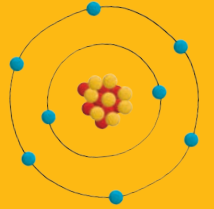


A START IN THE ((MIDDLE)) BOOK



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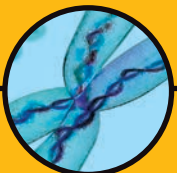
SIZE

OF



EVERYTHING

Ginormous Galaxies,
Itty-Bitty Quarks,
and Me



written by **ALYSSA CLEMENTS** illustrated by **ANGELIKA SCUDAMORE**



THE SIZE OF EVERYTHING



GINORMOUS GALAXIES,
ITTY-BITTY QUARKS, AND ME

written by

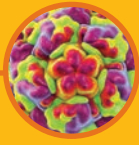
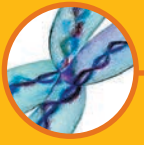
ALYSSA CLEMENTS

illustrated by

ANGELIKA SCUDAMORE



Tyndale House Publishers
Carol Stream, Illinois



FOR
MY CHILDREN,
MAY YOU ALWAYS KNOW
HOW INFINITELY GOD
LOVES YOU!



READ THIS FIRST



This book is not like other books. It begins in the middle! In order for you to understand just how big and small different parts of God's creation are, it's helpful to start with the size of something that you know really well—yourself! Look down at your body and think about how big you are. Then flip ahead to the middle of this book to begin to see how your size compares to the incredible world God has made.



Special thanks to
Arend J. Poelarends, PhD,
and Coreen Ogilvie, MAT,
for sharing your knowledge
and love of science with
this book.

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The Size of Everything: Ginormous Galaxies, Itty-Bitty Quarks, and Me

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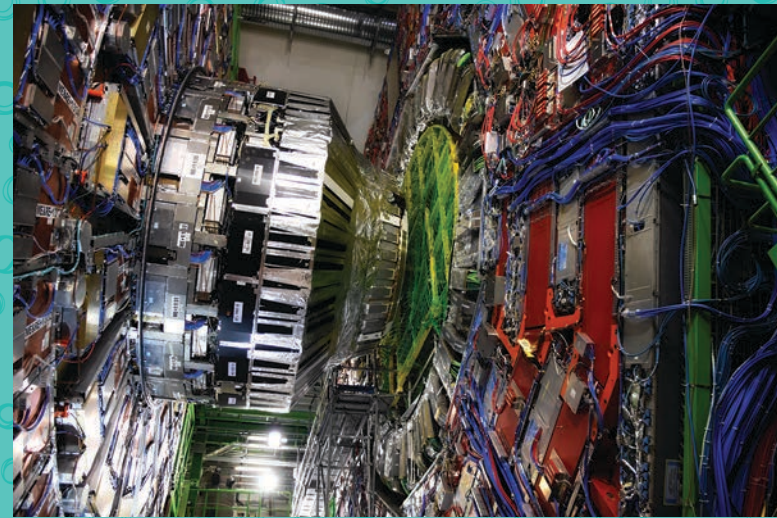
QUARK

THE QUARK IS THE SMALLEST OBJECT IN THE UNIVERSE THAT WE KNOW ABOUT. EACH PROTON OR NEUTRON IS MADE OF THREE QUARKS.

We know the quark exists based on experiments, but it is so small that it's never actually been measured. Isn't it amazing that God came up with the idea to create something so tiny? And he sees and understands exactly how it works!

There are six different kinds of quarks. Scientists call them flavors, but these flavors are too small to taste!

Why would God create something that we can't even see or measure? The Bible says that all of creation exists to show how incredible God is and to point us to him.



A particle accelerator uses magnets to smash parts of atoms together at super high speeds, which causes quarks to pop out. The only place scientists can see quarks is in here.

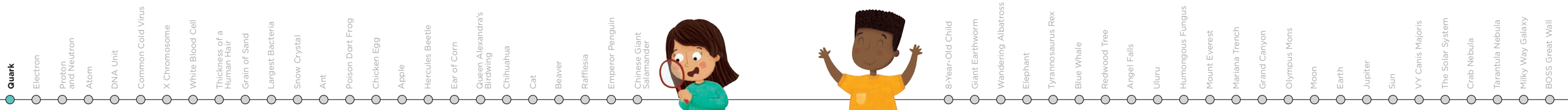


The largest particle accelerator in the world is longer than 295 American football fields!



If you ever feel small or unimportant, just remember that God created itty-bitty, super-small quarks, and they make him happy. If he sees and rejoices in things so small, he definitely sees and loves YOU—the one he created special in his own image to be his friend and enjoy his fascinating world!

SMALLER



BIGGER

ELECTRON

A PARTICLE FILLED WITH ELECTRICITY THAT SPEEDS AROUND THE PROTONS AND NEUTRONS INSIDE OF AN ATOM

An electron is so small that it has zero size when it is measured.



Electrons are like glue. They can be shared between atoms and help atoms stick together.

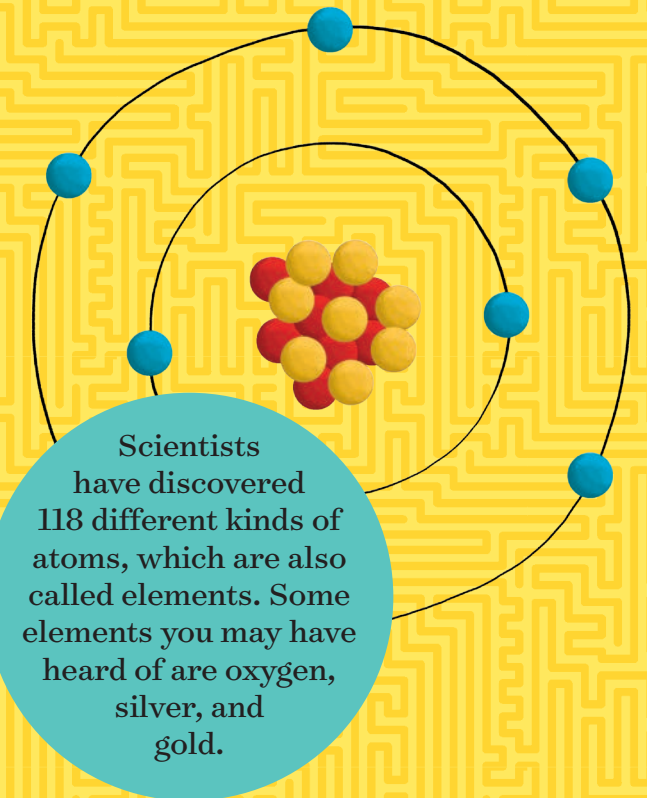
ATOM

A SMALL BUILDING BLOCK THAT MAKES UP EVERYTHING IN THE UNIVERSE



An adult's body is made of around 7 octillion atoms. That's a 7 followed by 27 zeros (7,000,000,000,000,000,000,000,000,000)!

Scientists have discovered 118 different kinds of atoms, which are also called elements. Some elements you may have heard of are oxygen, silver, and gold.



100,000 protons or neutrons could fit inside the space of one atom.



PROTON AND NEUTRON

PARTICLES THAT FORM THE "BRAIN" OF THE ATOM AND TELL IT WHAT TO DO

Each person's DNA is one of a kind. There will never be another person exactly like you!

Your DNA comes from your parents and determines what you look like. This includes your eye color, hair color, height, and even if you have freckles or not.

There are so many of these tiny DNA pieces in your body that if you lined them up next to each other, they could stretch from the Earth to the edge of the solar system 7 times!



DNA UNIT

A RECIPE THAT EXPLAINS HOW A LIVING THING WILL WORK

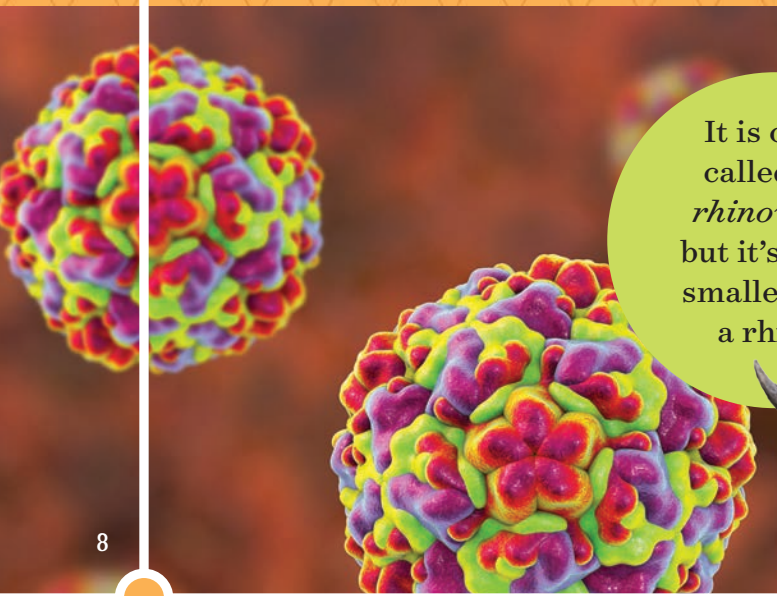
SMALLER



BIGGER

COMMON COLD VIRUS

A GERM THAT GIVES YOU A SORE THROAT AND A RUNNY NOSE



It is often called the *rhinovirus*, but it's much smaller than a rhino!



8

WHITE BLOOD CELL

A CELL THAT FLOATS IN YOUR BLOOD AND FIGHTS GERMS

Over 100 white blood cells could fit in the period at the end of this sentence.



Many white blood cells only live for one to three days, but don't worry! Your body is always making more of them.



Melanin is what gives your hair its color. The more melanin your hair has, the darker it will be.

About 50 to 100 hairs fall off your head every day.

The distance from here to here

THICKNESS OF A HUMAN HAIR

9

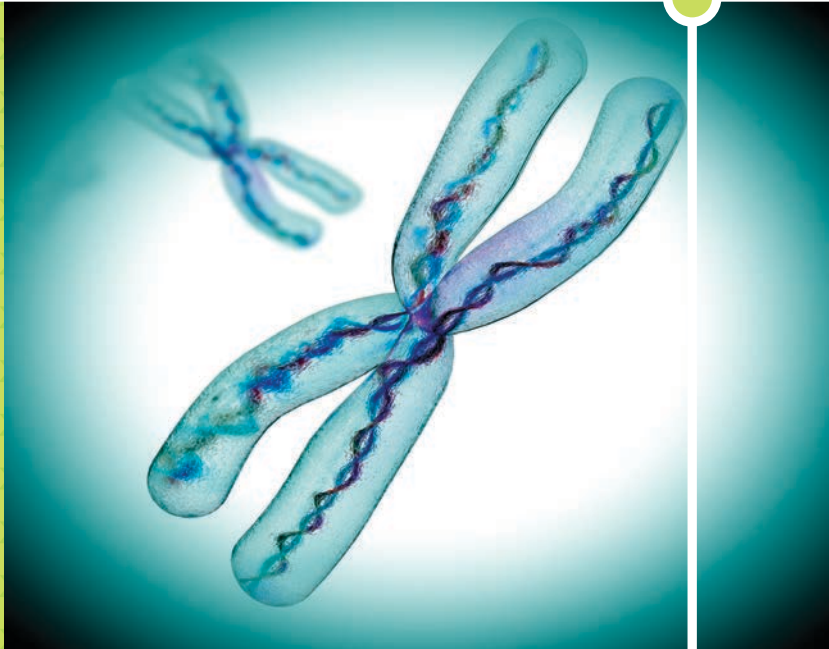
About 70 X chromosomes could fit on one grain of sand.

Girls have two X chromosomes.

Boys have an X and a Y chromosome.

X CHROMOSOME

A SET OF INSTRUCTIONS FOR YOUR BODY



SMALLER

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- Chinese Giant Salamander



- 8-Year-Old Child
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BIGGER

GRAIN OF SAND

A MINI PIECE OF ROCK THAT CAN BE FOUND AT THE BEACH

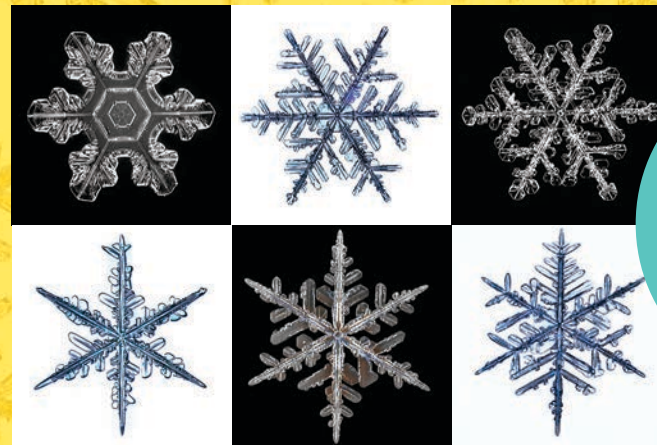
Sand dunes form when wind blows grains of sand into large hills.



A person who collects different kinds of sand is called an arenophile.

SNOW CRYSTAL

ICE THAT FALLS FROM A CLOUD



Every snow crystal has six points that grow out from its middle.

No two snow crystals are exactly the same.



10

Its scientific name is *Thiomargarita namibiensis* (thi-oh-mar-gah-REE-tah nah-mih-be-EN-sis).

Most bacteria aren't dangerous, but some can make you sick. This is why it's important to wash your hands.



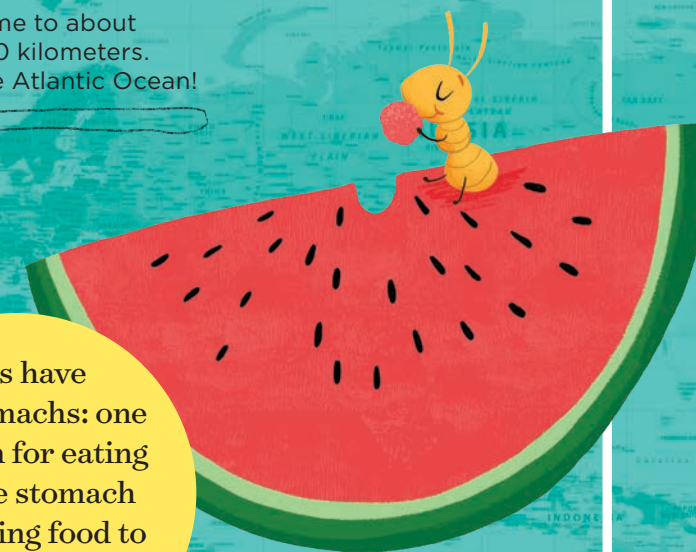
This bacteria is about the same size as one poppyseed in a poppyseed muffin.

LARGEST BACTERIA

A GERM THAT LIVES IN THE OCEAN AND CAN BE SEEN WITHOUT A MICROSCOPE

The largest ant colony in the world is home to about 307 million ants and stretches over 6,000 kilometers. That's larger than the distance across the Atlantic Ocean!

Ants have two stomachs: one stomach for eating and one stomach for holding food to share with other ants.



ANT

AN INSECT THAT LIVES IN LARGE GROUPS CALLED COLONIES

11

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BIGGER

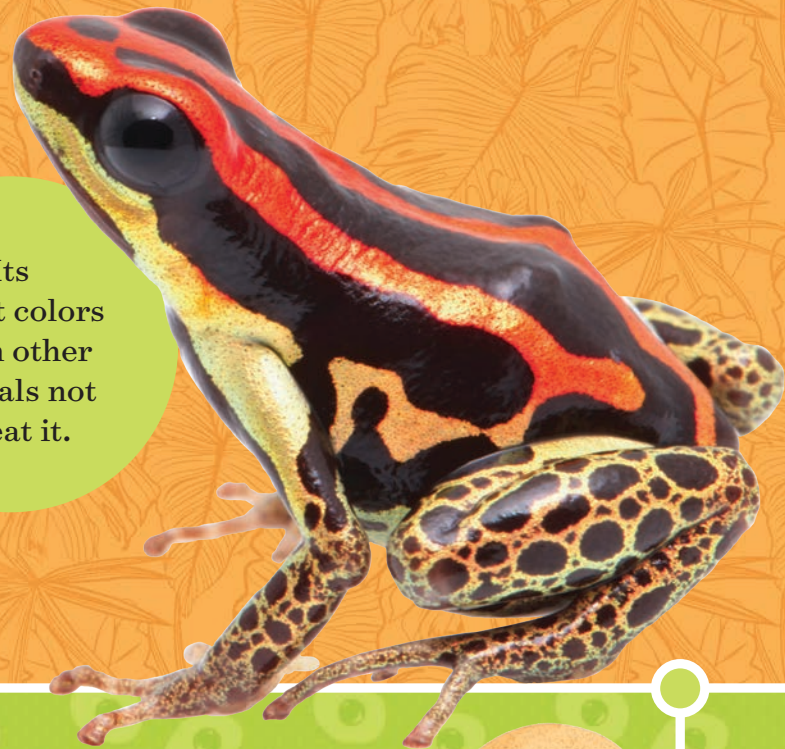
POISON DART FROG

A BRIGHTLY COLORED FROG
WHOSE SKIN IS POISONOUS



These frogs are about the same size as a US quarter.

Its bright colors warn other animals not to eat it.



APPLE

A FRUIT THAT GROWS IN AN ORCHARD



There are over 7,500 varieties of apples.

Most apples have around 10 seeds.



It takes 21 days for a baby chick to hatch.



CHICKEN EGG

AN EGG LAID BY A HEN

Hens can lay one egg each day.

The Hercules beetle can carry up to 850 times its own weight. That's like carrying 850 of your friends all at the same time!

A Hercules beetle is about the same size as a dinner fork.



HERCULES BEETLE

THE STRONGEST INSECT

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BIGGER

EAR OF CORN

A GRAIN THAT GROWS ON A TALL STALK



Each ear of corn has about 800 kernels.

An ear of corn is about the same length as a business envelope.

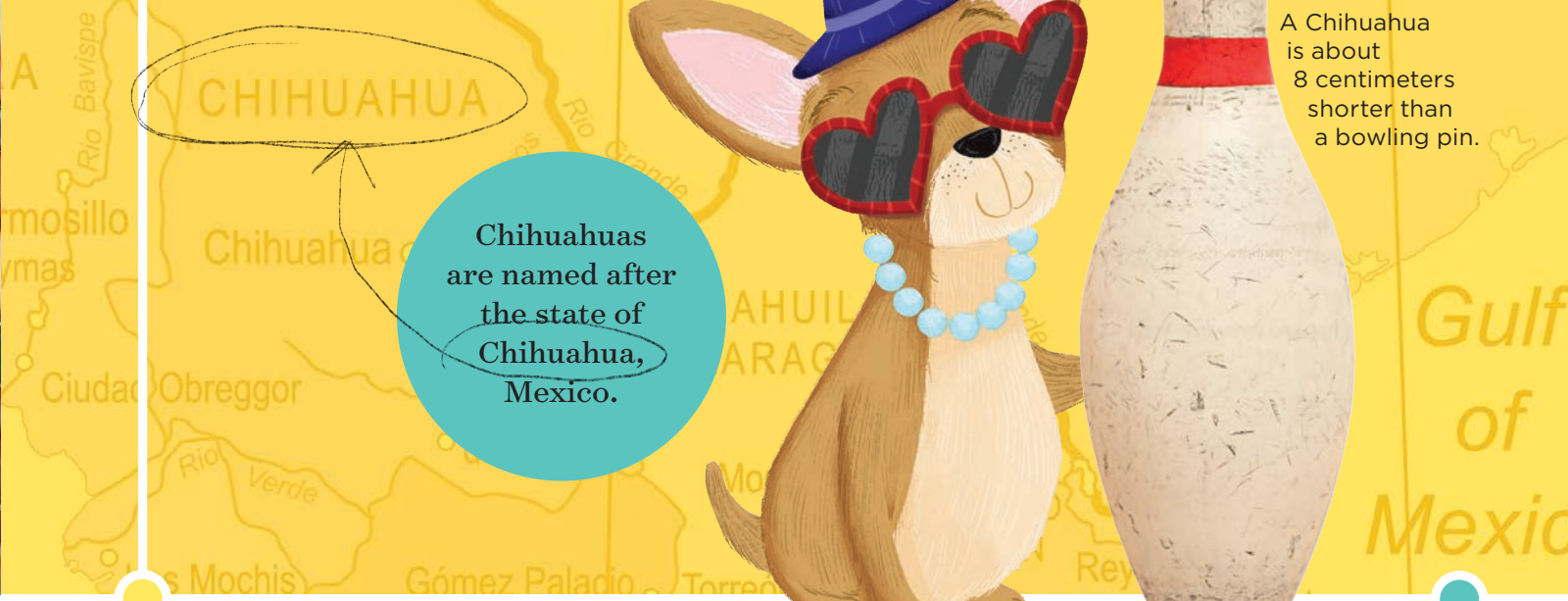


Although most corn is yellow, some farmers also grow black, blue, purple, green, red, and white corn.



CHIHUAHUA

THE WORLD'S SMALLEST DOG



Chihuahuas are named after the state of Chihuahua, Mexico.

A Chihuahua is about 8 centimeters shorter than a bowling pin.



These butterflies live on only one island in Papua New Guinea.

Their wingspan is larger than a basketball.

QUEEN ALEXANDRA'S BIRDWING

THE LARGEST BUTTERFLY



Cats love to snooze! Most sleep for 12 to 16 hours per day.

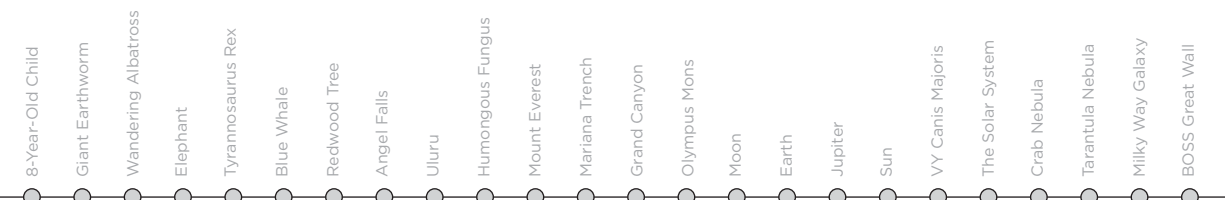
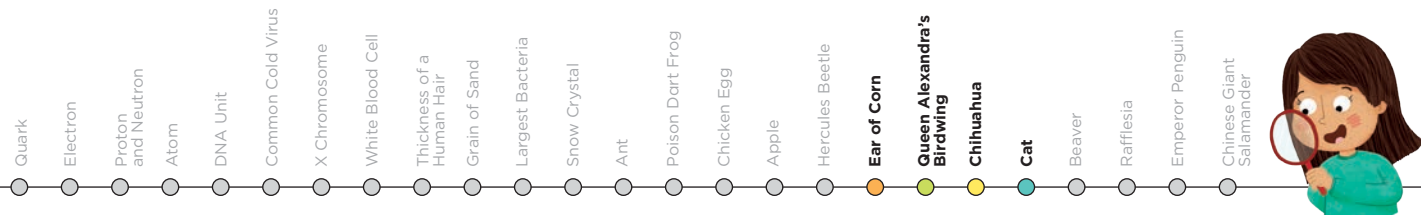


A group of cats is called a clowder.

CAT

A COMMON PET

SMALLER



BIGGER

BEAVER

A RODENT THAT CHEWS DOWN TREES IN ORDER TO BUILD LARGE HOMES CALLED DAMS

Beavers have flat, paddle-shaped tails that can be as long as a rolling pin and are used for swimming and slapping the water to scare away predators.



The largest beaver dam in the world is so large that it can be seen from space! The amount of water it holds would fill 92,000 dump trucks.



16

EMPEROR PENGUIN

THE TALLEST AND HEAVIEST PENGUIN



Dad penguins hold their eggs on their feet for two months without eating anything until their babies hatch.



Adult emperor penguins are the height of a standard mailbox.

They smell like rotten meat in order to attract helpful insects. Yuck!

The diameter of the rafflesia is about the same size as a standard toy Hula-Hoop!

RAFFLESIA

THE LARGEST FLOWER



They live underwater and breathe through their skin.

These salamanders are critically endangered, which means there are only a few of them still alive.

CHINESE GIANT SALAMANDER

THE LARGEST AMPHIBIAN IN THE WORLD



These salamanders are about the same size as two standard bed pillows laying next to each other.



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BIGGER

DID YOU KNOW THAT GOD CREATED EVERYTHING IN THE ENTIRE UNIVERSE?

A long, long, long time ago, nothing existed except for God. But then God turned the nothing into billions of amazing things. Everything in the whole universe has been created by him. The weird bugs and the beautiful mountains. The tiny cells and the ginormous galaxies. They all exist because God specifically chose to make them, and afterward, he said that they were all good.

But did you know that out of everything God created, he made one thing more special than all the rest—one thing that he called very good? He made **YOU!** And he made you different from anything else he had made—he made you to be like him! The Bible calls this *being created in God's image*.

God made people to be his friends and told them to learn about the incredible world he created and to take care of it. You can read about this in the Bible in Genesis 1 and 2. As you flip through this book, you will see just how big and amazing God's creation is, and how big and amazing God is for creating it all!



TURN THIS PAGE TO WATCH GOD'S CREATION GET SMALLER AND SMALLER!

TURN THIS PAGE TO WATCH GOD'S CREATION GET BIGGER AND BIGGER!

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BIGGER