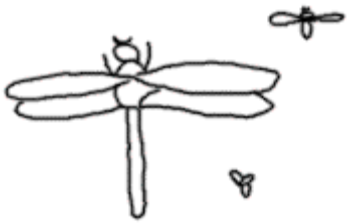
F. Carboniferous Period

In this period, the animals start putting their heads out of the water. God gave some **ears and lungs** and new a rule. **Come out of the water**. Amphibians were the first animals to live completely out of water, but they must stay in damp places. We don't live in the water, so this was another rule that needed to be practiced.

In this period, the amphibians were the masters of land and water, therefore it is also called the Age of Amphibians. There were many of them, and if they had enemies on land, they escaped into the water and vice versa. They laid their eggs in water in vast quantities because some would be eaten. (point to the Carboniferous amphibians)



The insects also came (point to the Insects in the Carboniferous Period), so God made sure there was food around for the amphibians. Insects also grew well in the humid and high-oxygen conditions. One of the largest was the Meganeura. This large ancestor of the dragonfly had a wingspan of 18 inches.



Another large arthropod lived on the floor of the Carboniferous forests. The Arthropleura was a giant millipede that could grow to more than one and a half meters long. They sometimes had as many as 30 pairs of legs!

Meanwhile the plants had left the sea. Like amphibians, mosses had to stay close to the water, but now there were **ferns.** They grew in great variety and size, eating and making their own food with the air and sunlight. (point to the arboreal mosses and ferns in the Carboniferous Period)

During the Carboniferous Period the climate was warm and damp and huge swampy areas of giant ferns flourished. As these fern forest died, they could not be broken down and as they were covered in sediment they formed the giant coal beds that we still use for fuel today. God knew we would need fuel eventually, so he prepared it for us millions of years before we arrived.

The name Carboniferous comes from the word carbon which is coal. This black strip is labeled coal for the coal in the earth which was formed in this time. The coal was formed by the development of land plants which still had no flowers or fruit. They made great forests. The trees like the animals started out very small and grew bigger each year trying to occupy all the space possible. They had enormous trunks with small leaves bunched at the top. These plants still exist today, but they are all very small: ferns, cycads, horsetails, etc.

This period is much longer than the preceding period. There were many revolutions in the seas. Sometimes the seas would rise and cover everything. Then the forest would become a swamp. This process went on for millions of years - each time burying the trees in their upright position. Slowly, over millions of years, theses trunks have been transformed into coal. Coal is nothing but wood that has become very old.

Look at the cosmic work of these plants. The trees didn't say, "We'll let the sea cover us so that we can produce coal" Like all other plants, and animals, too, the trees tried to occupy as much space as possible. This was their conscious work. However, we know that there is also their unconscious work. A great number of living things unconsciously prepare the world for those that come after them. The forests unconsciously purified the air by making oxygen and produced coal for those that came after them. "Those plants came back to life and live in our houses in the form of heat."

The brown strip under the black is labeled iron. In the same way as there were little animals who fixed calcium in their houses to purify the oceans, there were at this time, protozoa who fixed iron in their exoskeletons, absorbing the iron from the water. During this period, a great number of rocks containing iron were formed made up of the remains of these animals. (Pure iron is hard to find as it is always mixed with other elements in rocks) These rocks

containing iron were called ferrous. Thus this period has been named after the two layers: carbon (coal) ferous (iron) combined to make the name Carboniferous.

G. Permian Period

This is the last period of the Paleozoic Era. The name Permian comes from a part of Russia: a little town called Perm which is situated at the foot of the Ural Mountains where the first fossils of this period were found.

This was a very cold period as we can see by the symbol of the glaciers. The great big amphibians disappeared or returned to the water. Only smaller ones survived.

But we don't lay eggs in the water. We don't live in the water at all. So God made something new. It is very small. It is the first reptiles, the first animals who were told to **live completely on land.** God gave them **skin that could be in the sun and shells for their eggs so they would not dry out**. (point to the Permian Period reptile) Now they could move wherever they wished across the land!

Immediately after their appearance, they became very big. The first big ones were herbivorous as there were so many plants to eat. Since they had no enemies, they soon became masters of the land. They multiplied and grew larger until they were truly giants.

There were many volcanoes and changes in the continents. Seas were cut off from the oceans, enclosed by land and they dried up. They left behind great salt deposits which were the beginnings of the deserts.

During this time, the first insects underwent metamorphosis. It was their way to overcome the cold. They were born in the spring and grew bigger during the summer. When the cold came, they enclosed themselves in a protection in which they spent their winter months. In the spring, they hatched out, looking different from before, but enabling them to travel, mate and lay eggs again.

By this time, there were many different plants and animals on the land and in the sea. The Paleozoic Era came to an end.

H. Mesozoic Era

The Mesozoic is the beginning of the age of reptiles. It is made up of three periods: the Triassic, the Jurassic, and the Cretaceous.

The Era is brown to symbolize the earth. The Mesozoic Era is the middle life's history on Earth.

Triassic

In the Triassic Period, new life appeared to replace the life that had died. Life such as oysters, snails, lobsters and clams filled the shallow seas again. Large reptiles were the largest predators in the seas. This was the age of the dinosaurs. They grew to enormous sizes.

(Show TRIASSIC dinosaur, apatosaurus)

Do you know how big this creature was? Seventy feet long! This creature had a head that was a big as a man's body! This room is ___ feet long. This animal would fill more than ___ rooms like this! There was something peculiar about this creature. It had a brain in its head, and another down near the base of its tail, so that messages from the tail didn't have to travel all the way to the head and acted upon.

These big reptiles ate almost anything. Some reptile had developed flaps of skin so they could glide from tree to tree, but now the first true flying reptiles, the pterosaurs appeared.

But where did they get those trees from? Well, after the mosses with no roots, and the ferns with roots and spores, God made conifers with seeds!

Jurassic

The Jurassic Period saw a return of a more rainy climate. **Conifer forests,** ferns and cycads again began to cover the land. Pangaea began to break apart. Pterosaurs filled the skies as they perfected their flying skills. The most common dinosaurs were the sauropods. These were huge animals with long necks. Huge bipedal - two legged - predator dinosaurs with powerful claws looked for unsuspecting prey. Some of this prey were warm-blooded animals that lived on the edges of lakes and swamps. These animals had another new rule: **Stay warm even when it's cold.** Towards the end, true warm-blooded birds appeared. Teeth were replaced by a toothless beak and changes in muscle structure allowed wings to flap.

Cretaceous

The Cretaceous Period was a time when beautiful colors filled the forests and life again went through a great mass extinction. Flowers had evolved. The duckbilled dinosaurs appeared in great herds. Triceratops, one of the last dinosaurs, also appeared. Crests, frills and strange horns were common. Tyrannosaurs were fearsome predators.

Smart raptors with a slicing hind claw hunted together and became Earth's most successful predators.

And look at this little animal here, it looks like a kangaroo, doesn't it (point to cretaceous marsupial)? The mammals had new rules of their own from God: **keep your eggs inside and when the babies were born, feed them your milk**!

This was very new. No other animal ever did this before! Other animals just left their eggs and some of the eggs were eaten by other animals. The young ones had to look after themselves. But the children of the birds and mammals remained with their parents until they could take care of themselves.

Then something important happened. Perhaps the climate cooled again and animals that could not adapt died off. Perhaps a giant asteroid hit Earth and a cloud of dust rose up that blocked the sun. Many volcanoes were again erupting which would also cause a cooling of the climate. In any case, much of Earth's life and all the dinosaurs died. Remember the warm-blooded creatures, well by obeying their rule to stay warm, they survived.

I. CENOZOIC

The Cenozoic Era saw the end of the great carnivores although large mammals slowly evolved to take their places. The mammals now began to take over the land. Shrew like insect eaters competed with the remaining amphibians. Some mammals took to the air and some returned to the sea. The mammals quickly evolved to fill up every habitat and to eat every type of food.

They were able to go everywhere! There were giant animals: giant pigs. giant hippopotami, and giant elephants. (point to the large herbivore in the Oligocene Epoch)

The mammals had a good time, even as it got colder, and huge sheets of ice covered much of the earth. The mammals moved all over the earth in search of food and warmer weather. But in the end, none of the giant mammals were able to survive.

Now everything was ready for God's new friends. A completely new kind of creature was created that had one last rule to pile on top of all of the others nature had been practicing for millions of years. **Love.** It had the power to think and imagine, but most of all, it LOVED. It not only cared for its young, it could care about beings it had never seen, even things that couldn't be seen, like God himself. This creature was the human being. (point to the human figure at the end of the time line)

God is love. God created us out of his goodness to share in his happiness, in LOVE. The whole law of God for us is

contained in two great commands: “LOVE the Lord your god with all your heart, soul, mind and strength. And LOVE your neighbor as yourself.”

Now, some people believe that God snapped this all into being with one thought and just made the Earth tell the story *as if* he had waited for us a really long time. But I like to think he made a world that lived by his rules, from the second the first particles came into being, all the way up to the mammals. All of this (move your hand across the entire span of the Time Line of Life) had to happen in order for man to come. Human beings would not have found it possible to live if they'd come here (point to the Cambrian Period), or when the plants were first trying out the land (point to the Silurian Period). At the end, though, everything was ready.

If the earth had a voice, it would have said, "I have spread myself thick with carpets of grass for your feet so you can walk on soft ground. I have put flowers in my hair and covered myself with jewels for your pleasure. My cupboards are full of milk, meats, fruits, and vegetables for you to eat. Down in the cellars are coal and iron. All of me is ready. It is time for you, human beings, to come."

And so we are here. This (move your hand across the entire span of the Time Line of Life) was all prepared for us, and now we are part of the story.