GOD MADE ME

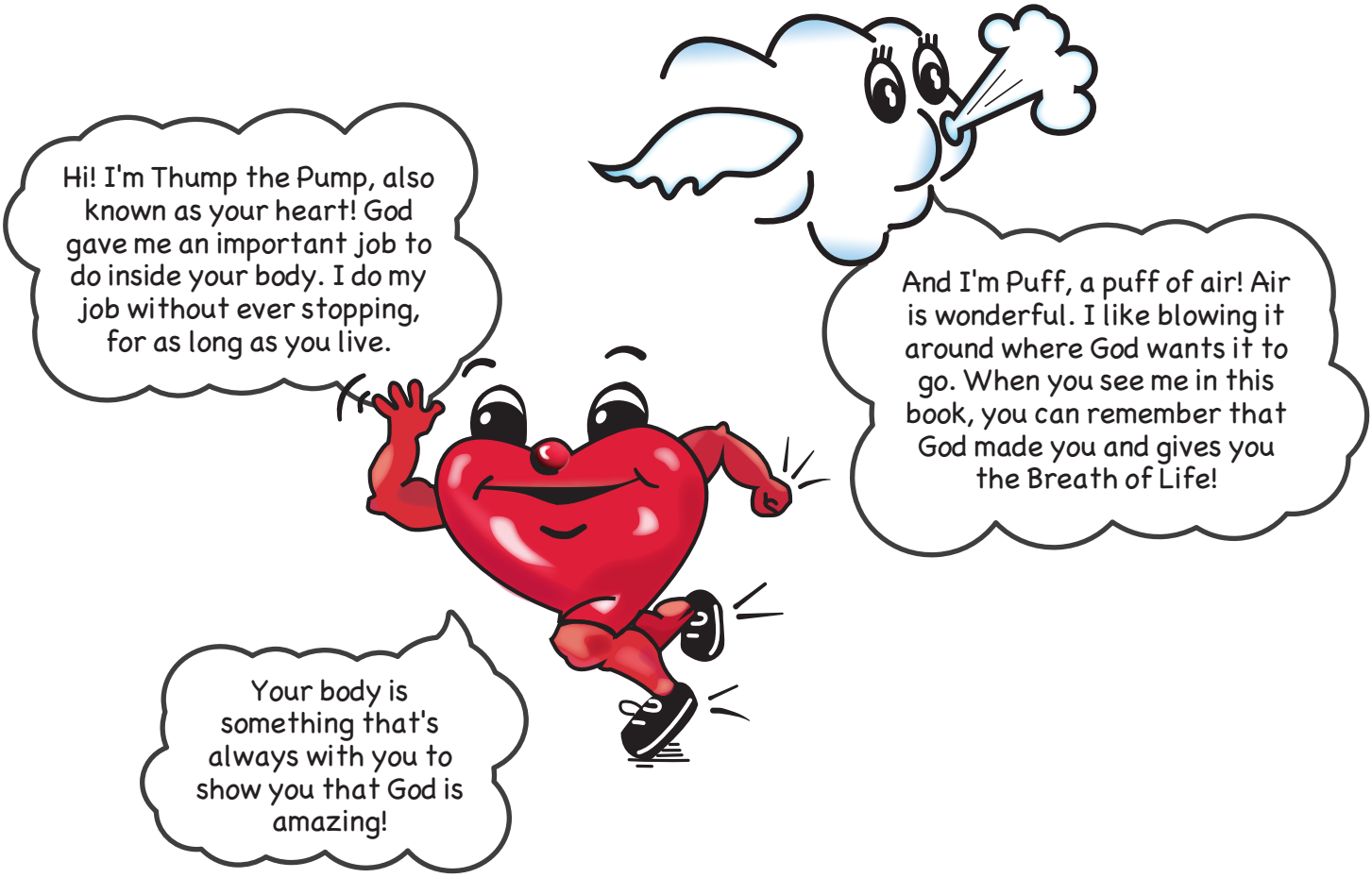
Science/Worldview | Level 3

Author: Tamela Sechrist

Editors: Joshua Schwisow and R.A. Sheats

Generations
PASSING ON THE FAITH

GOD MADE ME


Hi! I'm Thump the Pump, also known as your heart! God gave me an important job to do inside your body. I do my job without ever stopping, for as long as you live.
And I'm Puff, a puff of air! Air is wonderful. I like blowing it around where God wants it to go. When you see me in this book, you can remember that God made you and gives you the Breath of Life!
Your body is something that's always with you to show you that God is amazing!

Printed in the United States of America.

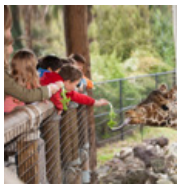
ISBN: 978-1-954745-62-9

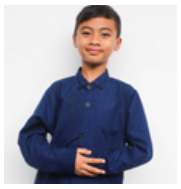
Cover Design: Justin Turley
Interior Design: Sarah Lee Bryant

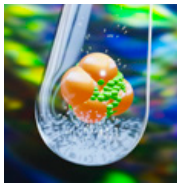
Published by:
Generations
19039 Plaza Drive Ste 210
Parker, Colorado 80134
Generations.org

For more information on this and other titles from Generations,
visit Generations.org or call (888) 389-9080.

Table of Contents







Introduction

. . . what may be known of God is manifest in them, for God has shown it to them. For since the creation of the world [God's] invisible attributes are clearly seen, being understood by the things that are made, even His eternal power and Godhead . . . (Romans 1:19-20)

Understanding God's creation helps us all understand God's attributes. (Romans 1:19-20) This science course for middle to upper elementary children is designed to bring to light the wisdom, power, and love of God that is evident in His creation. *God Made Me* presents the amazing way that the human body is wonderfully designed so every part works together in harmony. When God made mankind in His image, He made each structure and process to proclaim His glory with its intricacies, from the smallest organelle in a cell to the largest parts, such as the arms and legs.

Thump, the hard-working heart, and Puff, representing the breath of life, appear often in the course to add interesting facts or encourage praise for God's creation of the human body.

God Made Me is designed to be easy to understand and engaging for children. Kids learn in a variety of ways, and this course, with its companion activity book, provides several modes of instruction.

- **Reading:** The textbook is designed at a reading level appropriate for middle elementary students. Acknowledging that the study of the human body involves learning many new vocabulary words and focusing on multi-step processes, the text is kept at a simple level. This will enable the student to concentrate more on the science

concept than on sorting out lengthy sentences or potentially unfamiliar non-science words. Fun analogies are sometimes used to help explain the way things work.

- **Seeing:** Beautiful pictures and fascinating illustrations are abundantly used to keep the attention of children. Diagrams matching the text concepts are used to reinforce learning.
- **Moving:** The *God Made Me* companion activity book is designed to add a variety of fun, physical activities that are not overly burdensome to the parent/teacher. Here, science topics are reinforced with a balance of observation, experiments, exercise, art, Scripture, cooking, and games. Occasional review exercises are provided as a way for the parent/teacher to check retention. Each activity corresponds to a section of the textbook and is numbered for easy reference.

How To Use *God Made Me*

God Made Me is divided into nine units of four chapters each. Each unit begins with a memory verse and hymn that the child will have a chance to work on in the activity book. This course contains 36 weeks of lessons with one chapter to be read each week. Each week's reading and companion activities are divided into three days.

Children learn best in small doses with time to internalize in between. New concepts are solidified as they play and are made permanent as they sleep. Because of this, the following weekly schedule is suggested:

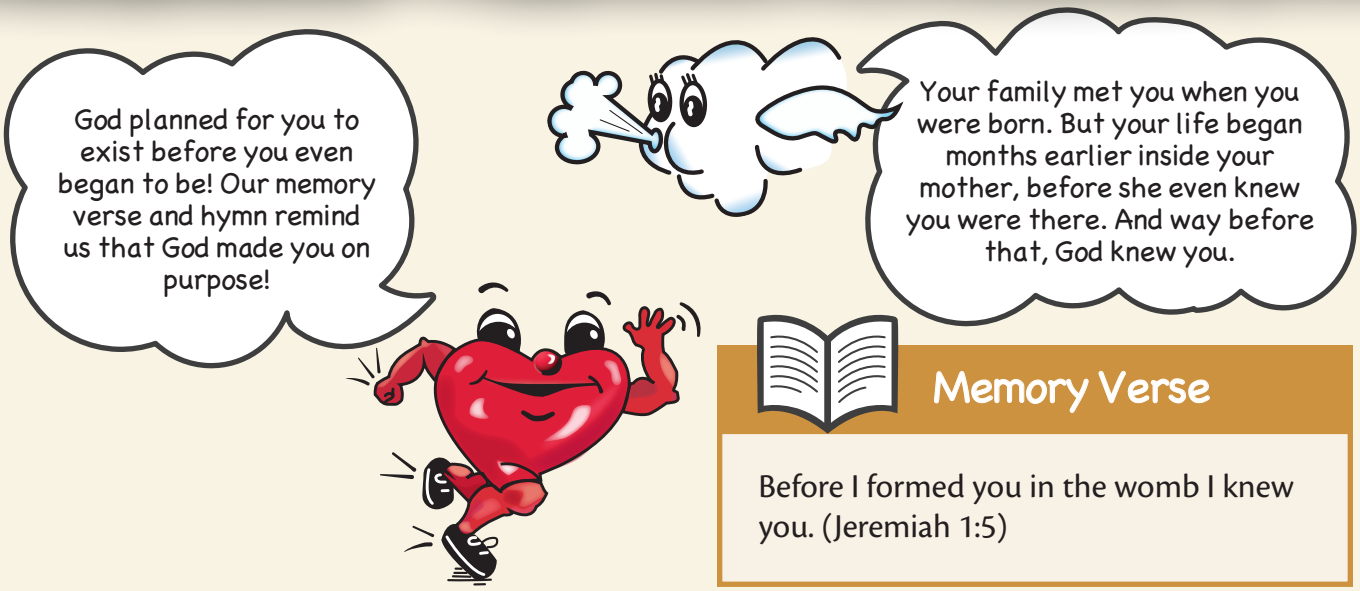
- **Day 1** — Read the first section of the textbook chapter. Complete the corresponding activity in the activity book (as announced at the end of that section of text).
- **Day 2** — Break
- **Day 3** — Read the second section of the textbook chapter. Complete its corresponding activity in the activity book.
- **Day 4** — Break
- **Day 5** — Read the third section of the textbook chapter and complete its corresponding activity.

May God be glorified, and may you be richly blessed as you and your student study the pinnacle of God's material creation, the human body!

Tamela Sechrist
The Generations Curriculum Team
April 2024

UNIT 1

God Made You on Purpose



Memory Verse

Before I formed you in the womb I knew you. (Jeremiah 1:5)

Hymn to Sing: Let All Things Now Living

You can listen to this hymn by searching for "Let All Things Now Living children's choir" on the internet.

Let all things now living a song of thanksgiving
To God the Creator triumphantly raise.
Who fashioned and made us, protected and stayed us,
Who still guides us on to the end of our days.
God's banners are o'er us, His light goes before us,
A pillar of fire shining forth in the night.
Till shadows have vanished and darkness is banished
As forward we travel from light into light.

His law He enforces, the stars in their courses
And sun in its orbit obediently shine;
The hills and the mountains, the rivers and fountains,
The deeps of the ocean proclaim him divine.
We too should be voicing our love and rejoicing;
With glad adoration a song let us raise
Till all things now living unite in thanksgiving:
"To God in the highest, Hosanna and praise!"

God made each person unique.

CHAPTER 1

God Made You the Way You Are

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)

You are Unique

God made people in a different way than He made animals. God breathed life into the man's nostrils with His own breath! The man's body became alive. God formed the first woman out of one of the man's rib bones. He gave life to her too. Even though God uses a different way to form peoples' bodies now, He still gives life to each person.

God made people so they would be different than the animals. He made people **unique** in these ways:

- We are made in God's image.
- We can know the difference between right and wrong.
- God gives us each a soul that will live forever.
- We can talk, sing, and praise God.
- We can create, invent, and think about complicated things.
- We can know and love God!

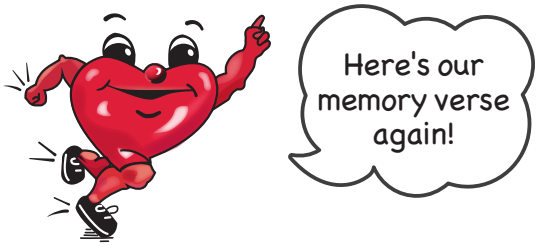
[God] teaches us more than the beasts of the earth, And makes us wiser than the birds of heaven. (Job 35:11)

Definitions

If something is not like anything else, we say it's **unique** (you-neek).

A **womb** (woom) is the special place inside a mother where God makes a baby grow before it's born. We say the mother is **pregnant** when there is a baby growing in her womb.

Before I formed you in the womb I knew you. (Jeremiah 1:5)



Our memory verse shows us that God knows each person **before** they even start to grow inside their mother. He knew you before you started to grow too! God knew just how He would make you look. He knew what color of eyes He would give you and whether you would be a boy or a girl. Are you good at drawing and math? Or are you so observant that you usually know where your little sister left her favorite blanket? God planned for you to be good at certain things.

God made you a unique person! There has never been anyone exactly like you. Find someone nearby and ask to see their left pointer finger. Now look at your own left pointer finger. Do they look the same? That's a tricky question because in many ways they do look the same. God gave fingers special jobs to do. That's why He gave everybody's left pointer fingers the same **structure** (the way it's put together) to do its **function** (job).

At the same time, there are small differences between the same structures on different people. Look at the left pointer fingers on the two of you again. Do you see a difference in the shape of the fingernails? Do the knuckles wrinkle differently? Can one of you "pop" your knuckle?

Even if you have an identical twin and your hands look the same, your fingertips will still look different. The tiny swirls on the skin of fingertips are formed by the different ways babies touch things when they are in their mother's womb. Your fingertip swirls are not like anyone else's! They are unique.

Before you were created, God chose who your mother would be. Then He put you in your mother's **womb**. All babies are special to God, even before He puts them in their mothers' wombs.

Even twins have unique fingertip swirls.

Time to do Activity 1 in the Activity Book!

You Came with Instructions

The first man was named Adam, and the first woman was Eve. When God made Adam and Eve, He put instructions inside their bodies. These instructions would tell their bodies how to automatically do what was needed for them to live.

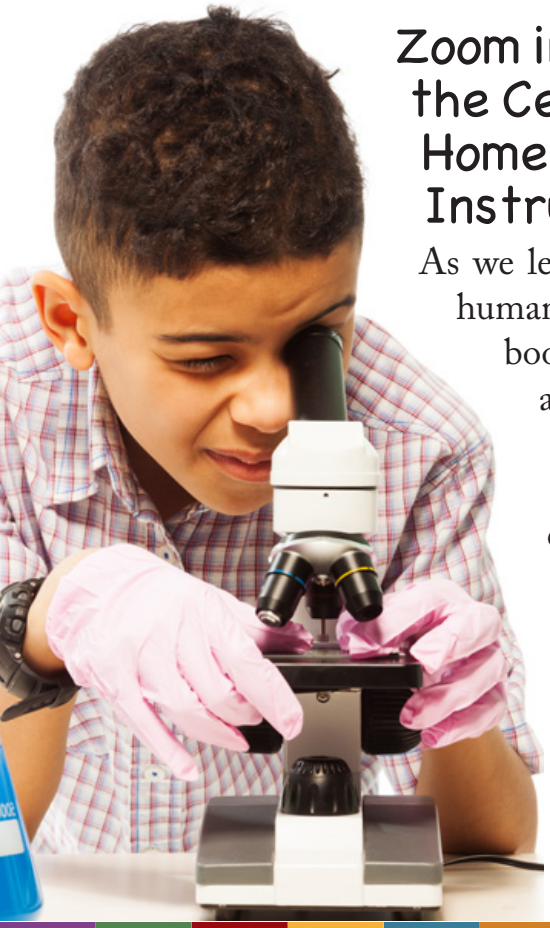
After God made Adam and Eve, He wanted to put more people on Earth. These people would be formed in a different way than Adam and Eve had been. But they would need instructions inside their bodies too. God would give them (and all the people coming after them) instructions too.

What do these instructions do? These instructions tell your body how to work and how to grow. They might tell your body how to function, like when your heart needs to beat or when it's time for your body to stop growing. Others might give your body its structure by telling it how to

make your hair and whether to make it curly or straight. The instructions for millions of things were inside you when you were too tiny to be seen. But God put them there to make you exactly who He wanted you to be, with all your parts working well!

From the very first, your instructions said you would be a **human being**. You don't have to worry that you will ever grow antlers on your head or have pinecones instead of toes. Your set of instructions doesn't include antlers or pinecones. God gave you human instructions.

Time to do Activity 2 in the Activity Book!



Microscopes help us see very small things.

Zoom in to the Cell: The Home of Your Instructions

As we learn about your human body in this book, we will take a moment now and then to zoom in to the cell.

People use magnifying glasses and hand lenses to make small things look bigger. But some things are too small to see even with a magnifying glass. To see very small things, people use microscopes.

Cells can't be seen with a magnifying glass, but you can see them with a microscope. To learn about cells, we will look at pictures and drawings that have been made using microscopes.

If you have a doll or an action figure, you can see that it has different parts. But each part is probably made of plastic. Some parts might be hard and some soft. Or the parts might be different colors. But if you look at the parts with a microscope, you will just see plastic.

You are not made of plastic! If you look at your skin with a microscope, you will see that it's made of tiny structures attached to each other. If you look at your blood, you will see other tiny structures floating in liquid. If you are about eight to ten years old, your body is made of about 17 trillion of these tiny structures. They are called **cells**.

Let's look inside a cell now. Almost every cell in your body contains a copy of **all** your unique instructions. Even one cell in your tongue contains toenail-making instructions! Every cell also says that God made you human and tells you whether you are a girl or a boy.

Your skin loses about five dead cells every second. Each skin cell that lands in your bed, on your clothes, or in the dust you clean off the floor contains a copy of all the instructions about you!*

*When we look at dead skin cells with a microscope, we can't see any nuclei in them. Nuclei are the parts in cells that contain instructions. People used to think that dead skin cells didn't have nuclei and therefore couldn't have DNA (instructions). Now we know that when skin cells die, the nuclei are destroyed. But the DNA still exists in the cell.

Cells are kind of like little creatures. They are alive, they take in nutrition, they get rid of waste, and they have different

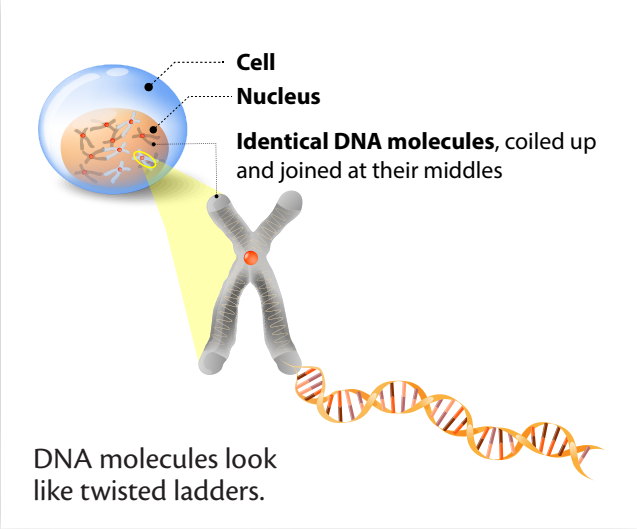
Definitions

A **cell** is the smallest living part of your body. Your body is made of various kinds of cells.

A cell's **nucleus** (noo-klee-us) is like the brain of the cell. The nucleus tells the cell what to do at the right time. It contains the DNA instructions. When we talk about more than one nucleus, we say **nuclei** (noo-klee-eye).

DNA is a large **molecule** that contains the instructions for your body.

A **molecule** is the smallest piece of something that still is that thing. The smallest piece of water is a molecule. If you broke a water molecule, it would break into smaller things that wouldn't act like water anymore.



parts with different jobs. One part of the cell is the **nucleus**. The nucleus is like the cell's brain. It controls the cell by using its own copy of your instructions. The nucleus is where your instructions live most of the time.

Everything God created is made of **molecules** (mall-uh-kules). Even cells are made of molecules. Molecules are usually too small to see, even with a microscope.

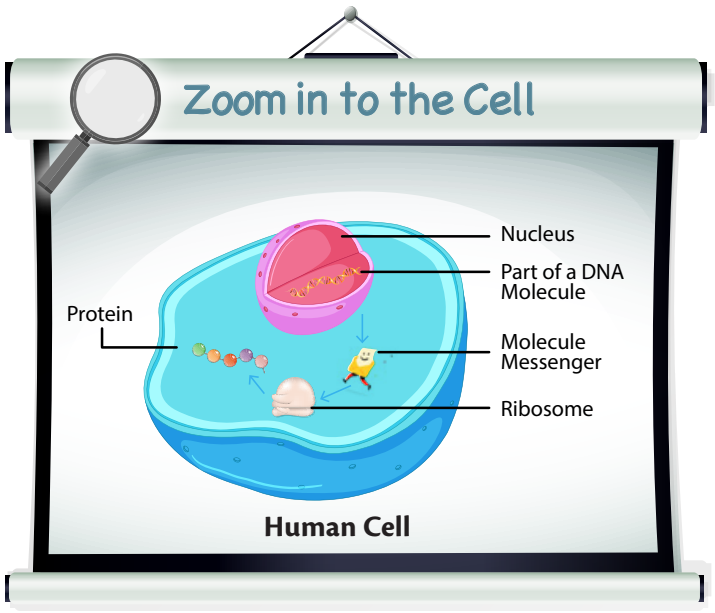
The set of instructions in the nucleus of a cell is a set of molecules. Each of your cells has 46 instruction molecules. These instructions have a very long name: deoxyribonucleic acid. But we'll just use initials and call it **DNA**.

DNA molecules are very long. They need to be long so they can contain all your body's instructions. If you could hold up one of your 46 DNA molecules from one of your cells, it would stretch all the way from your head to your toes! These instructions need to be wound up like thread on spools when it's time for the cell to organize them.

Proteins are large molecules that have important jobs to do in your body. DNA tells cells how to make many **proteins**. Let's look at how DNA does this.

First, God has given your DNA the ability to know **when** proteins need to be made. Let's pretend you ate a lot of candy all at once. When you eat sweets, the sugar goes into your blood. But too much sugar in your blood can damage parts of your body. Your body has special cells that make a certain protein to take the extra sugar out of your blood and store it for another time. The DNA in these special cells knows when it's time to make more of the protein that takes extra sugar out of your blood.

Now, when it is time to make a protein, the DNA unwinds a section of itself a little so that the right instructions for that protein can be "seen." Then the DNA makes itself some little molecule messengers



Death cap mushroom

to "see" this part of the instructions. Each messenger then leaves the nucleus and takes its message to one of the many **ribosomes** (rye-buh-sohms) in the cell's liquid. Ribosomes use these messages to find the right ingredients floating around in the cell. They grab the ingredients and make the protein according to the instructions.

The death cap mushroom is a very poisonous mushroom. It first grew above the roots of trees only in Europe. But now it has spread around the world by traveling on the roots of trees that people buy and transplant in their area. These mushrooms pop up in late summer and autumn in wild areas and lawns. Eating just one death cap mushroom can kill a healthy adult. Its poison is deadly because it gets into cells and prevents DNA from making molecule messengers. Without the messengers, proteins can't be made. This can be dangerous!

Thump's Health Hint

If you find a mushroom, don't eat it! Not very many people can tell the difference between edible and poisonous wild mushrooms. It's best not to even touch wild mushrooms. If you touch one and then forget to wash your hands before touching your mouth, you could get very sick.

Prayer

God, thank You for making me the way I am. Thank You for making every person unique. You are so wise to make DNA instructions in each cell. They automatically control everything in my body to keep it working well. Thank You! Amen.

Time to do Activity 3 in the Activity Book!

CHAPTER 2

God Used DNA to Make You

And God said to them, "Be fruitful and multiply; fill the earth." (Genesis 1:28)

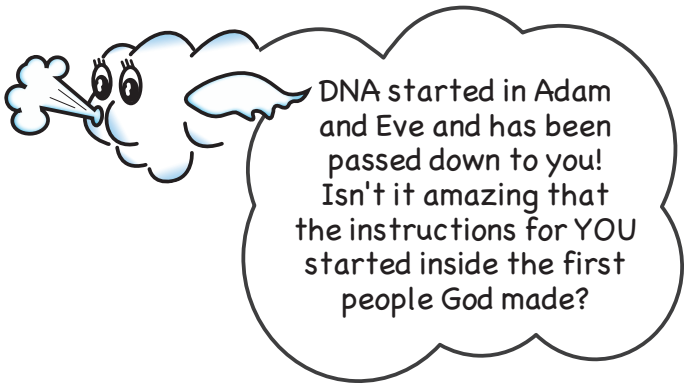
God's Plan to Fill the Earth with People

When God made Adam and Eve, He gave each of them their own set of DNA instructions. These instructions kept Adam and Eve's bodies working. But God also had another plan for their DNA. He planned to use Adam and Eve's DNA to create new people!

God created Adam and Eve as grownups. There had not been a baby on Earth yet. But God had a plan to fill the earth with people. His plan used babies! Where would the babies come from? From their mothers' wombs!

How did God give those babies their DNA instructions? Before the first baby began to grow in Eve's womb, God made a way for **half** of the baby's instructions to come from Eve and the other **half** to come from Adam. Adam and Eve's babies grew up and passed DNA instructions to their babies the same way. Ever since then, babies have been getting their DNA this way—half from the mother and half from the father.

You can often see that babies have DNA from their parents. Some children look like their mother and some look like



Some children are **adopted**. This means that God has put them in a family with parents who are not the same parents that gave birth to them. These children have different DNA than their new parents. The new parents are so happy to welcome their adopted children. They love them very much!

their father. Sometimes they look like a mixture of both. Often children in the same family look similar to each other. But children from around the world can look very different. God has given DNA an amazing ability to make each person unique! Most of the differences between people happen because children get a mixture of possibilities from their parents' DNA.

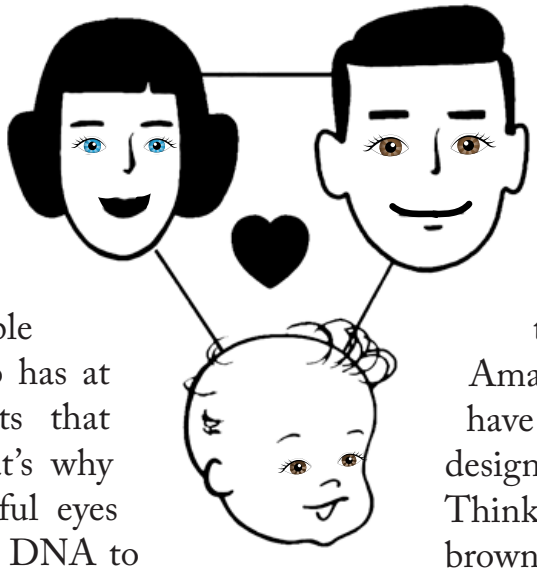
Time to do Activity 4 in the Activity Book!

God Makes Variety

God is so wise! He made DNA for all living things—people, animals, plants, and microscopic life. Each kind of DNA is passed along to the next **generation** so the same kind of life will continue. Sunflower DNA will produce more sunflowers. Dog

Pigments are chemicals that give certain color to their surroundings. Certain pigments give paints their colors. Other pigments make freckles on skin.

DNA will produce more dogs. But God is also creative! He made each type of DNA able to give **variety** within each kind of living thing.



Many parts of DNA help make our eyes able to see. But our DNA also has at least eight different parts that help make eye color. That's why there are so many beautiful eyes in the world. Let's look at DNA to see what might happen at one of these instruction places for eye color.

DNA has a place where its instructions say how much brown **pigment** goes into the colored part of someone's eye. If it says to make a lot of brown pigment, the person will have dark brown eyes. If it says to make no brown at all, the person could have bright blue eyes. (Other instructions could add other colors, making the eyes green, gray, or golden.)

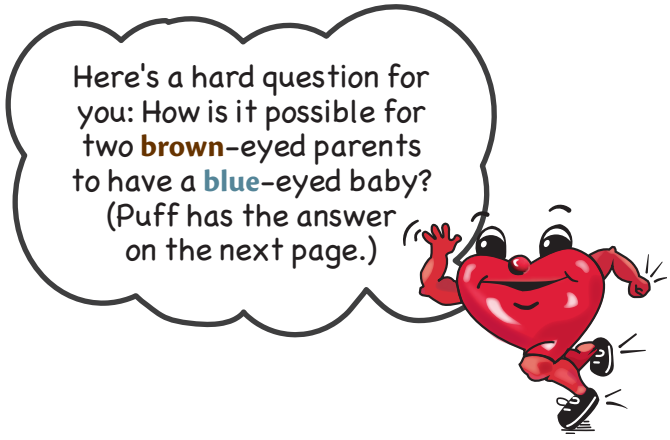
Let's say a man and a woman get married. Their baby will get half of its DNA instructions from Mom and half from Dad. Let's see how the DNA instructions for brown eye pigment could work to give Baby either bright blue or dark brown eyes:

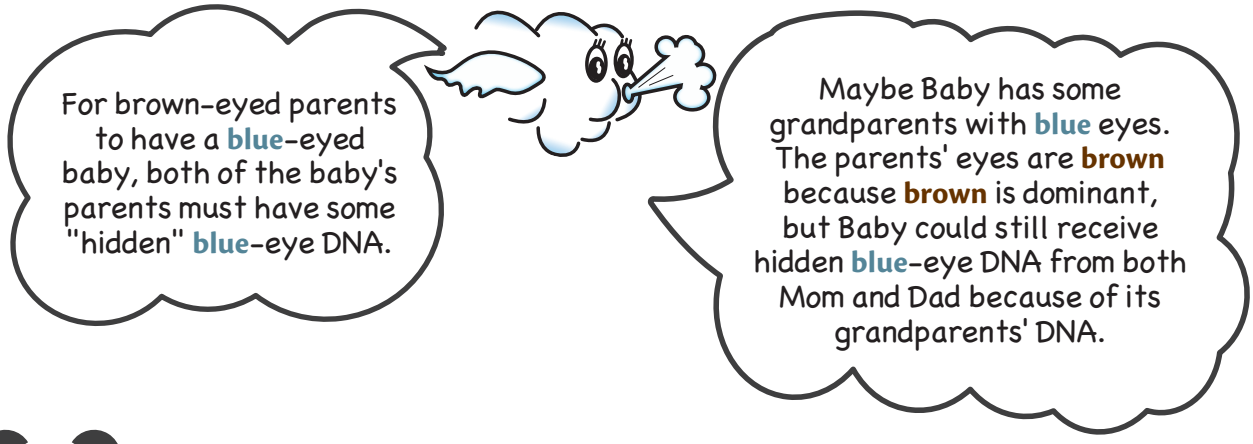
1. If Mom's DNA gives **blue** instructions (no brown pigment) and Dad's also gives **blue** instructions, Baby will have **blue** eyes.
2. If Mom's DNA gives **brown** instructions and Dad's also gives **brown** instructions, Baby will have **brown** eyes.

But what happens when the instructions the parents give are not the same? What if one DNA says "**blue**" and the other says "**brown**"? Amazingly, Baby will always have **brown** eyes! God has designed brown to be **dominant**. Think of dominance as though brown is selfish and always gets its way.

3. If Mom's DNA gives **blue** instructions and Dad's gives **brown** instructions, Baby will have **brown** eyes.
4. If Mom's DNA gives **brown** instructions and Dad's gives **blue** instructions, Baby will have **brown** eyes.

The DNA instructions for eye color are very complicated. But this example shows how dominant instructions work and helps us learn about DNA.



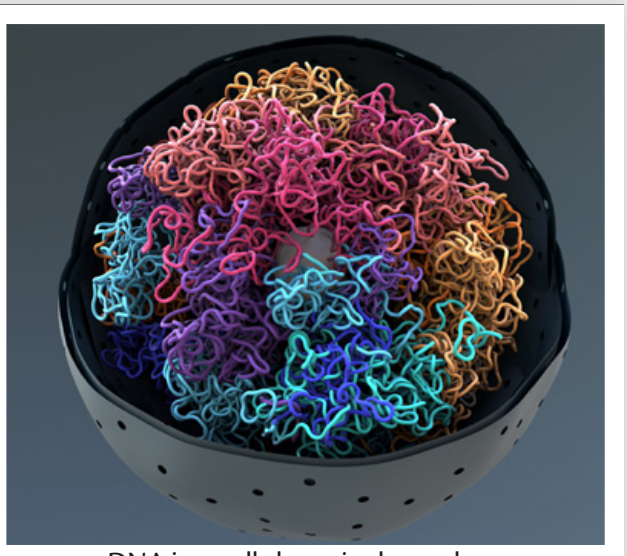


Time to do Activity 5 in the Activity Book!

Zoom in to the Cell

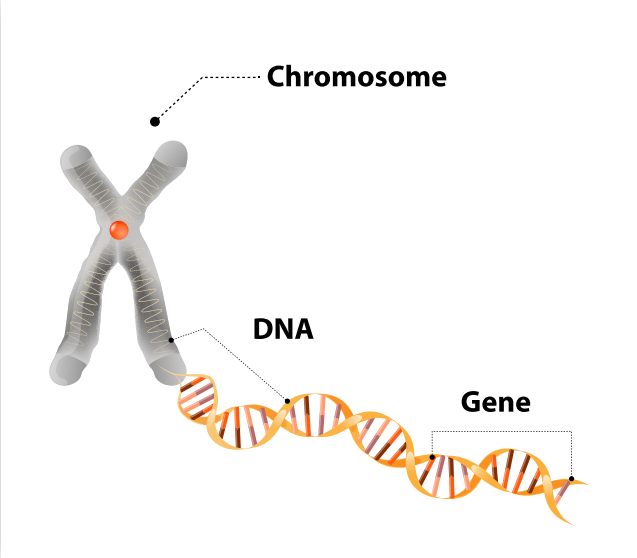
Your body has 46 pieces of DNA in the nucleus of each cell. Most of the time, your DNA is loose. It looks like a bowl of spaghetti made with 46 very long noodles.

When it's time to make new cells, the DNA changes. Each piece of DNA gathers itself together to take up less space. "Spaghetti DNA" could get tangled up as it tries to get into the new cells. To fix this, God made special proteins that wind up each piece of DNA. The DNA now gets packaged into 46 **chromosomes** (krome-uh-sohms).


DNA is usually loose in the nucleus.

We usually draw a chromosome as two strands joined at the middle. This is to show that the chromosome has made a copy of itself. DNA has to make a copy to give to the new cell. The two strands are identical and are called **sisters**. Even though there are now two strands, we still call the whole thing "a chromosome."

Your body cells have two of each kind of chromosome. One came from your mother, and one came from your father. Scientists have numbered each kind of chromosome. You have two of Chromosome 1, two of Chromosome 2—all the way up to two of



Definitions

Chromosomes are molecules of DNA wrapped around proteins. Chromosomes live in the nuclei of cells.

A **trait** is a certain feature about you. Green eyes or how tall you grow are both traits.

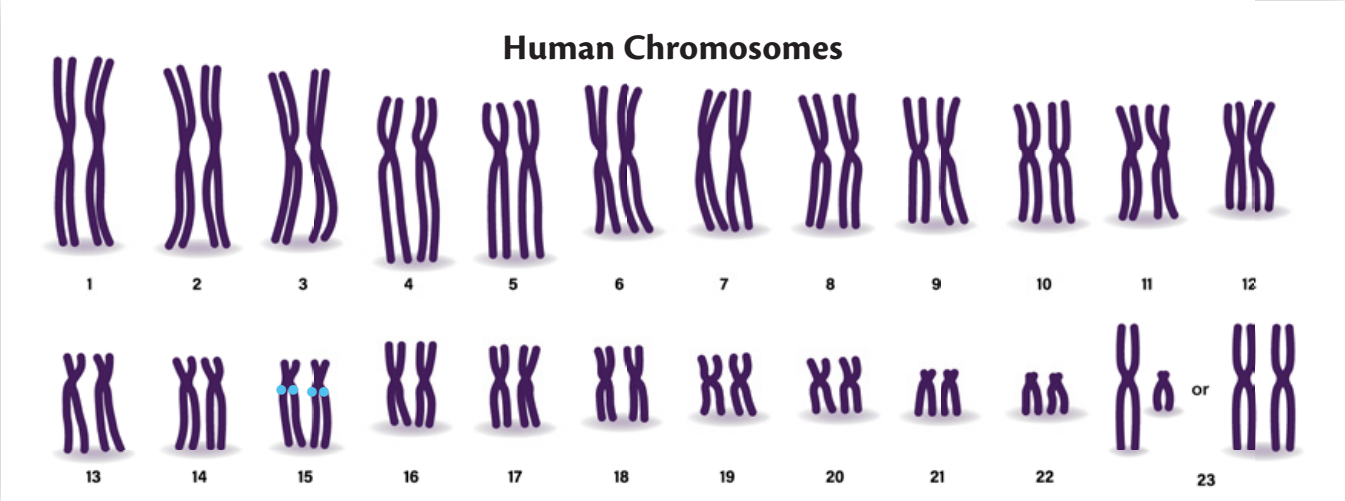
A **gene** (jeen) is a place on the DNA that gives instructions for a certain trait.

A **gamete** (gam-eet) is a cell with half of the DNA instructions. One gamete comes from the mother and another comes from the father. Their DNA joins together and a living being with complete instructions is made.

Chromosome 23.

Chromosome 15 has a certain place that helps decide the **trait** of eye color. That place is the same on both of your Chromosome 15's. It's also the same place on Chromosome 15 for everyone in the world. Each piece of your instructions has its own place. A single part of your instructions is called a **gene**.

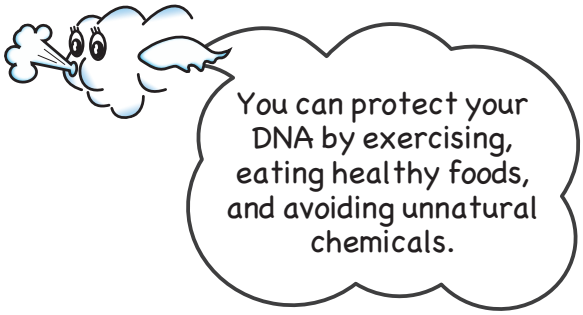
The chart below shows the 23 pairs of chromosomes that people have in each cell. A pair of chromosomes includes one from the mother and one from the father. These chromosomes are shown at the time when they have made sister copies. In this chart, a chromosome pair would be two X shapes.



Chromosome 23 has two possibilities—one for a boy and the other for a girl. The blue dots on the Chromosome 15 pair is the location of the main gene for how much brown goes into eye color.

Let's learn about how a baby begins as a cell. Do you remember that a baby gets half his DNA instructions from Mom and half from Dad? God does this in an amazing way!

1. Mom's body makes a special cell (gamete) that has half of her DNA instructions. She got these genes from her parents.
2. Dad's body also makes a special cell (**gamete**) that has half of his DNA instructions. He got these genes from his parents.
3. These cells come together, and Dad's half of the instructions go into the nucleus of Mom's gamete.
4. In the nucleus, the chromosomes find their match. And a certain gene on Chromosome 15 gets busy deciding Baby's eye color!



Thump's Health Hint

God has given DNA molecules special structures on their ends to protect them. These structures work like the caps on the ends of shoelaces that keep them from unraveling. The DNA structures get shorter as people become older. When DNA structures get shorter, the person becomes less healthy. DNA gets shorter more quickly if a person smokes or has other unhealthy habits. You are helping your DNA last longer every time you take a brisk walk or eat colorful fruits and vegetables!

Prayer

Dear Lord, thank You for my parents and the DNA You gave me. It's amazing how You passed all our instructions through people. And You started with Adam and Eve! You picked out which genes I would get that would make me unique! Amen.

Time to do Activity 6 in the Activity Book!

Child in the womb shortly before birth

CHAPTER 3

God Knitted You Together

For You formed my inward parts; You knitted me together in my mother's womb. (Psalm 139:13) ESV

Do you remember that God specially **planned** you long before your body began to be? The verse above shows that, after you began to be, God also specially **formed** you. He carefully made your tiny inner parts and "knitted" you together in your mother's womb! He did this according to the DNA instructions He created for you.

Let's look at how you grew from one tiny cell into a complete baby before you were born.

Zoom in to the Cell

In the last chapter, we learned that you started from a special cell (gamete) that came from your mother. That cell had half of your DNA in its nucleus. When a gamete from your father added its half of your instructions to the egg's nucleus, you became a living being!

When you first began to be, you did not remain a single cell. About 24 hours (one day) later, you became two cells. Ever since then, your body has been growing by making more cells. When your body

Someone skillfully knitted this doll family. But only God has the wisdom to skillfully knit His complicated creations in the wombs of mothers.

cells **reproduce**, they pass along complete instructions (not half) to each new cell. This kind of cell reproduction is how you grow and how your body heals.

Definitions

Something **reproduces** when it makes more living things of its kind.

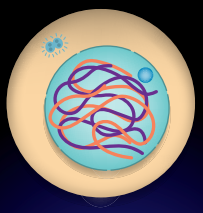
Mitosis is the process God made for one cell to become two new cells by dividing. The new cells have the same DNA as the old cell.

In your body, one cell becomes two cells (reproduces) by dividing in half. Cells divide by a process called **mitosis** (my-toe-siss). God made mitosis so that new cells would get the same DNA as the old cell. New cells also need a nucleus, some liquid, and all the other tiny parts cells are made of. Let's have Thump show us how this happens on the next page!

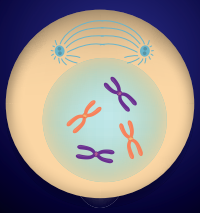
God ceated birds and all living things to reproduce their kind! "So God created . . . every winged bird according to its kind. And God blessed them saying, 'Be fruitful and multiply [reproduce]. . . and let birds multiply on the earth.' " (Genesis 1:21-22)

Thump Teaches Mitosis

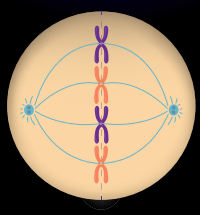
1. Before mitosis, the cell is busy doing the jobs that keep your body working well. The cell is also busy making an exact copy of all its DNA. This way, the two new cells made by mitosis will have the same DNA as the cell they came from. The first cell is also getting bigger and making more of its little parts to pass on to the new cells when it divides.



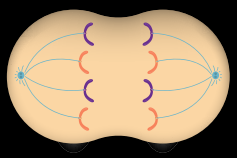
2. Mitosis starts when the DNA organizes itself. Instead of looking like a tangled spaghetti noodle, each piece of DNA and its copy (sister) now become shorter, fatter chromosomes. These matching sisters are joined at a spot (often near their middles) on their sides. This picture shows only four of the 46 chromosomes you have in your cells. The membrane (skin-like covering) holding the nucleus together now dissolves, and the chromosomes escape into the cell.



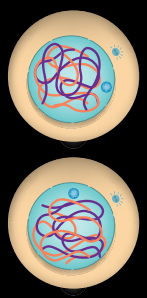
3. Now pretend the cell is like the earth. Two special structures have been moving to each "pole." Fibers are forming between the structure at the "north pole" and the structure at the "south pole." The fibers make a cage-like shape in the cell. The fibers also become attached to the chromosomes where the sisters are joined. Next, the chromosomes line up at the "equator" of the cell.



4. Then the sisters separate, and the fibers pull each sister to opposite "poles" of the cell.



5. Next, two new membranes form around the two groups of chromosomes. This makes two new nuclei. The cage of fibers disappears. This is the end of mitosis.



6. After mitosis, the membrane around the whole cell pinches inward until it separates the old cell into two new cells. Now their DNA looks like spaghetti again.

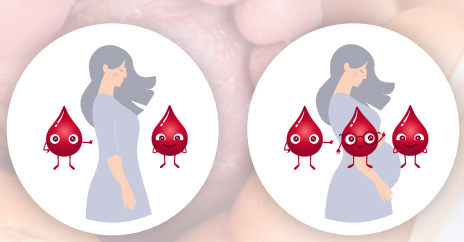
Time to do Activity 7 in the Activity Book!

Baby's Jobs in the Womb

Do you ever think about a baby when he or she is in Mom's womb? We often think babies are just waiting and growing with nothing to do until they are born. But God has given babies jobs to do. They prepare their mothers' bodies to welcome them, and they prepare themselves for their own future!

How Baby Prepares Mom*

1. God makes our bodies able to fight things like germs when they get inside us. We recognize our own cells and leave them alone, but we treat other cells like enemies. Since a baby starts as a tiny creature different from Mom, Mom's body might try to fight it. But God solved that problem! As soon as Baby starts to be, he changes his mother's body in the area around himself so she won't think he's a germ to fight. The rest of her body is not changed. She can keep fighting real germs.
2. When Baby is about a week old, he attaches to the womb. Then Baby sends signals to Mom so no other babies will come at this time.
3. Baby sends signals to make Mom's womb grow bigger.
4. Baby sends a signal for Mom to make more blood. For every two drops of blood Mom had before she was pregnant, she will make one more while she is pregnant. Baby will need this extra blood to bring him food and oxygen.



5. When you turn a faucet to make more water come out, you are increasing the pressure of the water. Baby controls the pressure of Mom's blood during the whole pregnancy so he gets the right amount of blood.
6. Baby can make Mom's body turn food into energy more quickly. This is why pregnant mothers often feel hot when other people are chilly.

7. As Baby grows, Mom's skin will need to stretch. And some of her bones will need to spread apart to make room for the baby inside her. Baby makes a chemical called *relaxin* to make Mom's bone connections relax and her skin stretch.
8. Baby also sends signals for Mom to make milk so he will have something to eat when he is born!

**Human Design: The Making of a Baby*. Lecture by Dr. Randy Guliuzza. 2013. Dallas, TX: Institute for Creation Research, DVD.

A mother's body gives a lot of its strength to care for the life of her unborn baby. After birth, a mother keeps giving of herself as she takes care of her baby. She gives and gives the rest of her life because she loves her child.

How Baby Prepares Herself

While God is knitting Baby together in Mom's womb, Baby begins to notice and learn things that will prepare her for life:

When Baby has lived in the womb for 11 weeks, she begins to push her feet against the womb when she happens to touch it. This helps her learn the stepping motion she will need for walking.

At 16 weeks, the Baby becomes aware of her body and where she is within the womb. She learns to control her motions according to what's around her.

At 24 weeks, Baby's senses develop. She can taste strong flavors that have gone from Mom's food into the liquid inside the womb. She hears Mom's heart beating and her stomach growling. She can recognize her mother's voice. She may turn toward a bright light shining on the outside of her cozy mother-home.

After six months inside Mom, Baby could live if she is born early. If early, she would need special care until her lungs start working well. But inside the womb, she will grow fatter. She will startle and

jump at sudden noises. She will sleep a lot and have dreams. She'll learn how to move her body and will practice breathing using the liquid around her. Baby will learn to suck and swallow so she will be ready to drink milk when she is born.

In the Bible, you can read about John the Baptist when he was still in his mother's womb. He had been growing there for about six months when something happened. That day, a visitor arrived and greeted his mother Elizabeth. This visitor was Elizabeth's cousin, Mary.

Mary had just been told by an angel that God had put baby Jesus in her womb. God put Jesus there even though Mary was not married. Baby Jesus was a special baby, so He started life in a different way—without a father. The Bible says Jesus would be called the Son of God. Mary was so amazed by this news from the angel that she rushed to see Elizabeth.

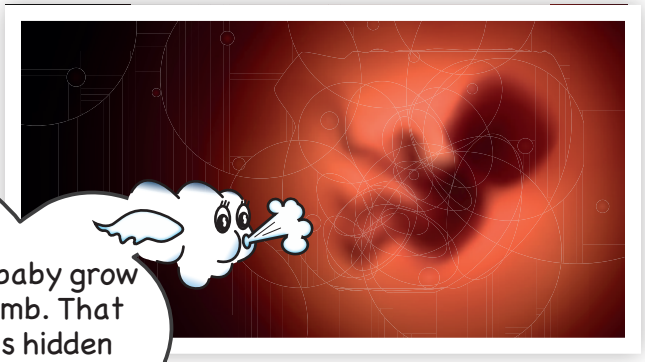
When Mary arrived, she greeted Elizabeth. Suddenly, baby John the Baptist leaped in Elizabeth's womb! Do you think babies can know things before they are born? John did! Elizabeth was amazed. She told Mary that John had jumped inside her because he heard Mary's greeting. John heard the voice of the mother who was carrying Jesus, his Lord, in her womb.You can read about baby Jesus and baby John the Baptist in Luke 1 and 2!

Time to do Activity 8 in the Activity Book!

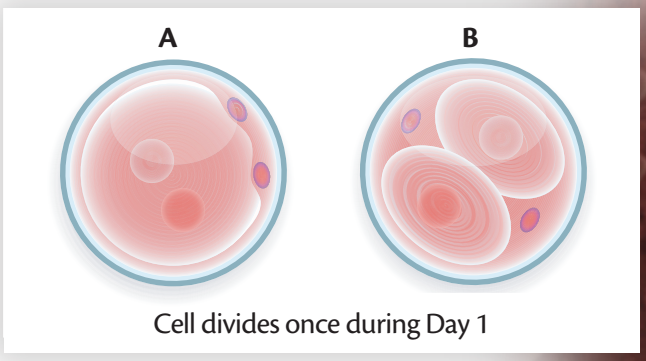
How You Grew in Secret*

**My frame was not hidden from You,
When I was made in secret.
(Psalm 139:15)**

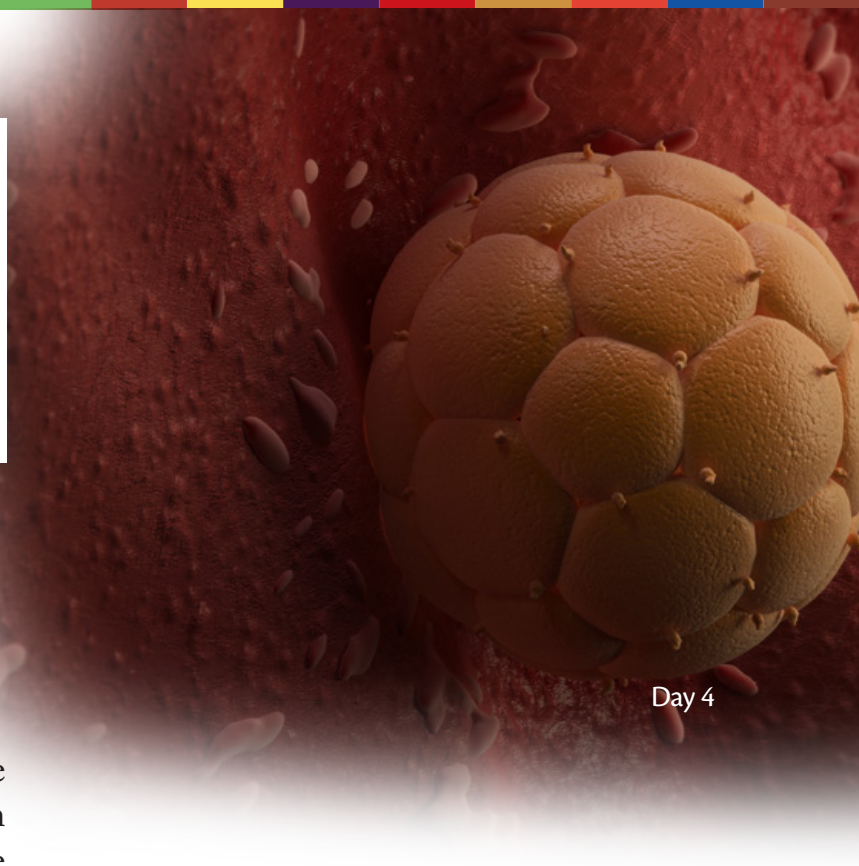
Sometimes parents can see pictures of their unborn babies. Doctors use a special camera called an **ultrasound** machine that allows parents to see pictures and videos of their baby at certain stages in the womb. Artists



* Parents: In this book, Baby's age in the womb is referenced as the amount of time since the gametes came together and life began. These ages may be two weeks less than other sources give for the same milestones. The reason for the difference is that, for practical purposes, these other sources often calculate Baby's age based on observable things happening in the mother's body two weeks before the gametes come together. The beginning of a baby's life is not observable to the mother.



Cell divides once during Day 1


Day 4

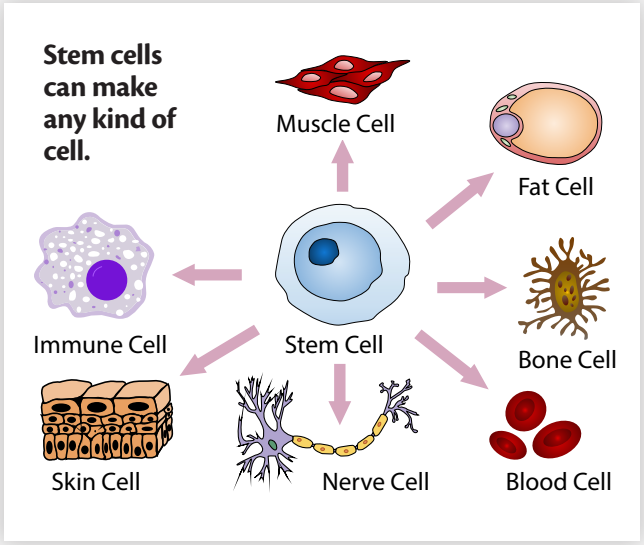
have made realistic pictures of babies as they grow inside their mothers. Let's look at some pictures of babies at different ages:

Illustration A (above) shows the beginning of Baby's life.* Do you see the egg's nucleus and the nucleus from the father's cell? Their instructions are combining in the middle of the cell.

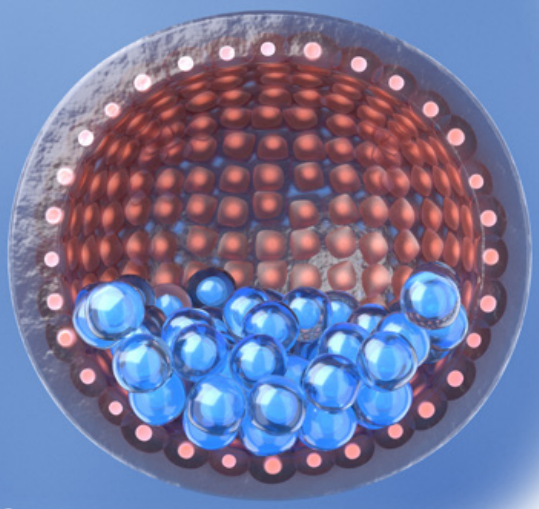
Only one day after Baby's life begins, the cell divides using mitosis. Two identical cells are made. (See B above.)

Over the next two days, the cells will keep dividing into matching cells using mitosis. Each of these cells has the ability to divide and make any kind of cell in the body. Cells that can do this are called **stem cells**.

At day six of Baby's life, the stem cells have formed a partly hollow ball. The group of stem cells on the *inside* of the ball will make the baby. The stem cells covering the outside of the ball now become attached to the womb. These *outside* cells will make the **placenta** (pluh-cent-uh). The placenta is a special structure that takes nutrition and oxygen from Mom's blood and transfers it to Baby's blood.



*The beginning of life (when Mom's and Dad's DNA combines) is called **fertilization**. Fertilization is when a unique person begins. **Conception** is a word that once meant *fertilization*. But recently its meaning has been changed to mean any time from fertilization to a week later when the baby becomes attached to the wall of the womb. (From *Fearfully and Wonderfully Made* (Hebron, Kentucky: Answers in Genesis, 2021), 25.)



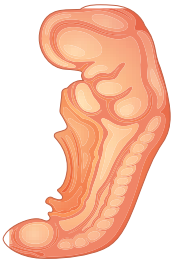
Day 6

Eight weeks

At 22 days old, Baby's brain has been forming and his heart begins to beat with his own blood. In two days, his eyes and ears will begin to form.

By six weeks, Baby has hands, arms, feet, and legs.

By eight weeks, if we could see the baby, we could tell if it's a boy or a girl. Every organ is in place. Bones are hardening and Baby's ears can begin to hear!



22 days

Week 11 of life: You can see Baby's **umbilical** (uhm-bill-uh-cull) **cord** attached to the placenta. Good things are transferred from Mom's blood to Baby's blood in the placenta. Then the good things travel to Baby through the umbilical cord. Wastes from Baby's blood travel back through the umbilical cord. They are transferred to Mom's blood in the placenta, and Mom's body gets rid of the wastes. Around this

Six weeks

Eleven weeks

time, Baby can suck his thumb, turn his head, frown, and hiccup. All organs are working, and teeth and fingernails are forming.

Week 20: By this time, Baby can move his joints, and Mom feels him kicking and stretching. He hears sounds from outside the womb and can even recognize his mother's voice! He tastes and swallows some of the liquid around himself, and his digestive system starts working.


Twenty weeks

Week 26: Baby has started to grow hair on his head and fat under his skin. His brain is very active, and he can blink his eyes.

Weeks 37-41: Baby is ready to be born! His lungs have become ready to breathe air. He has been gaining about half a pound (.25 kg) in weight each week for the last two months.

As you do not know what is the way of the wind,
Or how the bones grow in the womb of her who is with child,
So you do not know the works of God who makes everything.
(Ecclesiastes 11:5)


Twenty-six weeks


Forty weeks

1 Month
Size of Red Currant

2 Month
Size of Cherry

3 Months
Size of Plum

4 Months
Size of Pear

5 Months
Size of Grapefruit

Thump's Health Hint

Mothers must keep their bodies healthy when they are pregnant. If they don't have the right nutrition, their babies may not become healthy children or adults.

- If a mom or dad are very overweight and eat a lot of sweets, they can get a disease that gives them too much sugar in their blood. This disease may change their DNA. Their children and grandchildren can easily get this disease because of DNA that doesn't act right.*
- Babies use a lot of good fats as their brains and eyes develop in the womb. These good fats are called omega 3 oils. Pregnant moms can get these fats by eating wild-caught salmon, walnuts, and flax seeds. Or they can buy supplements of omega 3 oils from a vitamin store. Since Baby needs so much omega 3, he will borrow what he needs from Mom's body. Mom may not feel very cheerful after her baby is born if Baby didn't leave her enough good fat.

Portha B, Grandjean V, Movassat J. *Mother or Father: Who Is in the Front Line? Mechanisms Underlying the Non-Genomic Transmission of Obesity/Diabetes via the Maternal or the Paternal Line.* Nutrients. 2019 Jan 22;11(2):233. doi: 10.3390/nu11020233. PMID: 30678214; PMCID: PMC6413176.

Prayer

It's wonderful how You knitted me together in my mother's womb, Lord. You skillfully formed my inward parts. I praise You! Amen.

6 Month
Size of Papaya

7 Month
Size of Pineapple

8 Months
Size of Cantaloupe

9 Months
Size of Watermelon

Time to do Activity 9 in the Activity Book!

CHAPTER 4

A Time to Be Born

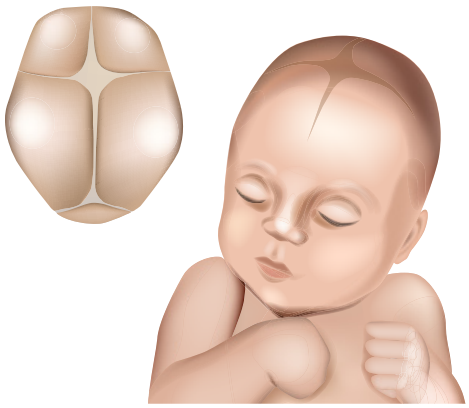
To everything there is a season, a time for every purpose under heaven: A time to be born . . . (Ecclesiastes 3:1-2)

A Big Change

You lived and grew for about nine months inside your mother. Your family waited a long time to meet you. They wondered if you would be born in the night or in the daytime, or maybe on Grandpa's birthday. Then, on the exact day that God decided, you were born! Your family changed in a special way when you became a part of them.

Things also changed for you when you were born. Before you were born, your little womb-room was filled with liquid. At birth, you went from living in water to living in air. You would never be able to live underwater again. Let's learn what happened to you when you made this change.

- When you were in your mother's womb, your lungs were one of the last things to finish growing and be complete. When they were ready, your lungs sent a signal to your mother's womb: "Breathing will work now! Time for Baby to be born!"
- At birth, your body took the liquid out of your lungs and put it into your blood. Your body replaced the liquid in your lungs with oxygen to allow you to take your first breath.
- Before you were born, your blood received oxygen from the placenta. Your little heart took the blood from



Fontanels (top and front view)

the umbilical cord and pumped oxygen throughout your body. Your lungs weren't needed yet, so your blood went right past them. Your blood also took a shortcut through your heart.

- At your birth, the shortcut through your heart closed suddenly! This made your blood go to your lungs. But God had it all worked out. Your lungs had just begun to breathe air so they could supply your blood with oxygen. Your lungs have been doing this job ever since!
- In the womb, your head bones had not formed a skull yet. The bones were in separate pieces with spaces (**fontanels**) in between. This design allows a baby's head to change shape if it gets squeezed during birth. Sometimes you can see the skin on the top of a young baby's head moving up and down over one of these spaces. By the time a baby is one and a half years old, the bones have grown and closed these spaces.
- At the time you were born, the umbilical cord and placenta also left your mom's womb. Someone cut the umbilical cord and clamped or tied the end that was attached to you. (It didn't hurt you or your mom.) The piece of cord left on a baby will fall off in one to six weeks. All that's left is Baby's belly button!

Definitions

Your belly button is also called a **navel**.

Fontanels are the spaces between a baby's skull bones. We can sometimes see and touch these "soft spots."

Time to do Activity 10 in the Activity Book!

Zoom in to the Cell

Often, the first thing your parents notice about you when you are born is whether you are a girl or a boy. What a wonderful surprise! Sometimes, though, parents like to know ahead of time so they can prepare clothes and a room for the baby. Parents can get this news early by asking their doctor to look at their baby in the womb with an ultrasound machine.

Of course, God planned for you to be either a girl or a boy long before you were in the womb. Let's see how He made this happen in the first cell that was you.

Remember, you have 23 pairs of chromosomes. These chromosomes are numbered by scientists. You have one chromosome of each number from your mom and a matching one of the same number from your dad. This is not quite true for Chromosome 23. Chromosome 23 is different from the other chromosomes because the one from the mom and the one from the dad don't match. Let's see what this means.

Your mom had two of Chromosome 23. They matched. They both looked like the letter X. We call them *X chromosomes*. You would have received one X from your mom in the gamete that became you.

Your dad also had two of Chromosome 23. They did not match. One looked like the letter X. The other looked kind of like the letter Y. We call that a *Y chromosome*. You would have received either an X chromosome from your dad or a Y chromosome from him.

If you received an X chromosome from Dad, you would have two X chromosomes for Chromosome 23. That means God made you a girl!

If you received a Y chromosome from Dad, you would have an X and a Y for Chromosome 23. That means God made you a boy!

Time to do Activity 11 in the Activity Book!

Growing Up

**By You I have been upheld from birth;
You are He who took me out of my mother's womb.
My praise shall be continually of You.
(Psalm 71:6)**

This verse shows us that God brought us safely out of the womb and has upheld (or taken care of) us ever since. When you were first born, you could not take care of yourself at all. But God gave you parents to care for you.

Most animal babies are able to walk, swim, or fly soon after they are born. They can also take care of themselves even when they are still young. God made animal babies **develop** in the womb a little more than human babies. This is important because animal parents don't take care of their babies the same way people do. Human babies can't walk until they are about a year old. During that year, they need to be carried, fed, bathed, and have their diaper changed. Why are human babies born so helpless? The reason has to do with the size of our heads!

God made people different than

This baby donkey was just born!

Baby birds can fly about three weeks after hatching.

A mother whale pushes her newborn calf to the water's surface for its first breath of air. After that, the calf can swim by itself!

animals. We have bigger brains and need bigger heads to hold our brains. Your head is a large part of your body. An animal's head is a smaller part of its body. Human babies also have bigger heads than animal babies. A baby's head and body would have to grow quite large if she stayed in the womb until she was able to walk! God knew that the pregnancy and birth of such a large baby would be too hard for the mother.

If a human baby wasn't born until she was as developed as a newborn calf, she would be born as a 21 pound (9.5 kg) toddler!

Before a baby walks, she usually crawls. Crawling helps her mind develop as she uses the different sides of her body. She is so excited to be able to go places and explore on her own. Exploring helps her learn.

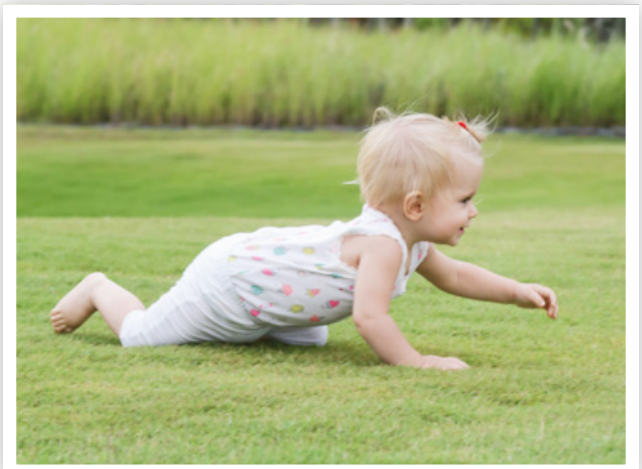
Definitions

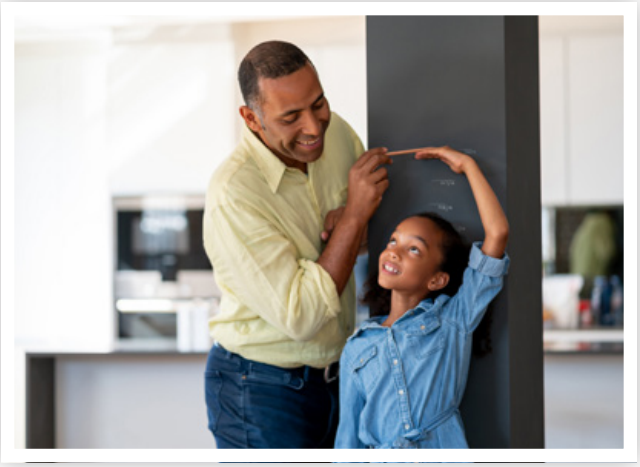
To **develop** (or **mature**) means to grow and become able to do more.

Crawling also helps her neck bones form into the curve shape she'll need later in life.

Babies usually start walking by first crawling to a piece of furniture where they can pull themselves up to stand. Eventually, they take steps, holding onto the furniture and moving around it. One day, they get interested in something farther away and take a few steps toward it without holding on. They are usually a little surprised and happy with their accomplishment!

You are still getting taller and stronger. You are quickly learning new things. Even though you will someday stop growing taller, you will keep growing in many ways. Your hair and nails will grow for the rest





of your life. Cells will die, and new ones will grow in their place. When you get a cut, new skin will grow. If you break a bone, new bone will grow to join the broken pieces together again. God has given you an amazing body!

Prayer

How amazing, God, that babies start breathing at just the right time! And their blood suddenly changes its route to keep babies alive as they are born. You bring them safely into the world. You have also kept us ever since! Thank You for helping me live and grow. Amen.

Time to do Activity 12 in the Activity Book!