Class Set MODERN SCIENTIFIC ORIGIN STORY The Big Bang 1070L

This version of modern science's origin story is condensed and interpreted from a great body of historical and scientific information.

In the beginning, as far as we know, there was nothing. Suddenly, from a single point, all the energy in the Universe burst forth. Since that moment 13.8 billion years ago, the Universe has been expanding — and cooling down as it gets bigger.

Gradually energy cooled enough to become matter. One electron could stay in orbit around one proton to become an atom of hydrogen. Great clouds of hydrogen swirled around space until gravity pulled some atoms so close together that they began to burn as stars. Stars swirled together in giant clusters called galaxies; now there are galaxies numbering in the billions.

After each star burned up all its matter, it died in a huge explosion. The explosion generated so much heat that some atoms fused and got more and more complex, forming many different elements, including gold and silver.

One giant star, our mother star, exploded and scattered clouds of gas containing all the elements needed to form living beings. About 5 billion years ago gravity pulled these atoms into a new star, creating the Sun. The leftover pieces of matter stuck to each other and formed eight planets, which revolve around the sun.

The third planet out, Earth, became our home. It was the perfect size — not too big, not too small — and the perfect distance from the Sun, not too far or too close. A thin crust formed over Earth's hot interior, and the temperature was just right for water to form on parts of the surface. Gradually the chemicals in the water formed inside of membranes and got more complex until single-cell living organisms appeared, able to maintain themselves and reproduce.

For 3 billion years these one-celled creatures reproduced almost exactly, but not quite. They gradually changed in response to their environment.

## Life becomes more complex

But they also changed their environment. They learned to burn energy from the Sun, and they released oxygen into the atmosphere. The oxygen formed an ozone layer around Earth that protected life from the Sun's rays.

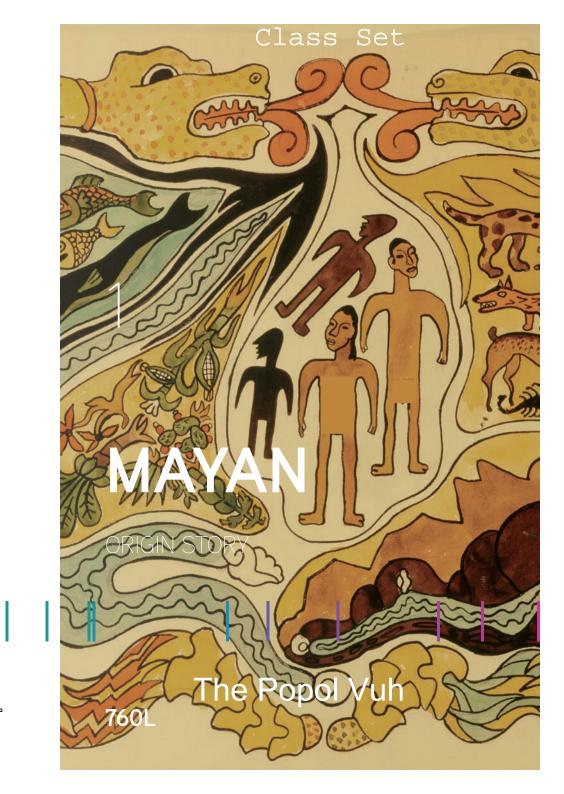
Eventually cells stuck together to form creatures with many cells. Plants and animals came out of the sea onto land and became ever more complex and aware, until about 100,000 years human beings evolved from a shared ancestor with the species of apes.

Humans could talk in symbols and sing, dance, draw, and cooperate more than the other animals could. Humans learned to write and to accumulate their learning so that it kept expanding. Humans increased in skills and in numbers until there were too many people and too few big animals in some places.

Then humans learned to grow their own food and herd their own animals. Some animals learned to cooperate with humans. This gave humans new sources of food and work energy, and they could live in larger and larger groups. These groups expanded into cities and empires, using more and more of the resources of Earth. Humans collaborated and learned collectively in more complex ways; they traveled, traded, and exchanged inventions, creating vast civilizations of astonishing beauty and complexity.

Humans were always looking for more energy for their use. About 200 years ago we learned to use the energy from coal — trees that grew more than 300,000 years ago, then were buried underground. Humans learned to burn oil — animal remains buried long ago under the sea. Using these fossil fuels, humans began to change their climate quickly, as the gases released from burning these fuels ascended into the atmosphere.

Now humans are in a predicament -- our population is increasing rapidly, fossil fuels are running out, we are pushing many plants and other animals into extinction, and we are changing the climate. What are we humans going to do next?



This origin story was told by the Mayans, who lived in the Yucatán Peninsula of Mexico from around 250 to 900 CE. It's the beginning of a long, complex story called the Popol Vuh which means "council book." It was first translated into alphabetic text from Mayan hieroglyphics in the 16th century.

Now it still ripples, now it still murmurs, still sighs, and is empty under the sky. There is not yet one person, not one animal, bird, fish, or tree. There is only the sky alone; the face of Earth is not clear, only the sea alone is pooled under all the sky. Whatever might be is simply not there.

There were makers in the sea, together called the Plumed Serpent. There were makers in the sky, together called the Heart of Sky. Together these makers planned the dawn of life.

The Earth arose because of them. It was simply their word that brought it forth. It arose suddenly, like a cloud unfolding. Then the mountains were separated from the water. All at once great mountains came forth. The sky was set apart, and the Earth was set apart in the midst of the waters.

Then the makers in the sky planned the animals of the mountains — the deer, pumas, jaguars, rattlesnakes, and guardians of the bushes. Then they established the nests of the birds, great and small. "You precious birds; your nests are in the trees and bushes." Then the deer and birds were told to talk to praise their makers, to pray to them. But the birds and animals did not talk; they just squawked and howled. So they had to accept that their flesh would be eaten by others.

The makers tried again to form a giver of respect, a creature who would nurture and provide. They made a body from mud, but it didn't look good. It talked at first but then crumbled and disintegrated into the water. Then the Heart of Sky called on the wise ones, the diviners, the Grandfather Xpiyacoc and the Grandmother Xmucane, to help decide how to form a person. The Grandparents said it is well to make wooden carvings, human in looks and speech. So wooden humans came into being; they talked and multiplied, but there was nothing in their minds and hearts, no memory of their builder, no memory of Heart of Sky.

Then there came a great destruction. The wooden carvings were killed when the Heart of Sky devised a flood for them. It rained all day and all night. The animals came into the homes of the wooden carvings and ate them. The people were overthrown. The monkeys in the forest are a sign of this. They look like the previous people — mere wooden carvings.

The story continues with the final people being made from corn, an important crop that enabled the Mayan people to move from being a hunting-and-gathering society to a more complex civilization.



The Efik people live in southern Nigeria, for many centuries dwelling near the regions around the Cross River. They traditionally worshipped the god Abassi as a supreme creator. Their belief system was very relaxed. They had no formal priesthood or organized religious institutions. Worship and ritual were carried out on an individual or family level. Their creation story is a tale of humans defying the gods in order to achieve greater power and wisdom.

Before Abassi there was nothing. Abassi was god of the Universe, and giver of life, death, and justice. He was so powerful that he could create life, heal the sick, and even raise the dead. Some say that Abassi was the Sun, and they worshipped it as it rose and set every day. Abassi lived in the sky with his wife, Atai. She was a wise goddess, who often gave Abassi good advice.

Abassi created the stars, the Earth, and all the wildlife upon it. He also created two humans, a man and a woman. These humans lived with Abassi and Atai in the sky. They were very innocent and had little knowledge. Abassi and Atai looked after them, protected them, and even fed them, because they did not know how to feed themselves. One day, the humans were looking down from the sky at the Earth. They decided they wanted to live there. But when they asked Abassi if they could leave the sky and live on the Earth, he forbade it. The Earth was a place with many secrets where many things could be learned. Abassi feared that the humans would one day match his wisdom, or even surpass it.

Atai proposed a compromise. The humans could go live on Earth, but they had to return to the sky every day to have their meals. The humans were forbidden to learn to hunt or farm. They were also forbidden to marry and have children, because a large nation of people might one day challenge the power of Abassi.

For a while, this plan worked. The humans returned to the sky every day to take their meals. However, one day, the woman decided she was sick of being fed like a helpless child. She went out into the fields and began to farm. When the time came for dinner, she defiantly refused to return to the sky with the man.

The next day, the man visited the woman in the fields and saw she was growing her own food. He decided to help her. Before long, the man and woman fell in love. They did not return to the sky again. Many years went by and they had many children. When those children were old enough, they joined their parents working in the field. They all continued to learn the secrets of the Earth and teach them to each other.

The humans tried to hide their children from the sight of Abassi, but the god saw them. He grew very angry. He blamed his wife, Atai, because she had convinced him to let the humans live on Earth. Abassi feared that one day, the humans would have learned so much that they would surpass his wisdom. He also feared they would grow so numerous that they would surpass his power.

But Atai had a plan. In order to prevent the humans from growing too powerful, she sent evil into the world in the form of death and discord. The evil was so strong that the man and woman immediately died. Their children have suffered the ills of the world and argued among themselves ever since. But because their mother defied the gods, the humans have continued to learn the secrets of the Earth.



We know the Greek origin story from some of the earliest Greek literary sources that have survived, The Theogony and Works and Days, by Hesiod. This oral poet is thought to have been active sometime between 750 and 650 BCE, within decades of when the Homeric epics, The Iliad and The Odyssey, took the form in which we know them.

Archaeological findings support the creation story recorded in Hesiod's work; pottery from the eighth century BCE depicts the gods and goddesses he describes. Before Hesiod told this patriarchal version, in which the first woman is the cause of much trouble, Pandora, whose name means "gift giver," was known in oral tradition as a beneficent Earth goddess.

In the beginning there was Chaos, a yawning nothingness. Out of the void emerged Gaia (the Earth) and other divine beings — Eros (love), the Abyss (part of the underworld), and the Erebus (the unknowable place where death dwells). Without male assistance, Gaia gave birth to Uranus (the sky), who then fertilized her.

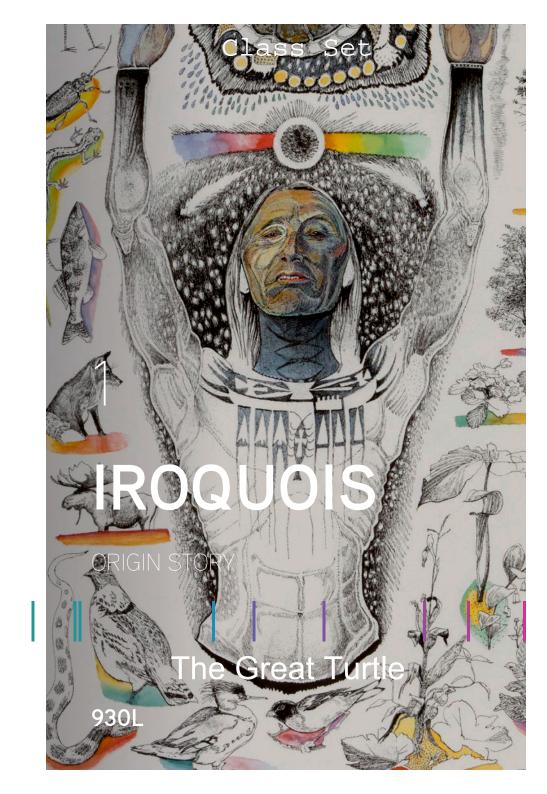
From that union the first Titans were born — six males: Coeus, Crius, Cronus, Hyperion, Iapetus, and Oceanus, and six females: Mnemosyne, Phoebe, Rhea, Theia, Themis, and Tethys. After Cronus (time) was born, Gaia and Uranus decreed no more Titans were to be born.

Cronus castrated his father and threw the severed genitals into the sea, from which arose Aphrodite, goddess of love, beauty and sexuality. Cronus became the ruler of the gods with his sister-wife, Rhea, as his consort. The other Titans became his court. Because Cronus had betrayed his father, he feared that his offspring would do the same. So each time Rhea gave birth, Cronus snatched up the child and ate it. Rhea hated this and tricked him by hiding one child, Zeus, and wrapping a stone in a baby's blanket so that Cronus ate the stone instead of the baby.

When Zeus was grown, he fed his father a drugged drink, which caused Cronus to vomit, throwing up Rhea's other children and the stone. Zeus then challenged Cronus to war for the kingship of the gods. At last Zeus and his siblings, the Olympians, were victorious, and the Titans were hurled down to imprisonment in the Abyss.

Zeus was plagued by the same concern as his father had been and, after a prophecy that his first wife, Metis, would give birth to a god greater than he, he swallowed Metis. But she was already pregnant with Athena, and they both made him miserable until Athena, the goddess of wisdom, civilization and justice, burst from his head — fully grown and dressed for war. Zeus was able to fight off all challenges to his power and to remain the ruler of Mount Olympus, the home of the gods.

One son of the Titans, Prometheus, did not fight with fellow Titans against Zeus and was spared imprisonment; he was given the task of creating man. Prometheus shaped man out of mud, and Athena breathed life into the clay figure. Prometheus made man stand upright as the gods did and gave him fire. Prometheus tricked Zeus, and to punish him, Zeus created Pandora, the first woman, of stunning beauty, wealth, and a deceptive heart and lying tongue. He also gave Pandora a box she was commanded never to open, but eventually her curiosity got the best of her, and she opened the box to release all kinds of evil, plagues, sorrows, and misfortunes, and also hope, which lay at the bottom of the box.



This story comes from the Iroquois people in North America. In the 1400s they formed a federation of five separate tribes in what is now New York state. The Iroquois did not use writing, so they told this story orally until settlers from Europe wrote it down.

The first people lived beyond the sky because there was no Earth beneath. The chief's daughter became ill, and no cure could be found. A wise old man told them to dig up a tree and lay the girl beside the hole. People began to dig, but as they did the tree fell right through the hole, dragging the girl with it.

Below lay an endless sheet of water where two swans floated. As the swans looked up, they saw the sky break and a strange tree fall down into the water. Then they saw the girl fall after it. They swam to her and supported her, because she was too beautiful to allow her to drown. Then they swam to the Great Turtle, master of all the animals, who at once called a council.

When all the animals had arrived, the Great Turtle told them that the appearance of a woman from the sky was a sign of good fortune. Since the tree had Earth on its roots, he asked them to find where it had sunk and bring up some of the earth to put on his back, to make an island for the woman to live on.

The swans led the animals to the place where the tree had fallen. First otter, then muskrat, and then beaver dived. As each one came up from the great depths, he rolled over exhausted and died. Many other animals tried, but they experienced the same fate.

At last the old lady toad volunteered. She was under so long that the others thought she had been lost. But at last she came to the surface and before dying managed to spit out a mouthful of dirt on the back of the Great Turtle.

It was magical earth and had the power of growth. As soon as it was as big as an island, the woman was set down on it. The two white swans circled it, while it continued to grow until, at last, it became the world island as it is today, supported in the great waters on the back of the Great Turtle.





The Zulu are a proud African people, famous throughout history for their fierceness and bravery in fending off invaders. Archaeologists tell us they traveled to the lush green lands of south-eastern Africa many centuries ago from the huge lake regions to the north. Their creation story has many versions, passed down by word of mouth from generation to generation. It tells of how the ancestors of all plants, animals, and humanity began from a single source.

At first, there was nothing but darkness. Earth was a lifeless rock. But in that darkness dwelt a god, Umvelinqangi, whose voice was like thunder and who, when angered, would shake the world with earthquakes. Umvelinqangi created a single tiny seed. He sent it to the Earth. This seed was the very first life, from which all other life descended. It landed in the soil and sprouted into a long reed. The reed dropped more seeds, which fell off and grew into even more reeds. This continued until they covered a massive swamp to the north, the land called Uthlanga.

At the end of one reed, there grew a man. His name was Unkulunkulu, known as "the first ancestor" and "the Great One." Very small at first, he grew so large and heavy that he snapped off the end of the reed. Walking across the land of Uthlanga, he noticed men and women were sprouting at the ends of the other reeds. He picked them from the reeds. These people were the first humans, the ancestors of all nations, and they spread across the Earth. It was from Uthlanga that the ancestors of the Zulu journeyed south to the fertile lands they inhabit today.

The Great One continued to walk among the reeds. He saw many forms of life growing at the end of them. He gathered the fish and flung them into the rivers. Fields and forests began to grow, so he harvested birds and antelope, and they darted off into the wild. He picked cattle so they could be used by humans. He plucked off a ball of fire and a round glowing stone, and flung them into the sky. These were the Sun and Moon. Light came into the world.

The Great One also plucked from the reeds fierce lions and other beasts that would travel the lands hunting prey. He harvested magical creatures, some good and some bad. One was the snake-like goddess of the rivers, Mamlambo, rumored by some Zulu to drown people, eat their faces, and suck out their brains. Another goddess was Mbaba Mwana Waresa, a beautiful woman who created rain and rainbows, and who invented farming and gave the Zulu the gift of beer.

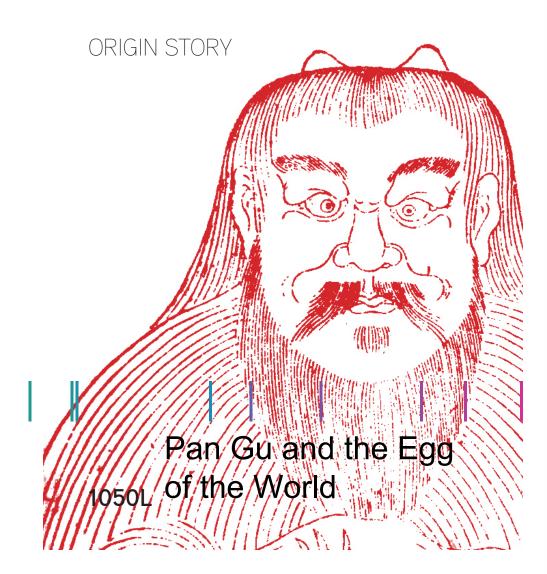
One of the final acts of the Great One was the most tragic. He plucked the first chameleon off a reed and sent it to give humans the following message: "Men must not die." By the words of the Great One, humans would become immortal. Unfortunately, the chameleon was slow and lazy in his journey. The Great One grew impatient and picked a different lizard from a reed.

This lizard was fast and quickly arrived to give word to the humans. But the lizard did not bear the same instructions. Instead the lizard uttered the words, "Men must die." And so from that day, humans became mortal. It is said that chameleons change color because they are so ashamed their ancestor was not fast enough to spare human-kind the invention of death.

The Great One was so powerful in all he created, many Zulu suspect he was the god who sent the seed to Earth in the first place and that he used it to transform himself into flesh and blood. But Zulu histories have differing versions of the story. The one thing of which the Zulu are certain is that all life — including humanity — has a single common ancestor.

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## CHINESE





This origin story comes from Chinese culture. It was first written down about 1,760 years ago, roughly 220-265 CE, yet it must have been told orally long before that.

In the beginning was a huge egg containing chaos, a mixture of yin and yang — female-male, aggressive-passive, cold-hot, dark-light, and wet-dry. Within this yin and yang was Pan Gu, who broke forth from the egg as the giant who separated chaos into the many opposites, including Earth and sky.

Pan Gu stood in the middle, his head touching the sky, his feet planted on Earth.

The heavens and the Earth began to grow at a rate of 10 feet a day, and Pan Gu grew along with them. After another 18,000 years the sky was higher and Earth was thicker. Pan Gu stood between them like a pillar 30,000 miles in height, so they would never again join.

When Pan Gu died, his skull became the top of the sky, his breath became the wind and clouds, his voice the rolling thunder. One eye became the Sun and the other the Moon. His body and limbs turned into five big mountains, and his blood formed the roaring water. His veins became roads and his muscles turned to fertile land. The innumerable stars in the sky came from his hair and beard, and flowers and trees from his skin. His marrow turned to jade and pearls. His sweat flowed like the good rain and the sweet dew that nurtures all things on Earth. Some people say that the fleas and the lice on his body became the ancestors of humanity.

And God said, "Let the land produce living creatures of every kind: the livestock, the creatures that move along the ground, and the wild animals, each of every kind." And it was so. God made the wild animals of every kind, the livestock of every kind, and all the creatures that move along the ground of every kind. And God saw that it was good.

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Then God said, "Let us make humankind in our image, in our likeness, so that they may rule over the fish in the sea and the birds in the sky, over the livestock and all the wild animals, and over all the creatures that move along the ground."

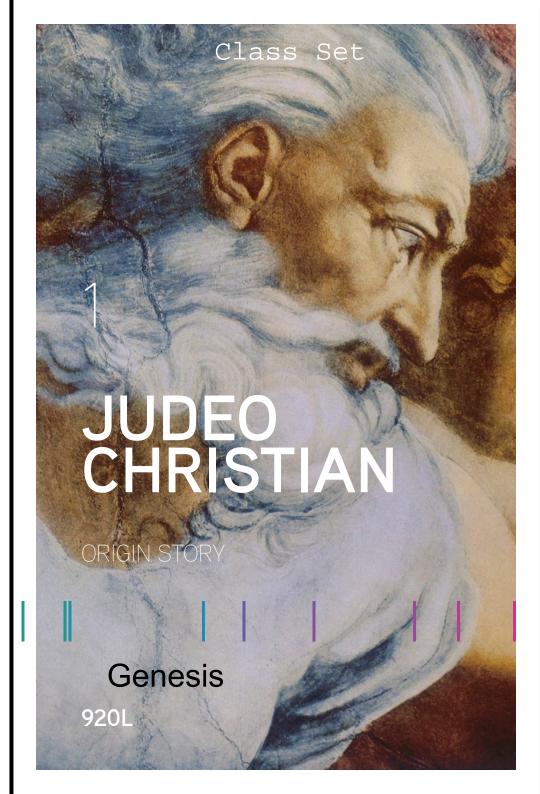
So God created humankind in his own image, in the image of God he created them; male and female he created them. God blessed them and said to them, "Be fruitful and increase in number; fill the earth and subdue it. Rule over the fish in the sea and the birds in the sky and over every living creature that moves on the ground."

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Then God said, "I give you every seed-bearing plant on the face of the whole earth and every tree that has fruit with seed in it. They will be yours for food. And to all the beasts of the earth and all the birds in the sky and all the creatures that move along the ground -- everything that has the breath of life in it -- I give every green plant for food." And it was so. God saw all that he had made, and it was very good. And there was evening, and there was morning -- the sixth day.

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Thus the heaven and the Earth were finished, with all their multitudes. And on the seventh day God rested from all the work that he had done in creation. God blessed the seventh day and hallowed it because on it God rested from all the work that he had done in creation.



This biblical story comes from Genesis, the first book of the Old Testament, which is the sacred source book of both Judaism and Christianity. In Genesis, this story is followed immediately by a second creation story in Chapter 2, in which humans are created first, followed by plants and animals.

These stories were written down in the first millennium BCE and evolved into the form in which we know them around 450 BCE, about 2,460 years ago.

## Genesis: Chapter 1

In the beginning, when God created the heavens and the Earth, the Earth was a formless void, and darkness was over the surface of the deep, and the Spirit of God was hovering over the waters. And God said, "Let there be light," and there was light. God saw that the light was good, and he separated the light from the darkness. God called the light "day," and the darkness he called "night." And there was evening, and there was morning — the first day.

And God said, "Let there be a dome between the waters to separate water from water." So God made the dome and separated the water under the dome from the water above it. And it was so. God called the dome "sky." And there was evening, and there was morning — the second day.

And God said, "Let the water under the sky be gathered to one place, and let dry ground appear." And it was so. God called the dry ground "land," and the gathered waters he called "seas." And God saw that it was good. Then God said, "Let the land produce vegetation: seed-bearing plants and trees on the land that bear fruit with seed in it, of every kind." And it was so. The land produced vegetation: plants bearing seed of every kind and trees bearing fruit with seed in it of every kind. And God saw that it was good. And there was evening, and there was morning — the third day.



And God said, "Let there be lights in the dome of the sky to separate the day from the night, and let them serve as signs to mark sacred times, and days and years, and let them be lights in the dome of the sky to give light on the earth." And it was so. God made two great lights — the greater light to govern the day and the lesser light to govern the night. He also made the stars. God set them in the dome of the sky to give light on the Earth, to govern the day and the night, and to separate light from darkness. And God saw that it was good. And there was evening, and there was morning — the fourth day.

And God said, "Let the water teem with living creatures, and let birds fly above the Earth across the dome of the sky." So God created the great creatures of the sea and every living thing of every kind that moves in the teeming water, and every winged bird of every kind. And God saw that it was good. God blessed them and said, "Be fruitful and increase in number and fill the water in the seas, and let the birds increase on the Earth." And there was evening, and there was morning — the fifth day.