



# God Made **LIFE**



Science/Worldview | 6-8 Grade



**Generations**  
PASSING ON THE FAITH

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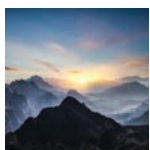
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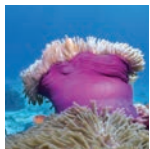
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# TABLE OF CONTENTS



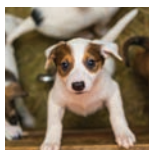
## Chapter 1

What is True? .....7



## Chapter 2

What is Life? .....27



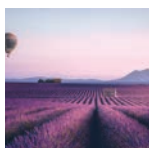
## Chapter 3

God Loves Reproduction .....59



## Chapter 4

God Made Microscopic Organisms .....83



## Chapter 5

God Made Plants .....119



**Chapter 6**

God Made Food.....155



**Chapter 7**

God Made Animals.....187



**Chapter 8**

God Made Man .....221



**Chapter 9**

God Sustains Human Life .....257



**Chapter 10**

God Restores and Reproduces Life .....285



Endnotes .....317



Image Credits .....319



Index.....321







# CHAPTER 1

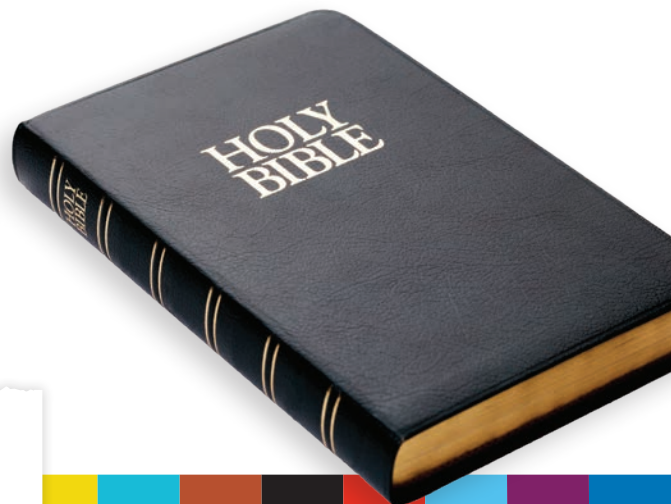
## WHAT IS TRUE?

Thomas said to Him, "Lord, we do not know where You are going, and how can we know the way?" Jesus said to him, "I am the way, the truth, and the life. No one comes to the Father except through Me." (John 14:5-6)

**D**uring the trial of Jesus, Pilate asked Him, "What is truth?" The answer to this question is simple. Jesus already told His disciples in John 14:6: "I am the way, the truth, and the life." Surely, the Son of God Himself is the truth. Jesus also said that God's Word is truth. Above all, we know for certain that all of God's Word is trustworthy. The Bible is absolutely true, and we can depend on it.

Humans want to know the truth. They seek the truth, but many do not look for truth in the right places. They do not look to God for truth. They seek truth, but they do not like the truth when they hear it. There are many lies in the world, and people are

often content to believe lies. Those who reject God think they are smart, and they do not trust God to give them truth. They are too proud to submit to God's Word, the very source of truth.



But we know that we are not very smart. We do not know all things, and we know that only God knows everything about everything. So, we cannot live without the Word of God. We cannot know anything for sure unless God speaks to us through His Word.

## Does Science Give Us Knowledge of Truth?

**The words of the LORD are pure words,  
Like silver tried in a furnace of earth,  
Purified seven times. (Psalm 12:6)**

As we study science, we want to be careful not to be proud. This is a strong temptation for scientists in our day. There are certain things science cannot do. Science cannot

provide truth with total certainty. We can be partially sure of scientific conclusions. We can be totally sure of the truths in God's Word. We can't know for sure what is true by scientific studies. Science can give us clues about what is true. And science can

help us solve problems. It can help make life easier. It can help to find a cure for diseases.

Science can help us answer certain questions. Some children might think that the moon is made out of cheese. By investigating the moon, we can come to the conclusion that the moon is NOT made out of cheese. In fact, men have explored the moon, and they have made sure that it is not made out of cheese. Science can help us disprove certain theories.



Is the moon made out of cheese?



Does lemonade cure cancer?

Consider the following theories, for example:

- *You can cure the disease of cancer by drinking lots of lemonade. Is that true?*
- *Eating three eggs every day will cause you to get a terrible heart disease and make you die sooner than the average person. Is that true?*
- *Leaves on trees turn yellow and brown in the autumn or winter because of the colder temperatures. Is that true?*

1. Just guessing or theorizing is not a good way to do science. A friend may have told you that leaves turn yellow in the fall because of the colder weather. But then, you could test out his opinion on the matter. You could place green leaves in a refrigerator, and you would quickly learn that they do not turn yellow in the cold. So your friend's guess was wrong. Scientists who make guesses or theories can fool a lot of people until their theories are tested.
2. How would you know if lemonade could cure cancer? How much lemonade would it take to cure cancer? You would have to test your theory on a hundred patients or a thousand patients who were willing to try it out. Even if your theory seemed to help a few people, that doesn't necessarily prove the theory. When a medicine is tested on 10 people who are suffering from some disease, the medicine might only help two of the patients a little bit. It might cure one patient, while it doesn't help the remaining seven people at all. At the end of the study, we don't know for sure that the medicine helped any of the patients. The one patient, or 10% of the patients, was cured but might have gotten better for some other reason. Science does not give us certainty. Science can only provide probable solutions or probable answers for our problems.
3. How would you know for sure that people who ate three eggs a day would



end up with more cases of heart disease than the average person later in life? There are many theories about diet. What is a good diet? What kind of foods would make for a bad diet? Some people say eggs are good for you, and other people say eggs are bad for you. Of course, you would have to test out your theory. You would have to get 1,000 people to agree to eat three eggs a day for 20 years (or for a very long time). Then, you would have to ask another set of 1,000 people not to eat eggs for 20 years. Suppose that 300 of the egg-eaters succumbed to heart disease and died at an earlier age than the average person. And then, suppose that only 100 of the non egg-eaters succumbed to heart disease and suffered early deaths. Would this prove that eating three eggs a day was bad for you? But what if the egg-eaters were more likely to smoke cigarettes and drink whiskey? Or what if the non



egg-eaters tended to exercise more than the egg-eaters during the 20 years that you were conducting the test? Science can give you a hint about truth, but there is always a possibility that the theory is still wrong.

## The Limitations of Science

There are many questions that science cannot answer. Science cannot answer the question of origins. How did this world get here? What is a thought? What is right and wrong? What is a worthwhile goal for human existence? What is the invisible part of the human being? What is the soul? What are emotions? Why do humans feel guilt? What is love?

Scientists invent things. But science cannot tell us whether an invention is good

or bad. Science cannot change the heart of somebody who doesn't believe in God. Suppose, for example, that Jesus were to raise somebody from the dead right in front of an unbelieving scientist. What would he say? Would he fall on his knees and repent of his unbelief? No. He wouldn't. Rather, the unbeliever would say, "It's a magic trick. The man was never really dead to begin with." Or he would say, "There must be some natural reason why people can rise from the dead. If we figure this out, we can solve the problem of death, and people can live forever in this world."

This is what Jesus taught in the parable of the rich man and Lazarus:

**There was a certain rich man who was clothed in purple and fine linen and fared sumptuously every day. But there was a certain beggar named Lazarus, full of sores, who was laid at his gate, desiring to be fed with the crumbs which fell from the rich man's table. Moreover the dogs came and licked his sores. So it was that the beggar died, and was carried by the angels to Abraham's bosom.**

**The rich man also died and was buried. And being in torments in Hades, he lifted up his eyes and saw Abraham afar off, and Lazarus in his bosom.**



Then he cried and said, "Father Abraham, have mercy on me, and send Lazarus that he may dip the tip of his finger in water and cool my tongue; for I am tormented in this flame." But Abraham said, "Son, remember that in your lifetime you received your good things, and likewise Lazarus evil things; but now he is comforted and you are tormented. And besides all this, between us and you there is a great gulf fixed, so that those who want to pass from here to you cannot, nor can those from there pass to us."

Then he said, "I beg you therefore, father, that you would send him to my father's house, for I have five brothers, that he may testify to them, lest they also come to this place of torment." Abraham said to him, "They have Moses and the prophets; let them hear them." And he said, "No, father Abraham; but if one goes to them from the dead, they will repent." But he said to him, "If they do not hear Moses and the prophets, neither will they be persuaded though one rise from the dead." (Luke 16:19-31)

## God's Designs are Very Complicated

For You formed my inward parts;  
You covered me in my mother's womb.  
I will praise You, for I am  
fearfully and wonderfully made;  
Marvelous are Your works,

And that my soul knows very well.  
My frame was not hidden from You,  
When I was made in secret,  
And skillfully wrought in the lowest parts  
of the earth.

Your eyes saw my substance, being yet  
unformed.

And in Your book they all were written,  
The days fashioned for me,  
When as yet there were none of them.  
(Psalm 139:13-16)

God has made an extremely complicated world. As we shall see, the human body is the most complex and beautiful of His material creation. Think about how the human body is more complicated than a rock. The human body can move gracefully, even capable of running, jumping, skating on ice, and twirling around. Whereas rocks cannot move or think, the human mind can think logically, make decisions, design buildings, and invent very complex machines. The human eye can distinguish 10,000,000 shades of colors. Thousands of processes are going on in your body at one time, most of which you are not even thinking about. Cells are reproducing. Wounds are healing themselves. You are breathing. Your blood is taking nutrients and oxygen throughout your body. Your immune system is fighting off disease. What an amazing, intricate design made by an all-powerful, all-wise, and all-good God!

Have you not known?  
Have you not heard?

**The everlasting God, the LORD,  
The Creator of the ends of the earth,  
Neither faints nor is weary.  
His understanding is unsearchable.  
(Isaiah 40:28)**

The body is so complicated that doctors and scientists have only learned a little bit about it over 6,000 years. Some of what we learn also turns out to be wrong. Scientists change their opinions throughout history. For example, doctors used to try to drain blood in order to get rid of a disease. This went on for about 2,500 years until people figured out it didn't really cure the patient. For one thing, they did not check with the Bible which said, "The life of the flesh is in the blood" (Leviticus 17:11).

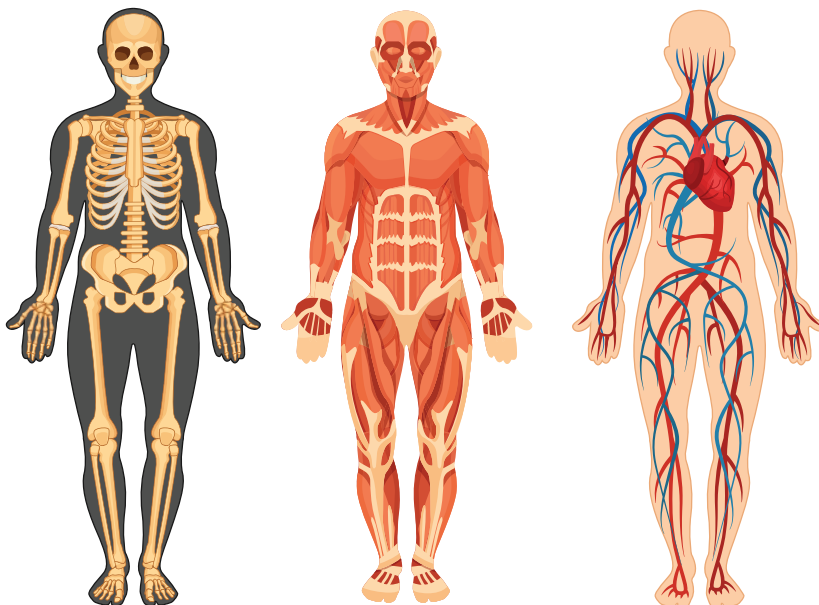
Scientists and doctors disagree about

many things. For example, some say that vaccines prevent disease and reduce the possibility of children dying. Some say that vaccines can cause problems like autism, asthma, or auto-immune disorders, and should be avoided. Remember that science cannot prove these theories beyond all doubt. It is hard to be 100% sure about any of these opinions.

Some traditions never had much proof, and lots of theories turn out to be wrong after many studies. Here are a few examples:

Eating something that has fallen on the floor within five seconds isn't a problem. Actually, germs can contaminate the food within a few milliseconds (hundredths of a second).

Coffee will stunt your growth. Some scientists now say that a tablespoon of milk will



The human as created by God is very complex.



compensate for the decrease of calcium produced by drinking a caffeinated drink.

## How to Gain Certainty in Science

So, how do we begin to improve our certainty about the things we know? Have you ever sliced up onions and found that your eyes begin to water? What causes your eyes to water?

1. We must observe. That means we must look at something over a lengthy period of time. Or, we must look at it many times over. We must compare one thing with another, and try to identify the differences between them. Do your eyes water when you cut up carrots, green peppers, or green onions?
2. We must observe cause-and-effect relationships. Is there a physical relationship

between the onion and your eyes? Or does everybody just get emotional when they cut up onions? Is there something about onions that makes us all start to tear up? What is the cause which specifically brings about these tears?

Are there liquids splashing out of the onion while it is being cut? Or is it a gaseous vapor that is released from the onion which causes tears? Sometimes, scientists will block other potential factors to isolate the real cause. Do the tears flow because of vapors coming into the nose or into the eyes? So you put a clothespin on your nose, and cut an onion. Then, you remove the clothespin, put on goggles, and cut another onion. When you do this, you will discover that the cause of the tears is not an odor picked up by



Science requires  
observation .



the nose. Something is emitted from the onion, coming into contact with the eyes.

3. You might use instruments like microscopes or spectrometers to analyze the stuff coming out of the onion. You could study the chemical reactions going on at the surface of the onion when you cut through it.

Finally, you would want to repeat your observations over and over again to improve the certainty of your conclusions.

But most importantly, the godly scientist should pray to God for wisdom and insight to better understand this complicated world. This was Solomon's request of God in 1 Kings 3. And God answered his prayer.

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**And Solomon said: . . . "O Lord my God, You have made Your servant king instead of my father David, but I am a little child; I do not know how to go out or come**

**in. And Your servant is in the midst of Your people whom You have chosen, a great people, too numerous to be numbered or counted. Therefore give to Your servant an understanding heart to judge Your people, that I may discern between good and evil."** (1 Kings 3:6-9)

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## Check with the Experts

To get a fast answer for a scientific question, some students will want to look up the answer on the internet. They might check "Wikipedia" or some other encyclopedia. Keep in mind that many sources on the internet can be wrong. Even experts can be wrong. They may pretend to know the answer to your question beyond any doubt. But experts have been shown to be wrong over and over again.

Around AD 2002, scientists discovered the causes of the onion tears. They say that a chemical (or enzyme) called **Lachrymatory-factor synthase** is released when we cut an onion. This converts the amino acid sulf-oxides into "Syn-propanethial-S-oxide gas" which floats up into the air and comes in contact with your eyes, causing them to tear up. As you can see, this explanation is very complicated, and it took scientists 6,000 years to figure it out. But still, this explanation could be wrong.

## The Scientific Method

If you come up with an idea that might be helpful for your health, for animal health, or

for plant health, you should use the scientific method. This is a disciplined approach to using science effectively.

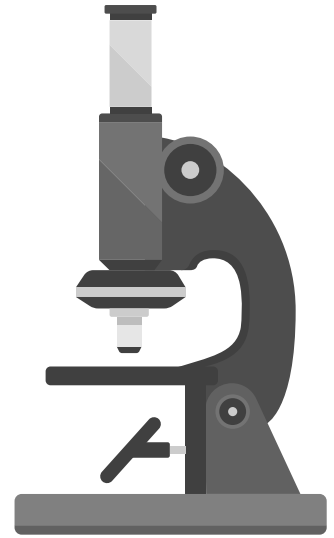
Let us say that you want to grow healthy tomato plants and yield the most tomatoes possible. The world-record yielding tomato plant yielded 32,194 tomatoes (or 1,152 pounds/522 kg of tomatoes) during one season. But you are hoping to get the most tomatoes from your plants. Here is how you would use the scientific method.

1. Establish the goal or state the problem you are addressing. In this case, you want to yield more tomatoes per plant in your garden.
2. Form your hypothesis. This is usually an educated guess based on some limited experience you have had with the subject (in this case, gardening). You pick the best fertilizer you can find. You believe that Fertilizer A is better than Fertilizers B and C. You believe that one-half gallon of water per plant, per day, will produce the best tomatoes.
3. Experiment with the hypothesis. Use Fertilizer A for 10 plants, and then use Fertilizers B and C for 10 plants each. Provide one-half gallon of water for each plant.

For a second set of 30 plants, use Fertilizer A exclusively. Then, provide half a gallon a day for 10 plants, one-quarter gallon a day for 10 plants, and three-quarters gallon a day for the other 10 plants.

It is important to keep everything in a greenhouse so rainfall doesn't mess up your experiment. This is called blocking confounding factors.

4. Harvest your crop and record your data by weighing all the tomatoes from each plant. Then analyze the data. Average the total weight from each set of plants.
5. Decide which was the best fertilizer. Taking a look at this data, we would conclude that the plants which did the best used Fertilizer A and received three-quarters gallon of water per day.



Fertilizer

6. Verify your conclusions. During the next planting season, you should experiment again. This time, you might try seven-eighths gallon of water per day, one gallon of water per day, and 1 and 1/8 gallons of water per day. There are confounding problems too. For example, too much water might invite bugs into the greenhouse during the second year of experimenting, which would decrease your yield.

### First Set: Average Harvest

- Fertilizer A—104 pounds (47 kg)
- Fertilizer B—40 pounds (18 kg)
- Fertilizer C—62 pounds (28 kg)

### Second Set: Average Harvest

- One-quarter gallon per day—32 pounds
- One-half gallon per day—85 pounds
- Three-quarters gallon per day—112 pounds

7. Use your conclusions to predict future outcomes. If you increase your planting to 100 plants, you could yield as much as 11,200 pounds (5080 kg) of tomatoes. That would be a great harvest!



Tomatoes

## Making Discoveries in Science

Yet, there have been many helpful scientific discoveries throughout history. Many of these breakthroughs come by “accident.” But really, there are no accidents. All inventions that have helped mankind come by God’s blessing when He provides a special insight to a humble scientist. In the history of medical science, the following were some of the most helpful breakthroughs:

- **1720**—Some terrible pandemics such as smallpox, tuberculosis, and cholera could kill 5% to 50% of the population. Pastor Cotton Mather of Boston, Massachusetts, was the first to discover the smallpox vaccine in an effort to make it widely available in America.
- **1846**—Anesthesia was discovered by several dentists in America. The use of certain chemicals would put a patient to sleep while doctors performed surgery.
- **1861**—A French microbiologist named



Louis Pasteur identified germs as the cause of infectious diseases.

- **1895**—The X-ray was accidentally discovered by German physicist Wilhelm Conrad Röntgen.
- **1928**—The first antibiotic was discovered by a Christian researcher, Alexander Fleming. His discovery came about accidentally when he forgot to clean a petri dish in his laboratory. He returned after two weeks and found a mold growing, preventing the bad germ from multiplying. Later he wrote, “One sometimes finds what one is not looking for. When I woke up just after dawn on Sept. 28, 1928, I certainly didn’t plan to revolutionize all medicine by discovering the world’s first antibiotic, or bacteria killer. But I guess that was exactly what I did.”
- **1970**—A Christian inventor named Raymond Damadian developed Magnetic Resonance Imaging. The MRI machine can be used to find diseases like cancer in



X-ray

## Alexander Fleming

The Christian who discovered antibiotics, Alexander Fleming, once wrote, “My greatest discovery was that I needed God, and that I was nothing without Him and that He loved me and showed His love by sending Jesus to save me.”



the body without cutting it open to look at it. This technology has saved countless lives throughout the years.

## History is Not Science

History is not the same subject as science. History is the records others have made of certain events that they have witnessed in



### **Dr. Raymond Damadian**

Dr. Raymond Damadian, the inventor of the MRI machine, attributed all his discover-

ies to God. He wrote, "How could a scientist achieve his goal of discovering the absolute truths that govern the natural world without the blessing of the Author of those truths? For me now the true thrill of science is the search to understand a small corner of God's grand design, and to lay the glory for such discoveries at the Grand Designer's feet."<sup>3</sup>

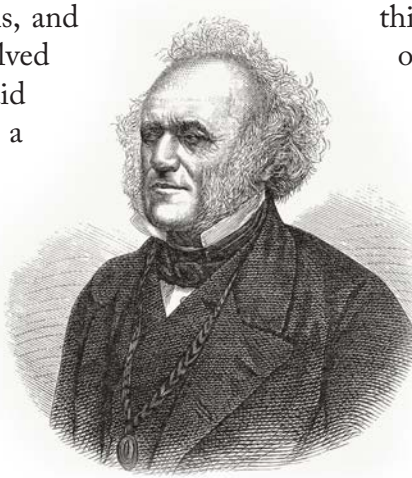
the past. History does not require repetition and verification because you cannot repeat the very same historical event. Those who signed the U.S. Declaration of Independence in 1776 only signed the document once. It never happened again. Science will verify a cause-and-effect relationship in the natural universe. This is done by attempting the same experiment under the same conditions over and over again. That is how scientists can be more certain of the truth of their findings.

Towards the end of the 1700s and on into the 1800s, a false kind of science de-

veloped. One scientist, Charles Lyell (1797-1875), looked at geological changes on the earth's surface, and he tried to guess what happened 1,000 year ago or 1,000,000 years ago. Of course, he assumed the world was very old. Lyell dated the strata of rock layers by their location, presuming they had been laid down over a very long period of time. He rejected the idea of Noah's flood as recorded in Scripture. Lyell assumed that the conditions on the surface of the earth had been the same, and the changes occurring by earthquakes and volcanoes remained constant through the years. But, how can we know for sure that this is the case? Science cannot possibly prove this. Suppose that somebody had recorded every meteorite that hit the earth, and every flood, every earthquake, and every volcanic eruption happening over thousands of years (or even millions of years). We would have to rely on the accuracy of single observations. We would have to rely on an expert, who could very well make a mistake in his observations and recordings. This is not science. This is history. These are the records taken down by somebody who was observing what happened. This cannot possibly provide a high level of reliability for these "truth claims."

About the same time that Lyell came out with his imaginative claims, Charles Darwin (1809-1882) also delivered a very weak hypothesis. He tried to explain how animals and humans appeared on the earth by rejecting God's revelation in Genesis 1 and 2. Darwin suggested that humans

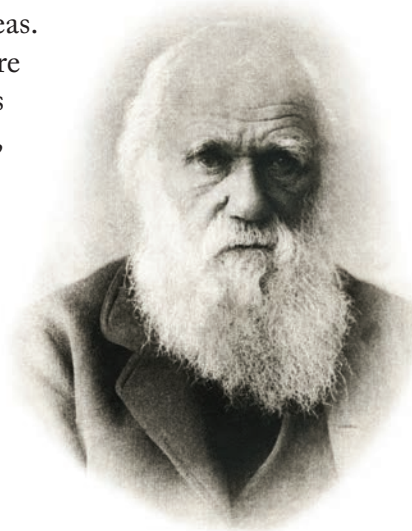
evolved from ape-like animals, and that all animals somehow evolved out of lower life forms. He said this may have happened by a process of “natural selection” or by chance. He thought that somehow complex animals came from simple animals. And somehow, living organisms came from non-life. He thought that animals could change through the generations by **genetic mutation**. These changes would come about because certain mutated animals could adapt better to their environment. Thus, the animals which had adapted to their environment would live longer and have more babies and healthier babies. This was the “hypothesis.” But there was a big problem with Darwin’s ideas. These radical changes, where one kind of animal changes into another kind of animal, has never been observed in a laboratory. Darwin hoped the fossil layer would show lots of varieties of animals developing over time. There was nothing like this to be found in the fossil layers. Even if there were millions of varieties of animals of varying complexities (that have gone extinct),



Charles Lyell

this still would not prove that one variety of animal adapted from another. Unless scientists observe the mothers giving birth to mutated animals over millions of years, then the field of evolution can’t be considered true science.

Occasionally, you might find a fossilized animal in the mountains. Maybe the animal had gone extinct, which means there are none of these to be found anywhere in the world today. Does this prove Darwin’s hypothesis? Of course not. All we can say is that some mighty flood must have swept over the mountain and encased this animal (and many of his friends) in the rock. With the fossil in your hand, you have evidence that this animal died. That is all you can say. You do not know for certain when he died. You don’t know why all of his friends died, or why this animal is extinct. You don’t know for certain why he died. He could have died in a local flood, or it could have happened during the worldwide flood. Humble scientists are careful not to say too much about these fossils.



Charles Darwin



Fossils buried in the ground

Proud scientists pretend that these fossils prove a weak hypothesis concerning the origins of life on the earth.

Some unbelieving scientists try to date the age of a fossil or a rock by what is known as Carbon 14 dating. When a living organism dies, part of its Carbon content breaks down by radioactive decay. The Carbon 14 decays, but the Carbon 12 stays the same. So, scientists monitor the ratio of Carbon 14 to Carbon 12. From this they try to guess the age of the fossil. But they assume that this ratio has remained the same in the atmosphere of the earth from the time the fossil died until now. We don't know what the ratio of Carbon 14 to Carbon 12 was 4,000 years ago, or 6,000 years ago. For one thing, we know the world was very different before the worldwide flood. So we can't trust this dating method.

Also, when it comes to dating methods, the scientists make assumptions about the starting conditions. They assume uniform conditions throughout history. Suppose you

were to come upon a bicycle tire that was almost flat, but not quite. You measure how fast the air is escaping, and you conclude that the tire was filled with air exactly 8 hours ago. What is the problem with this assumption? Of course, the problem is that you do not know when the tire was punctured. You also do not know whether the size of the hole got bigger hours after the tire was punctured.

## Accuracy in History

We cannot completely trust human records concerning what happened in history. There are few human eyewitnesses in the very ancient records. In fact, the oldest writing known to man is a papyrus record from about 2100 BC. This would have been about 400 years after the worldwide flood. It is the diary of a man named Merer who was supervising the building of the Great Pyramid of Giza. We may have an accurate account of what Merer was doing 4,000 years ago, organizing his crew on the construction project. To understand for sure what happened in history we must go back to God's Word.

We are absolutely certain of God's revelation concerning these historical events. There was a worldwide flood, which took place around 2518 BC (+/- 200 years). It was a worldwide catastrophe, and it impacted the whole globe. Beyond this global event, we don't have reliable records of any other large floods, volcanoes, or earthquakes. But, according to biblical record, this impacted the face of the whole earth. And a lot of animals died in the floodwaters.



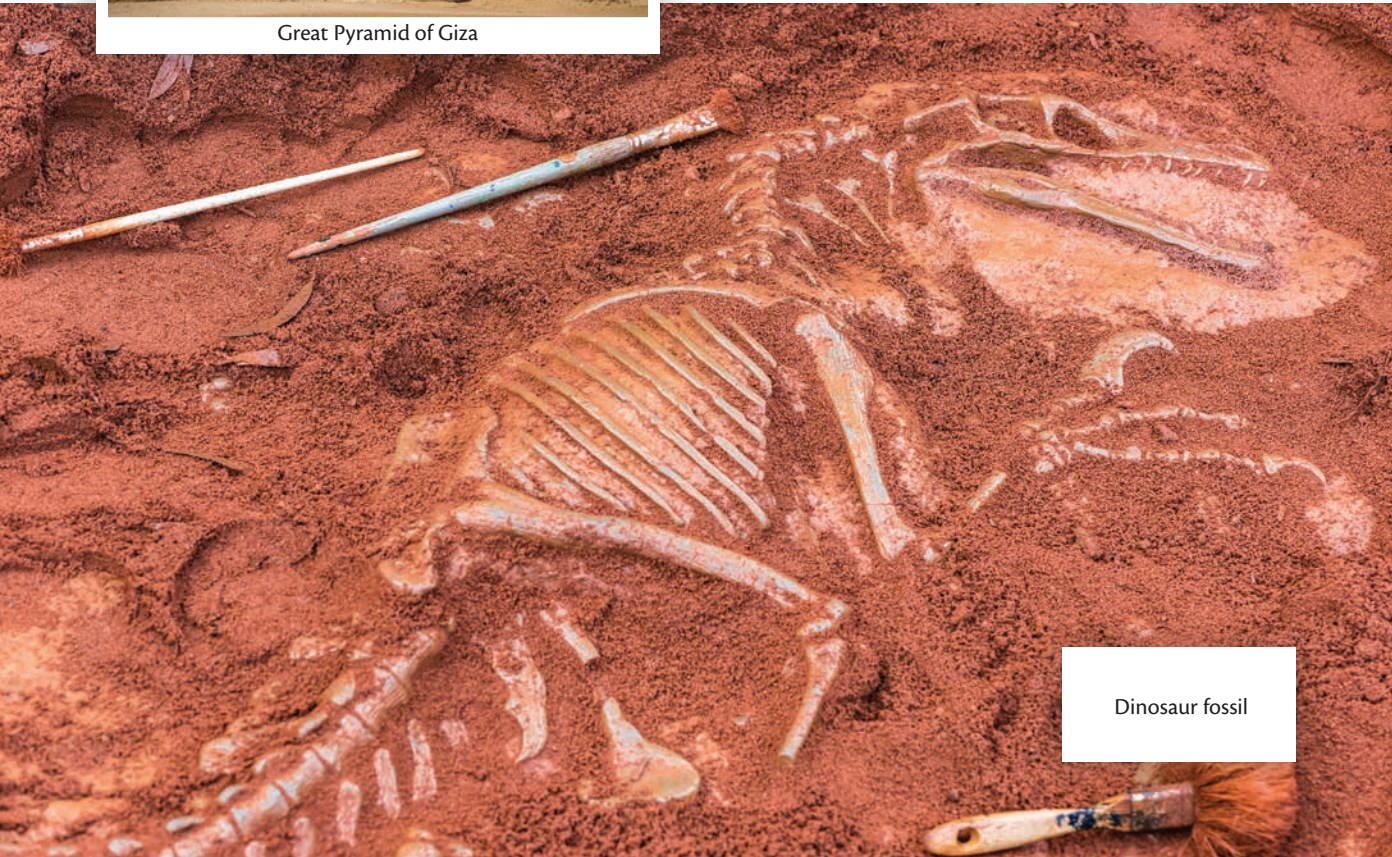
Then the LORD said to Noah, "Come into the ark, you and all your household, because I have seen that you are righteous before Me in this generation. You shall take with you seven each of every clean animal, a male and his female; two each of

animals that are unclean, a male and his female; also seven each of birds of the air, male and female, to keep the species alive on the face of all the earth. For after seven more days I will cause it to rain on the earth forty days and forty nights, and I will destroy from the face of the earth all living things that I have made. . . ."

The waters prevailed and greatly increased on the earth, and the ark moved about on the surface of the waters. And the waters prevailed exceedingly on the earth, and all the high hills under the whole heaven were covered. The waters prevailed fifteen cubits upward, and the mountains were covered. And all flesh



Great Pyramid of Giza



Dinosaur fossil

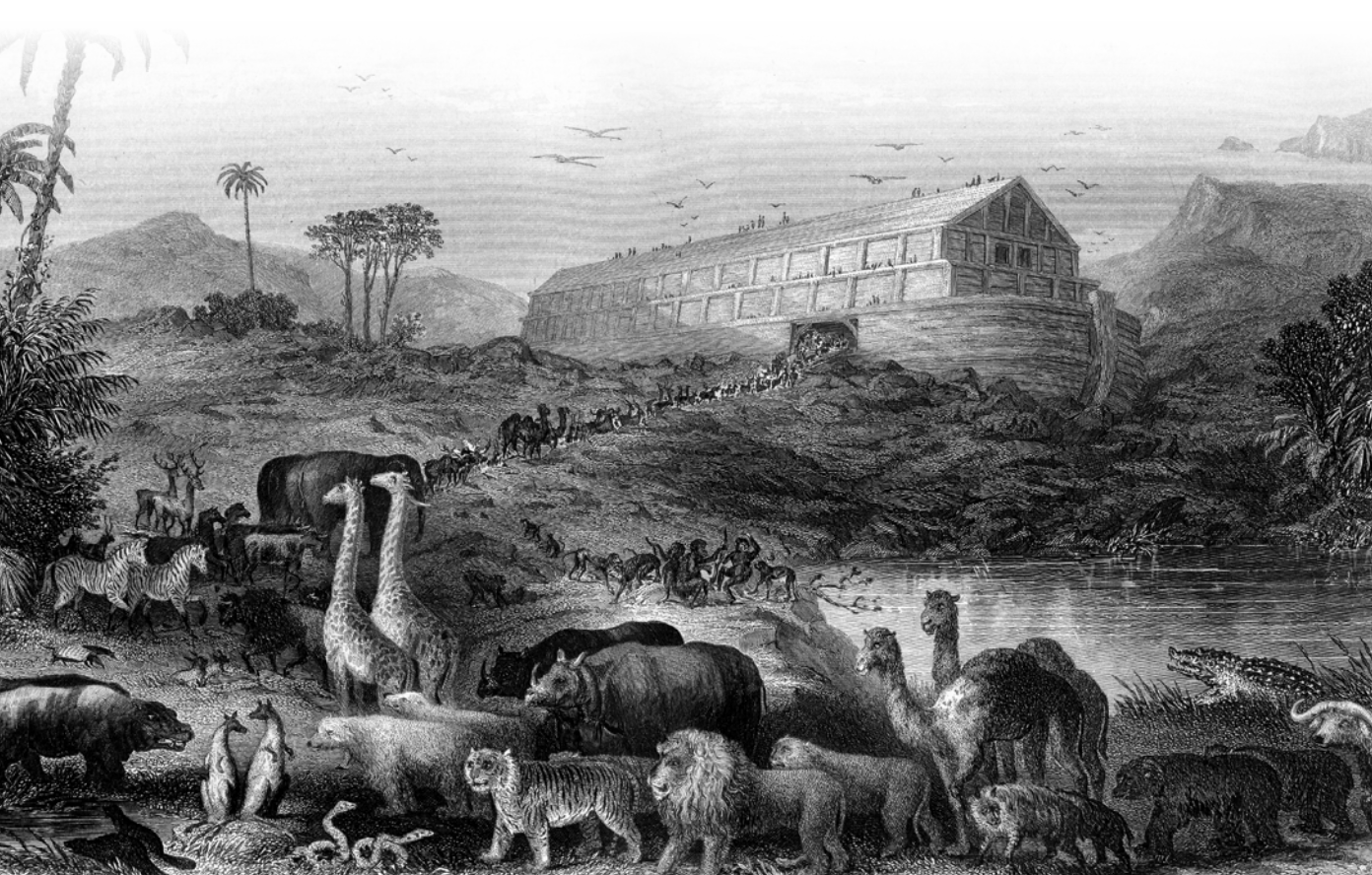


died that moved on the earth: birds and cattle and beasts and every creeping thing that creeps on the earth, and every man. All in whose nostrils was the breath of the spirit of life, all that was on the dry land, died. So He destroyed all living things which were on the face of the ground: both man and cattle, creeping thing and bird of the air. They were destroyed from the earth. Only Noah and those who were with him in the ark remained alive. And the waters prevailed on the earth one hundred and fifty days. (Genesis 7:1-4, 18-24)

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## The Most Important Event in History

The most important historical event took place about 2,000 years ago, when Jesus Christ, the Son of God, died on the cross for our sins. On the third day, He rose again from the dead according to the Scriptures. Though the world has been terribly affected by sin and death, the Lord Jesus Christ came to fix all of this. If we believe in the coming of Christ in history as the Scriptures tell us, and we believe that He died on the cross for our sins and rose again, we will be saved. God said this happened in His Word. He cannot lie. This is truth, and we must believe it.





The most important historical event:  
The death and resurrection of Jesus Christ

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For I delivered to you first of all that which I also received: that Christ died for our sins according to the Scriptures, and that He was buried, and that He rose again the third day according to the Scriptures, and that He was seen by Cephas, then by the twelve. After that He was seen by over five hundred brethren at once, of whom the greater part remain to the present, but some have fallen asleep. After that He was seen by James, then by all the apostles. Then last of all He was seen by me also, as by one born out of due time. (1 Corinthians 15:3-8)

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## Pray

- Take a moment and praise God for His very complicated creation of the human body, the human eye, and the human brain.
- Thank God for communicating His truth in the Word. Thank Him that we can know the truth for sure as we read His Word.
- Pray for humility as we explore His creation and gain some knowledge of the world.
- Pray for special wisdom and understanding. Pray that God might help you to discover something new about His world.
- Ask for God's forgiveness for overlooking God's wonderful creation or for taking it for granted.

## Sing

We have thought about God's truth and God's wisdom to make this world. We have studied a little bit of science and a little bit of history. The appropriate response must be worship and praise to God. If the student is unfamiliar with the hymn or psalm, some version of it is available on the internet, and may be accessed (with supervision) for singing along.

### *How Great Thou Art*

O Lord my God, when I in awesome wonder  
Consider all the worlds Thy hands have made,  
I see the stars, I hear the rolling thunder,  
Thy power throughout the universe displayed:

### *Refrain:*

Then sings my soul, my Savior God, to Thee:  
How great Thou art! How great Thou art!  
Then sings my soul, my Savior God, to Thee:  
How great Thou art! How great Thou art!

When through the woods and forest glades I wander  
And hear the birds sing sweetly in the trees,  
When I look down from lofty mountain grandeur,  
And hear the brook and feel the gentle breeze:



And when I think that God, His Son not sparing,  
Sent Him to die, I scarce can take it in,  
That on the cross, my burden gladly bearing,  
He bled and died to take away my sin.

When Christ shall come with shout of acclamation  
And take me home, what joy shall fill my heart!  
Then I shall bow in humble adoration,  
And there proclaim, "My God, how great Thou art!"

## Do

Choose at least one of the following activities and apply the lessons you learned in this chapter.

1. Obtain a historical artifact or antique in your house, obtain one from a friend, or research an antique in a shop. Try to figure out when it was made. How certain are you of the date in which it was made? What are you trusting in to be sure of that date? Is it possible that you could be wrong? Suppose you found a fossil in the back yard. How certain could you be of the fossil's age? Would you be more certain of the date the antique was made than of the date the fossilized animal was alive?
2. Organize your own experiment in the garden, in the kitchen, or with your household chores. Are there ways you could improve your efficiency? How might you get the job done more quickly and do a better job? Or, how might you find the best baking results for pies, cakes, or cookies? Choose your household experiment. Plan out each step of the experiment. Conduct the experiment, and draw a conclusion.
3. Make a list of the problems with an evolutionary explanation for how this world came about. Do a little more research using materials from Answers in Genesis (*aig.org*) or *creation.org*. Make your own short list and memorize these so you can discuss them with your friends.

## Watch

To watch the recommended videos for this chapter, go to [generations.org/GodMadeLife](http://generations.org/GodMadeLife) and scroll down until you find the video links for Chapter 1. Our editors have been careful to avoid films with references to evolution; however, we would still encourage parents or teachers to provide oversight for all internet usage. The producers of these videos may not themselves give God the glory for His amazing creative work, but we encourage the student and parent/teacher to respond with prayer and praise.



Butterfly and chrysalis



## CHAPTER 2

# WHAT IS LIFE?



Let heaven and earth praise Him,  
The seas and everything that moves in them. (Psalm 69:34)

**S**cience must never be boring. If science is boring, then God is boring, and this is never the case. As Christians, we believe that God made the world and everything in it. This is His handiwork. So, the first and most important reason why we must study plants, animals, and humans is to discover more reasons to praise God. We learn about God and we worship God while gazing into a microscope in the laboratory, surveying the gorgeous landscapes from the mountain tops, and swimming through the coral reefs in the South Seas. We love God. We love God's world, and we are excited to learn more about it. Beyond this, to ignore God as we study His work is to insult Him.

### **The Purpose of This Study— To Glorify God**

We look at a great work of art and admire the artist. We read a great work of literature and admire the writer. We watch a rocket ship soar into the sky, and we consider the genius of the scientists who designed the craft. But the greatest work of all is that of the Creator of the human brain. We want to know more of God who made us with outstanding capabilities to do these things. We want to know more of the Creator of life. God is the Genius who created all of the life around us—plant, animal, and human life. And so, with every page of this book the student is called to wonder and praise. After studying this creation of life, we should love God



Scientists copy God's design of the knee to make robotic knees.

more. This is the major purpose for gaining more knowledge in this field of science.

Also, we study the body to properly oversee the creation, for the Creator has assigned us to this. Mosquitoes bite and spread disease. Bacteria and viruses introduce diseases to the human body. We need to understand how this happens and how we might help the body fight off these diseases.

## Science Copies God's Designs

You will discover in this study that God is the original Genius. We are created in His image, and we think His thoughts after Him. Therefore, scientists will copy God's design for their own purposes. George de Mestral invented Velcro® in the 1950s as he studied burdock seeds that would cling to his coat and get tangled in his dog's fur. Also, robotic limbs have been designed to mimic the human knee joint. Scientists used the four bar-and-cam

mechanisms God used in the human joint. They wanted the same compactness, the same strength, and the same mechanical advantage for the robotic knee as the original design for the human knee. Also, they wanted the same kind of stiffness in the locked position when the robot stood upright.<sup>1</sup>



Velcro

## What is Life as Defined by God?

There is a big difference between a rock and a bird. Immediately, every child can see the differences. The bird can move, grow, reproduce, eat food, and run away from predators. Rocks don't move, grow, reproduce, eat food, or run away from predators. So, the first thing to notice here is the amazing complexity of life. Of course, none of us could make a rock out of nothing. This is something only God can do. But, birds and man are much more complicated than a rock.

God's Word defines life by two characteristics:



## 1. Breath of Life

And all flesh died that moved on the earth: birds and cattle and beasts and every creeping thing that creeps on the earth, and every man. All in whose nostrils was the breath of the spirit of life, all that was on the dry land, died. So the LORD destroyed all living things which were on the face of the ground: both man and cattle, creeping thing and bird of the air. (Genesis 7:21-23)



ing things on the earth, cattle, and man. This does not include plants and trees. Those animals without the breath of life and blood like jelly fish, sea anemones, and invertebrates (insects) are **lower life forms**. Because insects have **hemolymph** instead of blood, the Scriptures would not include insects under the category of animals that have the blood of life and the breath of life. Keeping this in mind, the biological sciences would still include plants and insects under the category of biological life. For this course, we will separate lower life forms from higher life forms.

Yet, in the order of His creation, God has

## 2. Blood

"If the place where the LORD your God chooses to put His name is too far from you, then you may slaughter from your herd and from your flock which the LORD has given you, just as I have commanded you, and you may eat within your gates as much as your heart desires. . . . Only be sure that you do not eat the blood, for the blood is the life; you may not eat the life with the meat. You shall not eat it; you shall pour it on the earth like water." (Deuteronomy 12:21, 23-24)



From these words, we understand that all creatures with the breath of life and blood are **higher life forms**. This includes creep-



Sea anemone

established various levels of dignity upon the creatures. This is important for the way we think about the world. For example, we cannot treat a whale with the same level of dignity we would apply to humans.

Often, unbelievers will treat apes, whales, and bald eagles like they treat humans. That’s because they believe humans descended from apes. They do not believe in a Creator God, who placed varying levels of honor on His creatures. Psalm 8 provides a clear scale of honor as laid down by God at creation.



And You have crowned him with glory and honor.  
You have made him to have dominion over the works of Your hands;  
You have put all things under his feet,  
All sheep and oxen—  
Even the beasts of the field,  
The birds of the air,  
And the fish of the sea  
That pass through the paths of the seas.  
(Psalm 8:1,4-8)

O LORD, our Lord,  
How excellent is Your name in all the earth,  
Who have set Your glory above the heavens! . . .  
What is man that You are mindful of him,  
And the son of man that You visit him?  
For You have made him a little lower than the angels,



Man and monkey

The Scale of Honor Established by the Creator

Most Honorable  Least Honorable	Angels
	Humans
	Animals (with blood and breath)
	Invertebrates
	Plants and Trees
	Rocks

## Why Humans are Different

**And the LORD God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living being. (Genesis 2:7)**

Human life is different from animal life because God breathed into Adam's nostrils "the breath of life." Man has the breath of God within him. This is not said of any of the other creatures. Scripture goes on to speak of three kinds of life—physical life, spiritual life, and eternal life.

When Adam fell into sin in the garden, all mankind entered into a state of spiritual death. Man was now "dead in trespasses and sins" (Eph. 2:1). Adam brought physical death, spiritual death, and eternal death to us by the fall. Though Adam was still physically alive, he was the "walking dead" as it were. Only by the second Man, that is Jesus Christ, did new life come. Jesus brought us spiritual life. This was an eternal life. By Christ's resurrection came complete victory over death. We will be resurrected too, because we believe in Jesus. There will be no more physical or spiritual death for all those who put their trust in Him.

Adam was also created in the image of God in knowledge and righteousness (moral capacity). Animals do not have a sense of morality. Black widows will eat their mates. Hyena siblings kill each other for food. Dogs

will fight over their food, but that is only because they have an instinct to eat and to survive. Dogs and cats do not protest moral problems in the world. Sometimes female dogs will eat their puppies, and they have no conscience about it. They don't feel bad about doing this afterward.

Man was also given the responsibility of taking dominion over the creation. He was supposed to be God's caretaker over the created world. This was not assigned to dogs and cats, or even to the angels. Man is very special, and he is very different from the rest of the material creation.



## The Source of Life

**Jesus said to her, "I am the resurrection and the life. He who believes in Me, though he may die, he shall live. And whoever lives and believes in Me shall never die. Do you believe this?" (John 11:25-26)**

Life is a mystery to scientists. Where did this very complicated creation come from? The Bible tells us clearly this life comes from God. But the modern world does not believe this. Governments have spent several trillions of dollars investigating other planets, searching for life. Unbelieving scientists do not want to believe that this miracle of life comes from an intelligent Personality. They want to believe that life can come from non-life. They imagine that somehow a rock can start to move and then reproduce baby rocks.

Some people believed in “spontaneous generation” in the 1800s. They thought

life came out of non-life and that maggots formed spontaneously on dead meat until Louis Pasteur disproved it. Now, scientists have a new name for it—**abiogenesis**. They tell us that water is pretty much the same as a life form. Or, they tell us that an organic compound like **isopropyl alcohol** (rubbing alcohol) is pretty much the same as life. These scientists are living in a make-believe world.

Where did life come from? There is a very simple answer to this. Jesus is the source of life. In John 6, He told everybody He came down from heaven to “give life to the world.”

What This Study is All About

With this basic introduction, we want to study a little bit about zoology, botany, anatomy, and physiology. Let’s define these terms.



Louis Pasteur

Biology	The study of all lifeforms
Microbiology	The study of micro-organisms
Zoology	The study of animals
Botany	The study of plants
Anatomy	The study of the human body and how all the parts fit together
Physiology	The study of the functions of the parts in the human body



## Cell-Based Organisms

The biblical definition of life is all those creatures with breath and blood. For this study, we will consider everything made of cells. Any part of God's creation made of one or more cells is referred to as an organism.

These cell-based, created entities have seven characteristics:

1. **Organisms are made of cells.** A cell is an amazing creation of God made of a wall or membrane on the outside and a **cytoplasm** (SYE-toe-plaz-uhm) on the inside. The cytoplasm contains water and carbon compounds—starches, sugars, fats, and proteins.
2. **Rocks and dirt don't die.** But, all organisms will wither and pass away. Flowers and trees grow for a while, then they wither, fade, and are no more. Man and animals all experience the sad reality of death.

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I said in my heart, "Concerning the condition of the sons of men, God tests them, that they may see that they themselves are like animals." For what happens to the sons of men also happens to animals; one thing befalls them: as one dies, so dies the other. Surely, they all have one breath; man has no advantage over animals, for all is vanity. (Ecclesiastes 3:18-19)

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"The grass withers, the flower fades,  
Because the breath of the LORD blows upon it;  
Surely the people are grass.  
The grass withers, the flower fades,  
But the word of our God stands forever."  
(Isaiah 40:7-8)

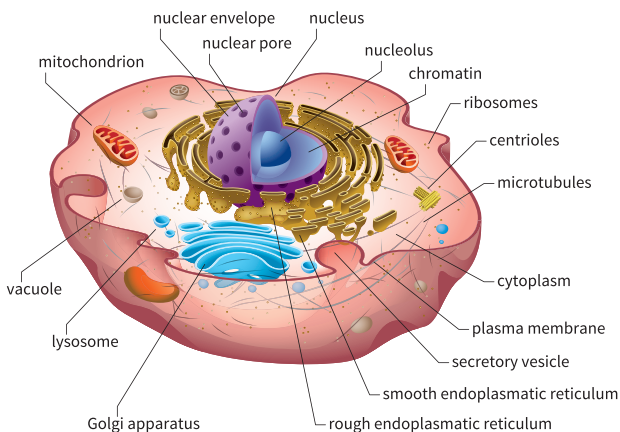
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3. **Organisms reproduce.** At the beginning, God created plants and animals to reproduce "according to their kind." Cats will never give birth to puppies, and pine trees will never reproduce oak trees. The creation was never designed such that one life form would develop into higher levels of complexity, or vastly different kinds of creature.
- 

Then God said, "Let the earth bring forth grass, the herb that yields seed, and the fruit tree that yields fruit according to its kind, whose seed is in itself, on the earth"; and it was so. (Genesis 1:11)

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**Cell Structure**

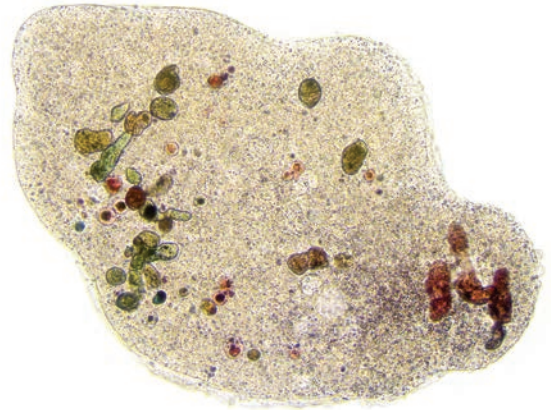


Then God said, "Let the earth bring forth the living creature according to its kind: cattle and creeping thing and beast of the earth, each according to its kind"; and it was so. (Genesis 1:24)

4. **Organisms need food for energy to exist.** You do not need to feed rocks to keep them from withering away. But plants will wither and pass away if they do not receive sunlight (energy from the sun) for a long period of time. If a human doesn't get food, at some point, he won't have the energy to breathe. He will die without food.
5. **Also, cell-based organisms move.** Obviously, rocks don't move around on their own unless they are pushed along by something else. Animals and humans will walk around without anything pushing on them. There is always some kind of movement going on in every living organism, even in the case



Food is essential for life.



Amoeba (a single-celled organism)

- of plants and trees. Single-cell organisms like **amoebas** are moving stuff inside the cell.
6. **Organisms start out very small as a single cell or a seed, and they grow.** God has designed organisms to take in food and turn it into more cells to replenish the body. Parts of the organism will also wear out over time, so they need to be replaced throughout the organism's cycle of existence. Growth happens when the body takes in more mass than it is using up.
7. **Organisms react to outside stimuli.** A stimulus is a change or force that interacts with the organism. The organism can sense this force and responds to it. A rock cannot tell when the wind is blowing. A cat can sense when the wind blows or when the temperatures drop, and he will fluff up his hair to keep himself warmer in the cold. A grizzly bear can smell a