

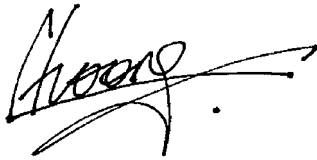
# BANNER

## Just for Kids: A Baker's Dozen

Here are thirteen of Joanne De Jonge's favorite "Just for Kids" articles from The Banner. We're pleased to offer this free pdf collection of nature writing that inspires both kids and kids-at-heart to delight in and celebrate God's amazing creation.

This collection is in random order, just like a nature walk. Different bits of creation capture your attention at different places. Yet one theme is obvious: God made it all. So read them in order or randomly. Yet read each with delight and with praise to our Creator.

In Christ's Service,



Shiao Chong  
Editor-in-Chief, The Banner

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# God's Little Critters

Now is the perfect time to see God's little critters. They're the flappers and flyers, creepers and crawlers of summer. Go outside and they'll buzz your face, slither across your path, or serenade you from a nearby bush.

Not many people love these many-legged mini-beasts. At best, people ignore them. Hardly anyone thinks to call them God's little critters.

Yet that's exactly what they are. God made each of these creepy crawlies for a certain role in Creation. And God gave each critter exactly what it needs for that role. Read on for a tiny idea of what's in this wonderful world of God's little critters.



## What Does Your Ant Do?

Although most ants help keep Creation clean, some are here for purposes you'd never expect:

- Farmer ants tend underground fungus gardens by fertilizing and weeding them. They use the fungus for food.
  - Herders tend certain aphids (plant lice). They move aphids to choice plants and protect them from predators. Then they "milk" the aphids for honeydew, a sweet liquid the ants use as food.
  - Slave drivers raid other ant colonies, capture the young, and make them do all the work of the raiding colony.
  - Guards live in certain acacia trees and protect them by chasing away harmful insects. In return, they drink nectar from the acacia flowers.
  - Harvesters pick seeds from plants, husk them, dry them, and store them underground. They eat the seeds when other food runs short.
- Which of these ants do you suppose is mentioned in Proverbs 30:25?

## Who's Henry?

Meet Henry, but don't become too friendly. He's full of germs, so he's not good for you. But he is good for Creation. He and his kin clean up icky messes. Admire Henry from a distance and try to guess who he is.

Henry is made for life in garbage. He carries millions of germs inside and out, but he's immune to them, so he doesn't get sick. His mouth, made for sponging up icky wet messes, is like a tiny sponge on a straw. He's got taste buds on his feet, so he knows when he lands on good garbage. His eyes bulge out from his head, so he can see danger coming from any angle, even when he's buried in garbage. Some insects live for several months, but Henry lives only a few weeks.

Garbage doesn't last much longer than that.

You'll never find Henry alone on garbage. That's because when he finds icky messes, he calls his relatives with a chemical message "Good garbage here!" They all come to share the feast. Just like Henry, they're perfect for cleaning up garbage.

Thank Henry and his kin for the clean-up jobs, then thank the Creator for making houseflies!



ILLUSTRATION BY SCOTT HOLLADAY

# See for Yourself

To see God's little critters up close:

1. Use a magnifying glass.
2. Sit absolutely still and silent under a tree. After a few minutes they will begin to move.
3. Put a white cloth under a bush and shake the bush. They should fall out of their hiding places onto your cloth.



# BuG Talk

**Bugs** talk to each other. They say lots of things. Most of God's little critters can clearly make their wants and wishes known.

Lots of bugs, like **ants**, use chemical mixtures to "talk." Common ant quotes: "The queen is OK." "Follow me to food" "Danger!" "I'm from your colony." You can watch ants talk. They rub the ground or each other to "speak" with chemicals.

**Honey bees** "dance" to direct workers to a good nectar source. **Jumping spiders** signal with their front legs to tell other jumpers if they're friend or foe. **Dragonflies** use body signals to defend territories.

**Fireflies** flash to attract mates. Flashes are long, medium, or short. There are also upward, level, and downward flashes. Different fireflies use different flash combinations to make their special signals.

Male **crickets** sing for a mate. Different species have different "songs." Females are "deaf" to the song of another cricket species. You can easily hear the different "songs" if you sit outside quietly on a warm summer evening.



# True or False?

A worm isn't a real worm when . . .

- \_\_\_\_\_ It's a caterpillar.
- \_\_\_\_\_ It's a cutworm in your garden.
- \_\_\_\_\_ It's in your apple.
- \_\_\_\_\_ It's in a rotten log.

(Answers are in the margin.)

# Not the Same

**Daddy longlegs** and **spiders** are not the same. God made them different from each other and gave them different jobs in Creation.

Spiders keep bugs in check, and daddy longlegs clean up litter. Spiders eat bugs and other live critters. Daddy longlegs eat dead leaves, rotten berries, and things like that.

Spiders need to see their prey move. Their eyes are set in rows and made to see motion. Daddy longlegs only need to see danger coming, so they have only two weak eyes on top of their bodies.

Spiders need to paralyze their prey, so they have fangs and poison glands. Daddy longlegs don't need to paralyze dead leaves, so they have no poison or fangs.

Spiders need to catch and wrap their prey. They have hundreds of nozzles that make silk strands. Daddy longlegs don't need to wrap rotten berries, so they have no silk. But they do have gas glands to zap their predators and escape.



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Answers: They're all true. Many "worms" are really larvae, young forms of insects. Caterpillars are young butterflies. Cutworms are larval beetles. A worm in your apple is probably a larval fly. Beetle, ant, and termite larvae live in rotten logs.

# Hotel Goldenrod

Goldenrod is a plant with tiny yellow flowers bunched together on a stem and lots of stems bunched together in a patch. It's usually the last flower blooming in the fall.

Lots of people call goldenrod a weed. But if bugs could talk, they'd call it a hotel.

As the nights grow cold, bugs seem to know that goldenrod is a great place to sleep. Even

when there's not much pollen or nectar left to eat in other plants, goldenrod still has it on the menu. So Hotel Goldenrod is usually full of guests this time of year.

You can visit Hotel Goldenrod and meet some of those guests. Even though they don't speak our language, their Creator certainly speaks through them. Just take a close look.



## Wake-up Call

If you visit the goldenrod plant early in the morning before the sun has shone, you may have to shake some bugs out of bed. Take a white pillowcase or a large piece of white paper. Place it on the ground under the flowers, close to the stems. Shake the flowers. Lots of things will fall out. Anything that doesn't move is probably a piece of dead plant. Anything that does move is a sleepy or cold bug. Cold bugs move slowly, so they're easy to watch for a while.



ILLUSTRATION BY SCOTT HOLLADAY

## Overnight Guests

The first insects you'll find have come for food—nectar and pollen—and stayed overnight. You'll probably find a stray wasp or two. Their colonies have broken up; these guys are out and about alone. Once in a while you'll find larger bugs that have stayed the night. Flies, bees, damselflies, and maybe even a dragonfly may check in at Hotel Goldenrod.





# Long-term Residents

You should find lots of goldenrod soldier beetles hanging out on the plants. These bugs are brown and yellow, about an inch (5-15 mm) long, and have long antennae.

After eating a breakfast of pollen and nectar, soldier beetles patrol the whole plant. They look for the aphids and caterpillars that feed on goldenrod plants and eat those bugs. That way they help protect the plant! But they also eat goldenrod leaves—and are preyed upon by other residents on this plant. They're an intricate part of the goldenrod world.

## Two Predators

Keep your eyes peeled for two resident predators.

First, look for a goldenrod crab spider. This critter looks like a tiny yellow crab. It's got a fat round body with long, elbowed legs poking out of its sides.

Guess what? This cool spider can change its color to match the plant! When it climbs up onto the goldenrod flower it's usually white with pink streaks. It sits for a few days and becomes yellow to hide among the flowers. If it drops off the plant, it becomes white again. Put it back onto the flowers, and it will become yellow in a few days.

**There are about 3,000 kinds of crab spiders worldwide. Besides the goldenrod crab spider, few, if any, can change color.**

To find the second predator, you should look for a butterfly or fly that isn't moving. In other words, search for a dead bug to find its predator, the ambush bug.

Smaller than a crab spider, yet sitting just as quietly, the ambush bug is almost invisible. It has a jagged outline and a yellow and brown camouflage suit. This stealthy bug is very small but very aggressive.

When an unwary visitor wanders within reach, the ambush bug grabs it with lightning speed. It jabs its needle-like mouth into the victim, killing it. Then the ambush bug injects a "meat tenderizer" into its "meal" and slowly slurps up the juices.



## Cool Combo

If you don't see goldenrod beetles, you might find this cool combo instead. You probably won't see both, because the combo doesn't like to live with the beetle.

Look first for some tiny (12 mm or 1/2 inch) green, three-sided bugs. From the side they resemble small green buffalo heads. These are buffalo tree hoppers. They suck juices from goldenrod leaves and stems. Each tree hopper sucks more juice than its body can use. Look for little droplets of unused sticky clear juice (called honeydew) oozing from each treehopper.

Then look for ants walking near the tree-hoppers, sucking up the honeydew. Ants are the second part of this cool combo.

Pretend you're going to pick up a tree hopper and you'll have an ant soon threaten your finger. Ants protect tree hoppers because they want the honeydew. It's sort of like a farmer taking care of cows because we want to drink milk. Sometimes ants go a step farther. They chase goldenrod beetles off the plant because they "want" tree hoppers to have all the good food. That's like a farmer keeping a pasture green and lush for cows to feed.



## And There's More

Many more residents live *inside* the stems and leaves and on the roots of Hotel Goldenrod. There's almost no end to them. Of course! This is creation—there's always more to discover.

So go on out and look . . . and wonder.



Joanne De Jonge is a freelance writer and a former U.S. National Park Ranger. She attends West Valley Christian Fellowship in Phoenix, Ariz.

# Look at You!

Just look at you! You have one amazing body. You have 200 bones, 600 muscles, millions of glands, billions of nerves, trillions of cells, and a whole lot more. And your body is different than anyone else. Surely someone greater than you put you together.

King David understood that when he said, "How you made me is amazing and wonderful. I praise you for that" (Psalm 139:14, NIV *Kid's Devotional Bible*). To that we can say "Amen!"

You know that God made your body wonderful, but how often do you take time to think

about that? How often do you thank God for your toes or your tongue or your two arms?

Let's do that right now. We'll take some time to look at a few of these neglected parts, and then thank God for all the parts of your body.



## Tongue Twisting

Take a good look at your tongue. See those tiny bumps? They're not really taste buds. Each of those bumps covers *many* taste buds. You were born with about 10,000 taste buds on your tongue. Ten thousand! You lose some over the years. Older people usually have around 5,000. That's still a lot of taste buds.

Can you curl your tongue when you stick it out? Not everyone can do that. No one knows why. But that doesn't matter. Your tongue can do all the things that need to be done.

Your tongue moves food around in your mouth, pushes it to the back of your throat, and helps you swallow. Without your tongue, you'd have to eat mostly liquid food.

To prove that, grab some raisins and try to eat them without using your tongue. You can't do it, can you?

But there's more to your tongue than helping you eat. Your tongue, of course, also enables you to talk. Try to say "This is my tongue" without moving your tongue. It's impossible! Now say, "Thank you, God, for my amazing, tough tongue."

Just for fun, try tackling these tricky tongue twisters:

- Twelve twins twirled twelve twigs.
- Sam's shop sells spotted socks.

Now you make one up!

## Happy Feet

Try to walk around the room without bending your toes or ankles. Now try to run that way. Awkward, isn't it? You need to bend your toes and ankles to walk well.

That's why you've been given so many joints and other things in your feet. One-quarter of all the bones in your body are in your feet—26 bones in each foot. Each foot also has 33 joints and more than 100 muscles. All those muscles and bones are knit together with lots of tendons and ligaments. And they're all put together exactly right so that you can walk and run and hop and skip and jump. Your feet are mechanical works of art!

Now take off your shoes and socks. Watching your feet, walk slowly around the room. See how your toes bend and spread? Stand on tiptoes and watch your ankles work.

Thank God for your wonderful feet.





## Thumbs Up

To find out just how handy your thumbs are, tape both of your thumbs down so that you can't use them. Try to keep them taped down for a day.

We have what are called opposable thumbs. "Opposable" comes from the word *opposite*. We can put our thumbs opposite our fingers. We can grab. That's a very big deal, as you'll discover when you tape your thumbs. What things were hard—or impossible—to do without opposable thumbs?

Thank God for your opposable thumbs.

## Differently Aabled

Some of you use cool tools and technology or other means to help you see, hear, speak, or move.

- Kids with visual impairments might need special tools or a special friend to help them get around. Maybe you wear eyeglasses or contact lenses to see better. Or use a cane to walk around safely. You might even have a service animal to help you move around independently—a dog, a miniature horse, or even a pig who wears a special harness and is trained to be your helper.
  - Hearing aids or cochlear implants help some kids hear better. Some know what other people are saying just by watching their lips move. Some use sign language to talk to other people with their hands. Do you know any sign language? Have you ever learned the signs for "Jesus Love Me?" If not, ask someone to teach you the signs!
  - Some kids use special technology to help them talk. You may use a special communication device, an iPad, or a laptop to talk to family, friends, and teachers. You may use pictures or symbols to ask for something, answer a question, or say hi.
  - Some kids use wheelchairs, walkers, or power chairs to get around. Some wheelchairs are also standers, which means you can stand up right with your chair!
- However you see, hear, speak, or move, you are made in the image of God. Thank God for the wonderful tools and technology that help you each day.

—Beverly Stephenson is a special educator who lives in Zeeland, Mich.

## Private Eyes

To watch your eyes work, make sure you are in a well-lit room. Take the mirror and put it close enough to your face so that you can see the pupils (those black holes) in your eyes. Then close your eyes tightly for a full minute—count slowly to 60. Open them and immediately check your pupils in the mirror. You should be able to see them shrink from big black holes to pin pricks. Your eyes automatically adjust to light.

That colored part around each pupil, the iris, does the adjusting. It's got three different layers of cells and lots of muscles. It's also got all the cells that give your eyes color.

The combination of color cells and tissues in your irises is yours alone. No one else has irises that look or work exactly like yours. They're absolutely unique.

Thank God for your eyes. They're beautiful, they're complicated, and no one else has eyes just like yours.



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1. Feet have around 250,000 sweat glands. That's why your feet sweat a lot. And it might explain those stinky tennis shoes!
2. Your tongue pushes saliva to the back of your mouth and helps you swallow it.
3. Your eyes send upside-down pictures to your brain. Your brain flips the picture.
4. The middle part of your ear is no bigger than a Smartie. Three bones that are in your middle ear could fit on top of a penny.



# Peepholes into Heaven

Would you like to peek into heaven? On a clear, dark night, go outside and look up. Imagine that those tiny specks of light you see are peepholes into heaven. Imagine that God poked holes

in the night sky to let some of heaven's glory shine down on us.

Nonsense! you say—those are just stars! You're right. They *are* stars—huge, mysterious, magnificent, and many

more than we can count. They are not holes in the sky, but by reflecting their Creator's glory, you might say they really are peepholes into heaven.

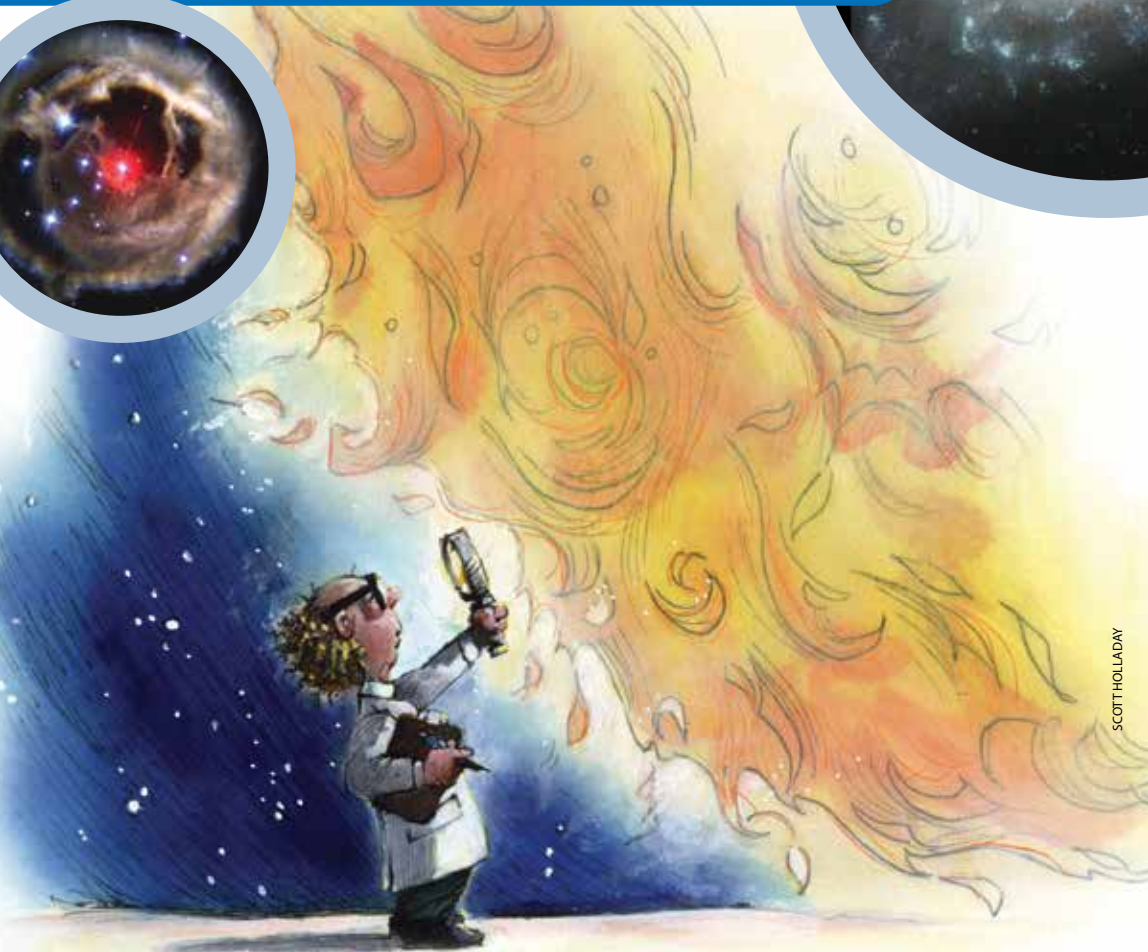
## Power Point

Scientists think that stars are huge spinning balls of burning gasses. Some scientists say that they are *exploding* gasses, but the explosions are controlled by gravity, so the star doesn't fly apart.

We have explosions on earth too. Fireworks are one example. Think of how bright those showers of light look in the night sky.

But that's nothing compared to the brightness of one star. There's so much gas burning in one star that you can see the light *billions* of miles away. There's so much gas in one star that it could burn continuously for millions, or billions, of years. There's so much power in that burning gas that we can't begin to imagine it.

And, remember, there are more stars than we can count. We can't begin to imagine or describe the energy, the power, that burns in our night sky. God's power shines brightly through these peepholes.



SCOTT HOLLADAY

## The Christmas Star

The Star of Bethlehem, which the Wise Men saw after Jesus' birth, was special. Scientists can't tell us about this one. Some think it was a comet—a "star" with a tail. Maybe the tail pointed to Bethlehem.

Comets travel in paths we can predict. We can also figure backwards in time to discover what comets might have been around in a certain year. But astronomers don't think there was a comet in the sky after Jesus was born.

Some think that several planets appeared close to each other at that time. Planets do that sometimes. But they never appear to be one bright star.

Some think the Star of Bethlehem was a supernova—a star that explodes and then dies. That would make a special, bright light. But astronomers back then never said anything about such a bright star.

Some people think that God created this special star for this special purpose. Only God can control stars.

We know one thing for sure. The Christmas star was not a peephole into heaven. It was a spotlight on Jesus, the Door to heaven.



## Zillions

How many stars are out there? Zillions?

No one knows for sure, but many scientists guess there are at least 100 billion galaxies (large groups of stars) in the part of the universe that we can see with our telescopes.

They guess that each galaxy might have about 100 billion stars in it. That makes 10 sextillion stars altogether. That's 10 with 21 zeros behind it! A big number! We say "zillions" because we can't possibly count that high.

That number is way beyond what we can imagine. But it's also a big comfort. Here's how.

Read Isaiah 40:25-26 and Luke 12:6-7. Just think: the Creator of zillions of stars can count and name them. And that same Creator knows the number of hairs on our heads. God is so powerful, but he cares about each one of us, no matter how small. Amazing!

## Dancing Stars

1. Stars seem to move from east to west during the night. But they really don't move. We do. Earth rotates, or spins around, from west to east, so the stars look like they're moving from east to west, even though they're not.
2. Stars also seem to move to different spots in the sky during the year. That's because the earth is "tilted," and it travels around the sun once a year. We look at stars from different angles at different times of the year.
3. But stars do not stay absolutely still. Scientists tell us that stars do move. Each has its own speed and its own direction. But the stars are so far from us, they seem to stand still.
4. Stars also spin as they move through space. Sometimes one part of a star spins faster than another part.
5. There's more. Our galaxy (Earth, nearby planets, and our "close" stars, including the sun) is hurtling through space. Scientists think that we travel 600 kilometers (372 miles) every second. All galaxies hurtle through space. They don't all go at the same speed. What a complicated, delightful dance of the stars! God's wisdom and creativity certainly shine through these peepholes.



## Star Dancing

Want to dance like a star? Grab a friend and a rubber ball. One person will be a star, the other will be Earth. The ball will be your sun.

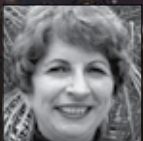
Place the ball in the middle of an open space. Both people stand near it. Read number 1 of "Dancing Stars" and copy those motions. (Star: Stand still. Earth: Slowly turn.)

When you can do number 1, add number 2 to your motions. (Star: Stand still. Earth: Slowly turn in circles as you walk around the "sun.")

When you can do those things, add the motions from number 3. (Star: Begin walking slowly in one direction.)

Then add the motions of number 4. (Star: Start spinning as you walk.)

Look at you—you're star dancing!



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# Plants Planting Plants

Imagine you're a plant. You eat, you drink, you breathe, you grow, and you make seeds. You're rooted in one place, and you do quite well there. But you've got seeds you want to plant in another place. How can you do that? Read on to find out.

First we need to make two points clear:

1. You *must* plant your seeds. The world can't live without green plants.
2. Of course plants don't really *want* to plant their seeds. They can't think. God made them the way they are, and God made each seed just right for each kind of plant.

## An Apple a Day Takes the Seeds Far Away

Imagine you're an apple tree, growing straight and tall. Your branches spread out far from your trunk so your leaves can soak up sunlight. Beneath the ground your roots spread just as far, looking for water and plant food.

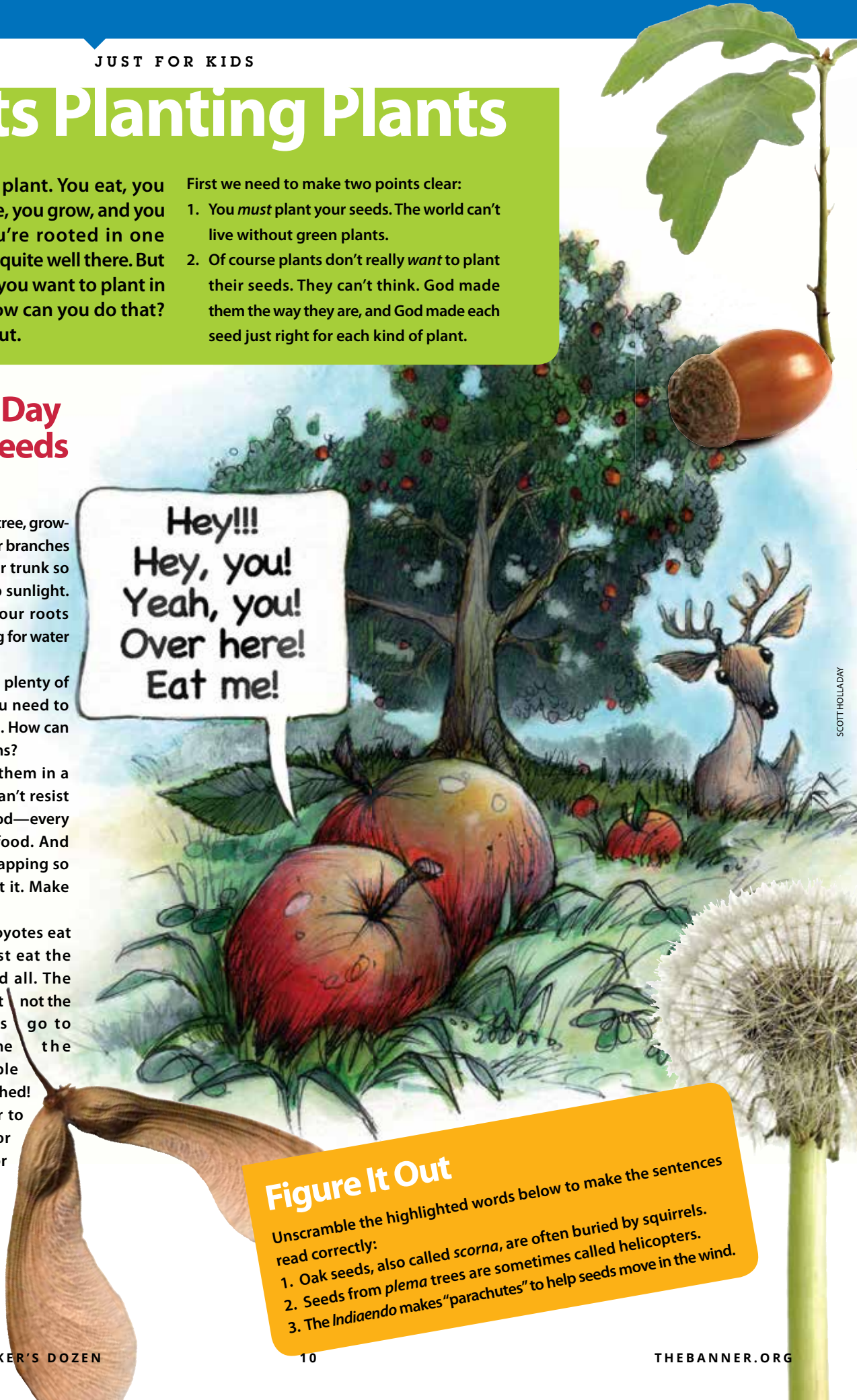
Your seeds will need plenty of their own space. So you need to plant them far from you. How can you be sure that happens?

Here's an idea: put them in a package that wildlife can't resist picking up. Make it a food—every living creature needs food. And give that food a red wrapping so animals can easily spot it. Make some apples!

Deer, bears, even coyotes eat apples in the fall. Most eat the whole fruit, seeds and all. The apples get digested, but not the seeds. When the animals go to the bathroom, out come the seeds, far from the apple tree. Mission accomplished!

What a neat answer to two problems, food for creatures and travel for seeds!

Hey!!!  
Hey, you!  
Yeah, you!  
Over here!  
Eat me!



## Figure It Out

Unscramble the highlighted words below to make the sentences read correctly:

1. Oak seeds, also called **scorna**, are often buried by squirrels.
2. Seeds from **plema** trees are sometimes called helicopters.
3. The **Indiaendo** makes "parachutes" to help seeds move in the wind.

## Ant Candy

Imagine you're a violet growing in the woods. You had flowers last spring, but now you're just short and green. You live in a colony of violets—lots of short green violet plants cover the ground nearby. What kind of seeds should you make?

Your seeds will need to travel. Enough violets already grow nearby. Should your seeds have "parachutes," like dandelion seeds? No, that won't work. You're too short to feel a breeze. Should they hitchhike? No, they couldn't reach most animals' fur. Should you make fruit? At your size that fruit would be too small for anything to bother picking, except maybe ants.

That's it, use ants! All sorts of ants live in the woods. They always bustle past you, looking for food. Bribe them with candy!

Make part of your seed sweet, and the ants will notice. They'll taste it, love it, and take it home to share with their colony. And their colony probably lives underground. Presto! Your seeds have been carried away from you and planted, all thanks to the ants! And to your wise Creator.



## Hitchhikers

Imagine you're a scraggly yet hardy plant growing alongside a road. You're small and not particularly tasty. Animals walk past or over you without noticing. People call you a weed.

Yet you have a job in creation: to protect a little patch of loose, lightweight soil from blowing or washing away. You do that well in "waste" places.

What kind of seeds should you make? They will need to be hardy and easily carried. They should travel to and survive other waste places. You could use the animals that walk right over you. But you don't make fruit, so no one stops to eat.

How else can your seeds hitch a ride? There's your answer: hitchhike. Make your seeds able to grab onto animal fur (or people's feet), even if the animals or people don't see you. Make a sand bur!

Animals still won't notice you, and people won't like you. But you'll be just fine, doing exactly what you were created to do.

## Do It Yourself

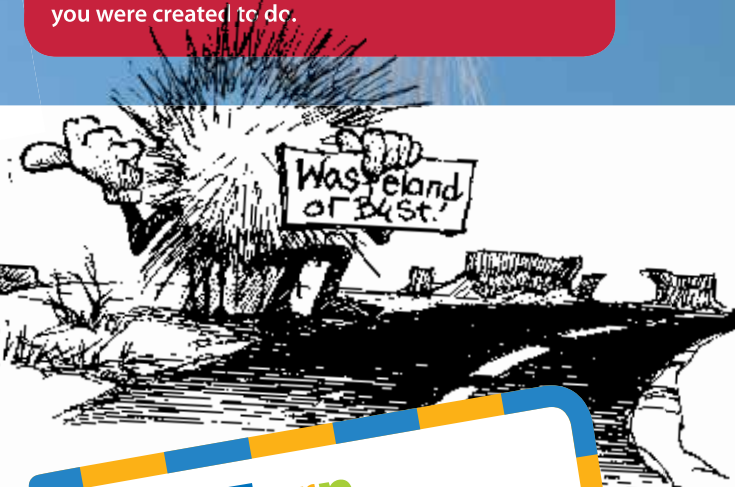
Imagine you're a fairly small, healthy plant. You're growing in good soil and you have plenty of space. But you still have one problem: you're an annual. You were created to live for only one year. You'll die this winter. So you want to be certain your seeds are well planted. What's the best way to do that?

Here's an idea: Do it yourself—plant your own seeds! You're growing in a good place, and you won't be here next year. So plant your seeds in the ground next to you.

That's exactly what the peanut plant does. First a peanut flower blooms. It has the parts that make a seed. A small peg appears in the wilting flower. This peg becomes a long "stem," which bends over and grows straight down into the soil. The seeds form on that "stem," beneath the ground. Those seeds are the peanuts we eat.

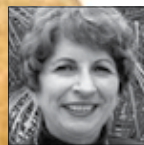
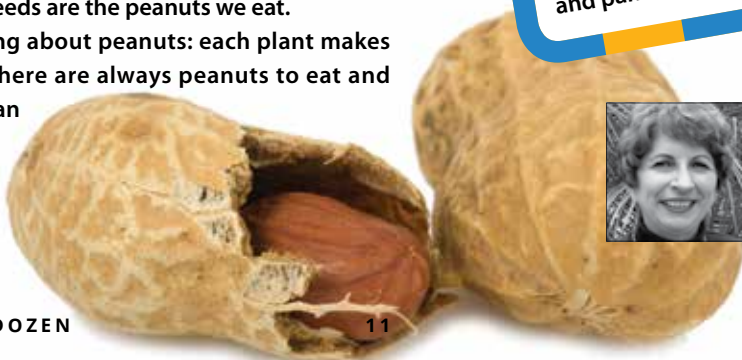
Here's the really neat thing about peanuts: each plant makes more than enough seeds. There are always peanuts to eat and peanuts to plant. The cycle can go on forever.

Who would ever think of that?!



## Your Turn

Go outside for 15 minutes and try to find five different kinds of seeds. Or put on a pair of white socks and/or light-colored long pants. Then walk through a wild area (woodlot or overgrown field). See how many seeds you pick up on your socks and pant legs.



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# Silent Sounds

Creation is full of sounds. Humans hear many of them, but some sounds are “silent” to us because their pitch is either too low or too high for our ears. That’s OK, because God made our ears just right for our needs.

In fact, God made most creatures’ ears just right for their needs. They hear what they need to hear, and the sounds they don’t need to hear are silent to them.

Want to “hear” about some silent sounds? Read on.



## The Dark, Not-So-Silent Deep

People used to think that the deepest parts of the ocean were dark, silent places. Then scientists developed special equipment. Now they record sounds that we can’t hear and play them back at pitches that we can hear.

Surprise! The oceans are full of sounds. Whale calls are a good example. Whales keep in touch with each other over long distances by talking to one another. We call their sounds “whale songs.”

Humpback whale songs can be 25 minutes long. They’re full of what sounds to us like moans, clicks, whistles, and grunts. Scientists think that these sounds are put together in certain combinations, just like we put words together in certain combinations.

To hear some whale songs, check out this website:  
<http://www.whalecenter.org/av.htm>

## Don’t Bug Me

Some of the moths that bats like to eat can hear those bats’ squeaks and clicks. When the moths hear those sounds, they drop to the ground. If they’re flying, they may do barrel rolls and fly in zigzags to get out of range. Some moths even click back. Do you think that confuses the bats?



## Super-Dog

Dogs can hear sounds that are softer and higher-pitched than humans are able to hear. Have you ever seen a dog suddenly perk up its ears and look around? It’s probably hearing a sound that you can’t hear. If your dog is waiting for you when you come in your front door, it’s probably because the dog can hear you coming even if you think you’re not making noise. That’s why some people have watchdogs.



SCOTT HOLLADAY

## Ears for You Only

All the crickets that you hear singing on a summer evening are males. Female crickets are silent. There are hundreds of different cricket species. As far as we know, each species has its own distinct song. Humans can't hear the difference, but female crickets can. Scientists think that maybe female crickets can hear only the males of their own species.

Some cricket songs change pitch when the temperature changes. On a cold evening the songs are lower. Even then, a female cricket responds only to the song of her own species. You could say that her "ears change pitch." We can't explain how this works.

## Silent Prey

Ruffed grouse are birds that nest on the forest floor. They have a noisy mating ritual. The male grouse "drums" to attract a female. He makes a loud thumping noise by beating his wings on the forest floor.

Some owls eat ruffed grouse when they can catch them. So why doesn't the drumming of a ruffed grouse attract an owl? It's because the drumming is silent to owls. They can't hear sounds that are pitched that low.

## Driving You Batty

Bats hunt bugs by sound. They make high-pitched squeaks or clicks and listen to the echoes that bounce off the bugs. In fact, most bats make three different series of squeaks or clicks. The closer they are to their prey, the faster they click or squeak.

Those sounds are too high for human ears to hear. Thank God for that. Bats make a real racket to ears that can hear those sounds. If you lived near bats and could hear them, they'd probably drive you batty when they went out hunting.

You can easily hear bat sounds and other animal sounds on your computer by visiting this website: <http://www.naturesongs.com/otheranimals.html>.

## Your Turn

A cricket "hears" changes in air pressure, not sounds. To test a cricket's hearing, do this: go outside on a summer night and listen for crickets. Then clap and yell without moving your feet. Did they stop singing? Then walk toward them. Now did they stop? They "heard" you coming because walking toward them causes the air pressure near them to change.

Remember those moths that "hear" bats? You can tell if they live near you. On a warm night, turn on an outside light and let moths flutter to it. Then take a bunch of keys, hold them high and jiggle them. Some moths may drop to the ground. Those are the moths that "hear" bat sounds. Your jingling keys make high-pitched sounds like bats make.

## Grumble Rumbles

We know that elephants make loud trumpeting noises. We can hear those. But they also make noises that we can't hear. Elephants live in family groups that are very important to them. If they're separated, they keep in touch by making low rumbling sounds. One rumble says, "Hello, I'm here." Another says, "Help, I'm lost." Humans can hear some, but not all, of these sounds.

Do you think elephants ever grumble when they rumble?

## In Conclusion . . .

You get the idea: we can hear only a small fraction of the sounds that fill the air.

Creation—even the world of sound—is much more complicated than we imagine. Yet God gives each of us what we need to live well and enjoy his world.



Joanne De Jonge is a U.S. National Park Ranger in northern Michigan. She belongs to West Valley Christian Fellowship in Phoenix, Ariz.

# Your Marvelous Machine

**Your body is a marvelous machine.**

Put the right stuff into your mouth, and your body changes it, mixes it, and uses it to make just what you need to live well.

Do you know exactly what is inside you? Where it is and what it does? Do you know how to make it work? Of course not! You would not be able to survive if you had to order

your liver to work, your heart to beat, and your stomach to digest your food—all at once!

Yet your whole body works without a thought from you. It greases your joints, washes your “windows,” mends itself, plus a whole lot more. It’s a marvelous machine, and it’s yours. It’s designed just for you by God.



## Automatic Window Washers

Nobody likes dirty windows. You can't see through them. So you wash them.

It's the same with your eyes. If you have dirt in your eyes, you won't be able to see where you're going. But you don't have to wash your eyes, do you? They wash themselves!

You blink without even knowing it every two to 10 seconds. Each time you blink, tears bathe your eyes to keep them clean and moist.

When you get a speck of dirt in your eye, your tears work overtime. Your eye waters like crazy until the dirt washes out. Then you wipe the tears away with a tissue and get on with life.

Like almost everything else in your body, tears have a little something extra. In this case it's called *lysozyme*, and it's a germ killer. Lysozyme automatically deactivates most germs and viruses within five minutes of the time they hit your eyeballs. Without lysozyme in your tears, you could go blind from an eye infection.

Did you ever think about that? Probably not. But don't worry. You don't have to. Your automatic window washers and their super cleaning fluid are all part of your marvelous machine.

**Your turn:** Try to keep your eyes open without blinking for one full minute. Can you do it? Do tears form anyway?



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## Perfect Thermostat

What temperature should your body be? What temperature is it now? Should you cool it? Heat it? Do you know how?

Your hypothalamus does. That's the part of your brain that controls your body temperature (among other things). It's your body's thermostat. If you're too cold, it turns up the heat by making you shiver. If you're too hot, it makes you sweat. It's more complicated than that, but you get the idea.

You're alive and comfortable, right? Then your thermostat is working perfectly.



## Your Skin Knitter

What do you do when you have a rip in your clothes? You ask someone to mend it or you sew it together yourself, right?

How about a cut or a scratch that makes you bleed? Nine times out of 10 you don't have to sew it or go in for repair. Wash the area and cover it to keep it clean. Then wait.

First, white cells in your blood will rush to the cut. They fight germs that try to get in. Then platelets in your blood clump together to close the leak. Then a scab forms to cover and protect the torn skin.

Beneath the scab, a miracle happens. Your skin mends itself! It grows together; it "knits" itself back together, and stops knitting when the tear is repaired.

Scientists can tell you in more detail what happens. Each thing happens in order and at just the right time. It's really complicated and very finely tuned.

**The gist of it is this: you have a perfect skin knitter, created by God, who knit you together before you were born (see Psalm 139).**

## Joint Juice

Got a door that squeaks or is hard to open? What do you do about it?

Most adults will tell you, "Spray the hinges with WD-40" –that's a type of grease. Presto! The "frozen" parts move again. Parts that rub together need to be greased to keep them working smoothly.

Think about *this* for a minute: Got a knee that won't bend? A finger that won't curl? A shoulder that's frozen in place? Probably not. That's because your body greases its joints. It actually makes its own "WD-40."

It's called *synovial fluid*. It's thick and stringy like a raw egg white, and it greases many of your joints. Automatically. Before they freeze up or refuse to work.

Synovial fluid is one of the most important fluids found in your body. Imagine for a minute that none of your joints were greased. You couldn't walk, use your hands, talk, or even eat. Thank God for your joint juice!

**Try this: Tape all your fingers on one hand together at the joints. You shouldn't be able to bend them. Try to live that way for one full day.**

**Then do this: Bend your knees and kneel on the floor. Let your arms hang straight down, then bend your elbows to bring your hands up. Now bring your hands together and thank God for your well-greased joints. Thank God for your marvelous machine!**



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# Starry Night Sky

It's January—the perfect month to stargaze! The sun sets early and nights are often clear and crisp. You're likely to have some great views of awesome starry skies.

Pick a clear night and head for the darkest part of your backyard or a nearby park—invite an adult to join this expedition. Sit or stand quietly for a few minutes while your eyes

adjust to the darkness. Then look up and see the wonders God has created in the starry night sky.

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## Twinkle, Twinkle Little Star?

Stars don't really twinkle. They shine steadily like flashlights. Stars only seem to twinkle because they are so far away from us that their beams are weak—dust and gasses in our atmosphere interrupt their steady light and bounce it around a bit.

If you watch the night sky closely, you'll see some steady beams. They're from our planets: Mars, Jupiter, Venus, and the rest.

These planets are much closer than our "nearest" star. They circle our sun, just as the Earth does, so the light they reflect is very strong. Their beams can cut through our atmosphere with no trouble.

Since the planets are so close to us, you can see them move through space. But because the stars are so far away, you can't notice their movement from night to night.

Here's something to try: Go outside several nights in a row to stargaze. Each night look for stars that twinkle and for planets that shine steadily. When you can tell the difference, you can follow the planets' movements easily.

## Bright Neighbors

The star closest to us—not counting our sun—is called Proxima Centauri. It is 24,925,000,000,000 miles (40,113,000,000,000 km) away.

Here's a way to measure star distances: One *light year* is the distance a beam of light can travel in a year. That distance is about 9,461,000,000,000 miles or 5,878,000,000,000 kilometers. Our closest star is 4.2 light years away!



## Star-Studded Show

To give yourself an idea of the huge number of stars out there, try to make a rough count of those you can see. Here's how: make a frame out of both your thumbs and pointing fingers. Hold the frame up at arm's length and count the stars you see in it. Move the "frame" around until you've covered the whole sky. How many stars did you count?

We can only see the stars in our own Milky Way Galaxy. Astronomers estimate that there are at least 100 million stars in the Milky Way. That's 100,000,000 stars!

But there's more. Astronomers have counted at least 100 thousand (100,000) galaxies! And they estimate that there are at least 100 thousand more that they can't see. That's more stars than we can imagine. Yet their Creator calls each one by name!

## Sky Pictures

How can we make sense of all those stars scattered all over the night sky?

Some people group them into pictures called *constellations*. They draw imaginary lines between certain stars to make the pictures. The Big Dipper and the Little Dipper are two constellations that look like square soup ladles.

Most constellations are very sketchy pictures. You have to use your imagination to see how the constellation called Taurus looks like a bull or how the one called Orion looks like a hunter.

Ask a few different adults to point out the constellations they know.

To help you find more sky pictures, check out this website: [kidsastronomy.com/astroscopymap/](http://kidsastronomy.com/astroscopymap/).

There's also an app for tablets or phones called Star Guide that lets you view the stars, constellations, and even satellites in your part of the world, night or day (available from iTunes, \$1.99). Tap the sky picture on the screen for more information.



## Your Turn

Read Isaiah 40:25-26. Then write down or tell someone what looking at the starry sky tells you about our Creator.

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## Moonlight!

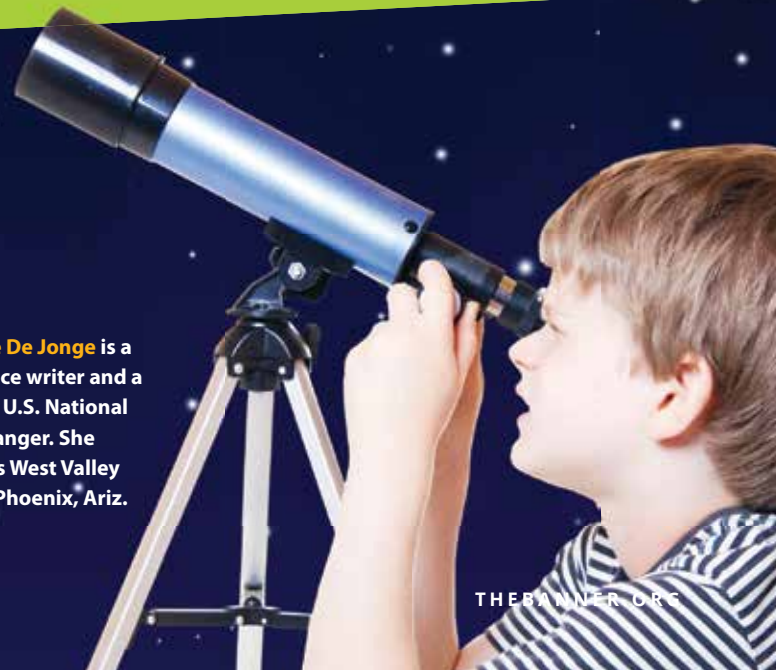
What's closer to us than our planets? The moon. Like Earth's planets, the moon doesn't make its own light. It reflects the sunlight. Because it's so close to us it reflects very brightly and beautifully.

- Go outside some night when the moon is full. Try these two experiments:
- Find two pieces of brightly colored cloth, each piece a different color. Put them into a backpack and take it outside into the moonlight. Reach into the pack, pull out the pieces of cloth, and look at them. What color are they? Can you tell?
  - Take a book outside into full moonlight and try to read. At first the page will seem clear enough to read. But when you get right down to it, you'll probably find it hard to distinguish letters.

God created each one of us a bit different from everyone else. Most people can't see color by moonlight. They see only lighter and darker materials, or patterns in the material, but not color. Maybe you are one of the few who will see color. Maybe you will read easily!



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# Goin' on a Bug Hunt

It's May, the perfect time to go bug hunting! Most of God's littlest critters have hatched or crawled out of their winter bedrooms. So why not arrange a few meetings between you and them? Bug

watching can be fun if you know how. It can be even more fun if you know what to look for. So read these pages to learn more about bugs. Then go out and observe these fascinating critters.

## Catch and Release

Here are three easy ways to find these little critters.

**1. Shake a bush.** Lots of bugs and spiders hide in bushes when they see you coming. To capture them (carefully!), first spread the pillowcase flat on the ground under the bush. Then gently shake the branches that are above the pillowcase. You'll probably see several bugs fall onto the pillowcase. Some of them will try to run away. Those are the bugs you want. Clamp a plastic container onto the ground over a bug. Then work the lid gently under it. Keep the lid on the container and turn the container over. Now you can look carefully.

**2. Look under rocks and logs.** This is where you can find pill bugs, beetles, roaches, and some worms. Have your container ready before you roll anything over. These little critters react to light and run away quickly. Handle worms carefully. They need their slimy covering.

**3. Sit still and look for motion.** Little critters out in the open "freeze" when they see you coming. If you sit very still for a while, they'll begin to move again.

If you want to study a bug more carefully, make sure the lid of your container is on tight. Then put that container into your backpack to take inside with you. When you go inside, put the tightly closed container into your fridge for a while. The bug won't die, but it will move more slowly.

When you're finished observing the bug, always return it to the same place you caught it. Some bugs can eat only one kind of leaf or live in only one exact type of place. Always release these creatures. God made each of them for a special purpose.

I think you might be sitting a little too still...



## A Word of Warning

**For you:** Be careful when you handle these critters. Try not to touch them at all. They don't like to be caught, so they may try to bite and/or sting. Remember, they are trying to defend themselves!

**For the bug:** Be careful when you handle these critters. They're very small and very tender. Some tend to lose legs or wings very easily. Then they can't move well. If you pinch them too hard, some will collapse and die. God put people in charge of his creation to care for it, not to mess it up. Please be careful!

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## What Kind of Critter Is This?

If you want to know more about the creature you caught, start with this brief guide.

### 1. How many legs does it have?

- A. If it has six legs it's some kind of insect. Go to number 2.
- B. If it has eight legs, it's probably some kind of spider or "Daddy-long-legs." There are more than 35,000 different kinds of spiders in the world. Each kind has its own special place in creation.
- C. If it has more legs than you can count, it's probably a centipede or millipede.

### 2. How many wings does it have?

- A. If it has no wings, it's probably an ant. There are more than 12,000 species of ants in the world. Each kind of ant has its own purpose in creation.
- B. If it has two wings, it's some kind of fly. There are more than 87,000 kinds of flies in the world. Each fly has a job to do in creation.
- C. Most other insects have four wings.

No one knows for sure how many different insects there are in creation. We know only that God made each insect with its own special place to live and its own special purpose.



## What's It For?

Here's what some common little critters do.

- Bees pollinate flowers. They're hairy and have pollen baskets on their legs. As they collect nectar and pollen, they spread pollen between flowers. Then the flowers can make fruits.
- Flies clean up messes. Think of the garbage where flies live. Do you want to clean that up? Someone must. Young flies love to do that.
- Brown and yellow paper wasps help keep flies in check. They feed their young "flyburgers."
- Spiders keep the bug population in check. Centipedes help spiders. They also prey on bugs and little creepy-crawlers.
- Lots of black wasps help keep spiders in check. Each wasp hunts only one kind of spider.
- Daddy-long-legs keep fields and forests clean. They eat dead and dying plants. Millipedes and pillbugs help Daddy-long-legs. They eat old vegetation and dead stuff.



You get the idea? Give thanks to God for how creation fits together so very well.

## Gear Up

Here are some things you'll need:

- Newspaper to sit on
- Clear plastic containers with lids
- Light-colored pillowcase
- Magnifying glass, if you have one
- Backpack

Be sure to dress warmly enough for the weather. Remember that you'll be sitting still in shady places at times. Then stuff all your "stuff" into the backpack. Now you're ready to go!



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# Come to Your Senses



God gave you some pretty wonderful senses. With them you can smell your pizza, watch the snow fall, listen to music, and taste hot chocolate. Your senses really help you enjoy life!

But they also help protect you. Because of your senses you feel a pin pricking you, hear a siren, and see a curb. You can walk without falling—and it's all because of something in your ears! Does that surprise you? You're not

alone. Most of us don't give a second thought to how our senses protect us.

Think about your senses in a new way for a few minutes. Read about some built-in protections and try the experiments. Imagine life without your senses. Then thank God for them!

## The Nose Knows

Quick—name two things that smell really bad. Would you eat either of those things? They're probably bad for you, aren't they?

Think about that: most things that smell bad to you are bad for you. That's hard to explain; it's just the way God made you.

Thankfully your sense of smell isn't super terrific. How would you like to smell all the rotten garbage within a mile of you? You only need to smell rotten stuff close to your mouth so you won't eat it. Trust your nose, it knows.

Your nose knows a bit more. At least one "long-distance" odor always catches your attention: smoke from a fire. Your Creator knows exactly what you need.

Sniff  
Sniff

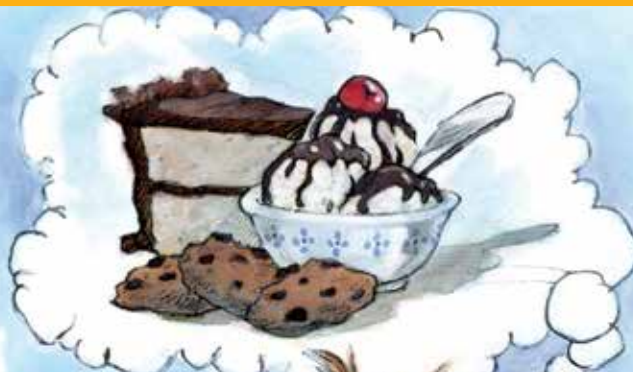
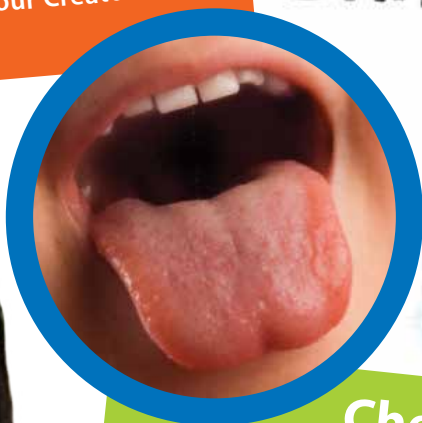


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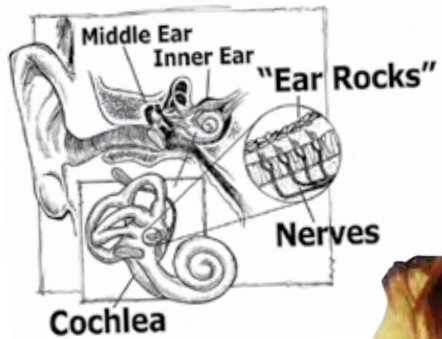
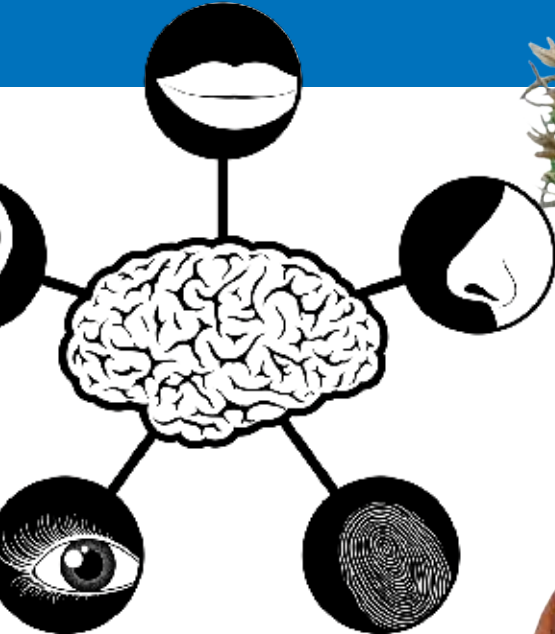
## Chew on This

Scientists say that you need saliva (spit) to taste food. Want to test that statement? Dry your tongue with a paper towel. Then taste a cracker. Let your saliva flow to wet your tongue, then taste another cracker. Can you tell the difference? Aren't you glad you've got a little spit in your mouth?

Your spit also helps you chew and swallow. Imagine eating pizza completely dry. You'd have all those toppings rolling around separately in your mouth. Without saliva, you might choke on it.

Yet there's more. Special chemicals in your saliva start to digest your food as you chew. Other chemicals kill some bacteria, fighting off infections in your mouth. And still others help clean your teeth as saliva rinses your mouth. Honest!





## What's the Point?

Try this: Bend a paper clip into a U-shape. Keep the two points about an inch (2.5 cm) apart. With your eyes closed, have someone touch your back with the points. Do you feel one or two points? Now touch your upper arm. Don't look. One or two points? Now touch your fingers. Aha, two!

Here's the point: Your fingers can feel what's poking you better than most other places on your body. That's because you have more "touch" nerves there. You also have more in your feet and near your mouth.

Why? Think about it. What parts of your body reach into the world first? Your hands and feet. If you're going to bump into something, your hands or feet will tell you. And think how much stuff you put into your body through your mouth. What would happen if your mouth were numb every day like you had just been to the dentist? Get the point? Your touch nerves are in all the right places!

## Rocks in Your Head

You have rocks in your head. That's true! They're called "calcium carbonate otoliths"—that means "limestone ear rocks." They're as tiny as grains of sand, so they're really "limestone ear grains."

They're tucked into your inner ears with your hearing equipment. But they don't help you hear. They help you tell up from down. These rocks are sealed into tiny sacs that are full of nerves. When you move, the rocks tumble over the nerves. The nerves send messages to the brain. These messages tell you which direction is up.

Nearby are tiny tubes, looped and filled with fluid instead of rocks. They work the same way to keep you balanced, so you don't fall over.

You can mix up this equipment. First, find a safe place to fall. Spin around quickly about 10 times, then try to walk a straight line. You'll find out why you should thank God for the rocks in your head!

## Eye Spy

Imagine that you're about to cross a busy street. Out of the corner of your eye you see a bright red van speeding toward you. What's the most important thing to know about that van? That it's bright red? When you see something from the corner of your eye, it's hard for you to tell color and shape. But it's easy to see movement.

That's exactly what you need. The color and the type of van are not important. The fact that it's moving toward you is VERY important. You'd better stay out of the way! Thank God that you see movement before you see color and shape.

You can test this. Take different colored pieces of paper. Cut them into different shapes. Have a friend move each paper at eye level from behind you, around the side of your face toward the front. Look straight ahead. Don't look sideways. Notice when you see its movement, its color, and its shape.



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# Drama in a Tomato Patch

Do plants talk? Yep! They talk to each other, they talk to animals, and they even talk to bugs. Even though plants don't use words like we do, they give messages loud and clear.

Sometimes you can see what a plant is saying. What is your withered tomato plant saying? "I'm thirsty." What is a prickly rose saying? "Don't pick me" or maybe "Don't eat me."

Sometimes you can *smell* a plant's message. That lovely scent coming

from an orange tree or a rose in bloom? That's their way of calling bugs to help pollinate them. How about the whiff you get from the leaves of a tomato plant—not so lovely. Those leaves are saying, "Don't eat me."

Sometimes you can see only the *effects* of plants "talking." Maybe you've noticed that milkweed grows in patches. You hardly ever see just one milkweed plant. That's because

milkweed spreads chemicals through its roots. The chemicals say, "This space is reserved for milkweed."

Bottom line: God created plants to "talk" to each other and to bugs. That's how the creation keeps on living and growing. See for yourself! Read this, then head outside, sit down in your yard or at the park, and watch plants talk. Got a tomato patch? Go there to watch a real drama.



## Call 911

Lots of people love the smell of newly mown grass. We think of it as a relaxing, got-my-chore-done type of smell.

Yet the grass making that odor is not relaxed. It's calling for help because something is damaging it. The grass "bleeds" a juice which quickly becomes a gas and floats away from the plant. It's calling for something to come and stop whatever is eating it.

Different grasses give different calls. And different bugs respond!



ILLUSTRATION BY SCOTT HOLLADAY

## Wild Purple Party

Have you seen any fields, meadows, or roadsides absolutely packed with small purple flowers? Those flowers are called knapweed, and they're blooming wildly right now.

They love to crowd their heads together to form a carpet of purple . . . purple only. They don't want yellow, blue, or white flowers at their party. They much prefer to stick with their own kind.

So, long before they have their purple party, the roots of knapweed send out chemical messages saying, "Don't grow here unless you're knapweed." Other plants can't grow near them. Only more knapweed can.

In certain fields and roadsides, the purple party expands every year. Nothing can stop it. Except, probably, a certain kind of bug.

These flowers came to North America from England. Their "companion" bugs did not. That's why we have so many knapweed flowers!



## The Real Drama

If your family has ever grown tomatoes, you probably know what a tomato hornworm looks like. It's a big, fat, green caterpillar with a "horn" on one end. This critter eats tomato leaves.

You don't want a hornworm on your tomato plant. Neither does a tomato plant. So when a tomato hornworm chews on a tomato plant, that plant calls for help.

When the hornworm chews a tomato leaf, the caterpillar's saliva mixes with leaf juice. The leaf juice and the saliva combine to form a gas. That gas drifts into the air, away from the plant.

Humans can't smell that gas, but a certain type of tiny wasp can. This wasp flies directly to the chewed-on plant, finds the caterpillar, and attacks it—stopping the caterpillar in its tracks and saving the tomato plant.

If there's only one hornworm, the plant sends a weak signal. Only nearby wasps may answer the call. If there are more hornworms, the plant sends stronger signals and more wasps come. The right amount of juice calls the right amount of wasps.

This system works perfectly for both plant and bug. Of course that's the way God made them!



## Bossy Bushes

Creosote bushes grow in dry desert areas. Their roots spread way out from the plant and right up near the surface of the soil. That way they can get any drop of precious rainfall before it evaporates.

In addition to water, creosote bushes need certain minerals that are found in desert soil. If two creosote bushes grow closely together, they can't get enough of the minerals they need. So the first creosote to grow in an area sends chemical messages through its roots: "This is my space. No more creosote allowed nearby." Even its own seeds can't take root and grow nearby.

If you live near or travel through deserts in North America, you can find creosote bushes growing—all very evenly spaced. They've obviously been talking to each other. They're spreading themselves out so that they all will survive.



## Say It with Flowers

Look closely at the wildflower we call Queen Anne's lace, or close your eyes and imagine one. That blossom is not just one flower, is it? It's lots of tiny white flowers bunched together.

Then look closely at a dandelion. It too is a bunch of flowers—yellow—all on one stem.

Would a bug ever notice just one tiny white Queen Anne's Lace or one tiny yellow dandelion floret? Probably not.

That's why God bunched most tiny flowers—including goldenrod, daisies, milkweed, and asters—together on a single stalk. Bugs will notice a bouquet sooner than they notice one tiny flower. After the bug comes to investigate, it usually visits all the tiny flowers.



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# Food for Thought

It's that time of year again: harvest and thanksgiving. Farmers are harvesting or have already harvested their crops. Gardeners have picked their produce. Let's all celebrate!

People have held food festivals as long as crops have been grown. They know that they'll have enough to eat

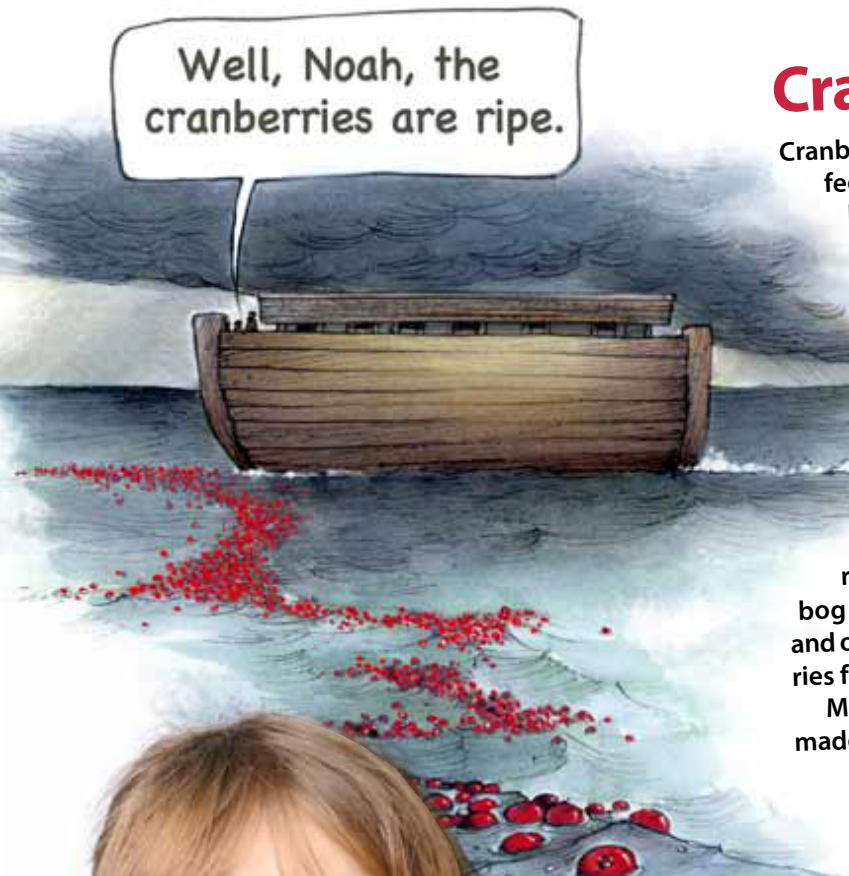
through the long winter, so they celebrate. Some people call it Harvest Festival. We call it Thanksgiving because we thank God for making the food grow.

Many of us sit down to a big feast with family and friends. We thank the cook and enjoy turkey, cranberry sauce, mashed potatoes, and pumpkin pie.

But we don't always think about the wonderful miracle of growth that God makes happen. So this year, let's take a closer look at some of the plants our food comes from and hold our own real thanksgiving.

ILLUSTRATION BY SCOTT HOLLADAY

Well, Noah, the cranberries are ripe.



## Cranberries Have Wet Feet

Cranberry bushes are low, scrubby plants that like to get their feet wet. Their roots need plenty of water, so they grow in bogs and swampy areas.

You'd think that finding and picking ripe cranberries would be a soggy, wet, dirty job. But that's not the case.

As a cranberry ripens, it develops an air pocket inside. So when it's ripe, it floats. If a ripe cranberry falls from the bush, you can see a red berry floating on top of the water.

That makes finding ripe cranberries fairly easy. Cranberry farmers make it easier yet: they flood cranberry bogs at harvest time.

Even without the flooding, red ripe cranberries floating in a bog can be spotted by people and other creatures. Wild cranberries feed wild animals.

Maybe that's why God made them red!



## The Kernel of Life

Next time you eat corn that's been cut off the cob, take a closer look at one kernel. Down at the bottom of the kernel, you'll see a light yellow part. Around it the kernel is darker yellow. That darker yellow is the foodstuff of the corn. That gives it most of the flavor and the nutrition.

That lighter yellow kernel part is the life of the corn. It's the part that sprouts into a corn plant. That's the mysterious stuff of life that we can't make.

Only God can make life. Only God can make food for life. Thank farmers for harvest. And thank God for life.



## Queen Anne's . . . Carrots?

You know what Queen Anne's Lace looks like, don't you? It blooms in late summer. After the plant dies, it simply dries. It still looks like lace.

Look around for that big lacy flower—you may be able to find some Queen Anne's Lace nearby. Keep your eyes open in fields or along roadsides. If you find one, pull it gently from the earth. Pull from the bottom of the plant. You need to pull the root out of the earth.

Once you have the root in your hand, smell it. What vegetable can you smell, maybe only slightly? Smell it again. Yes, it's a carrot! Queen Anne's Lace is the original source of the vegetable we call carrot today.

Over the years, scientists have developed carrot plants with a bigger, more tender root. But God gave us the first carrot: Queen Anne's Lace!



## Flavors, Spices, and More

What's your favorite milkshake flavor—strawberry, vanilla, or chocolate? Whatever it is, that flavor came from a plant. Strawberry flavor comes from strawberry plants, of course.

Chocolate flavor comes from the cacao tree. These trees grow in Central and South America. The seed pods of cacao trees taste like chocolate. The chocolate syrup you love comes from mashed or ground or processed tree seeds.

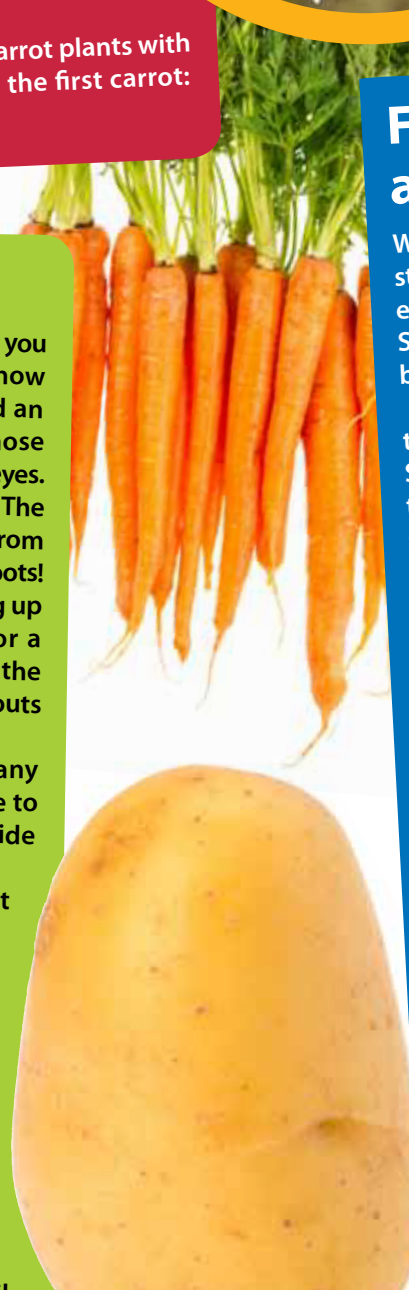
Vanilla comes from vanilla orchids. Your vanilla ice cream is flavored with processed vanilla seeds.

Cinnamon comes from the bark of a tree that grows naturally in Southeast Asia.

Pepper also comes from Southeast Asia. One black peppercorn is one seed of a woody vine that grows best in hot, humid places. Originally it was found in rainforests near the equator.

Medicines also came originally from plants. Next time you need to take an aspirin to bring down a fever or chase away a headache, give thanks for the bark of a certain willow tree that gave us our original aspirin.

This Thanksgiving Day, look at your table and thank God for all the things that help us live well.



## Plant a Potato

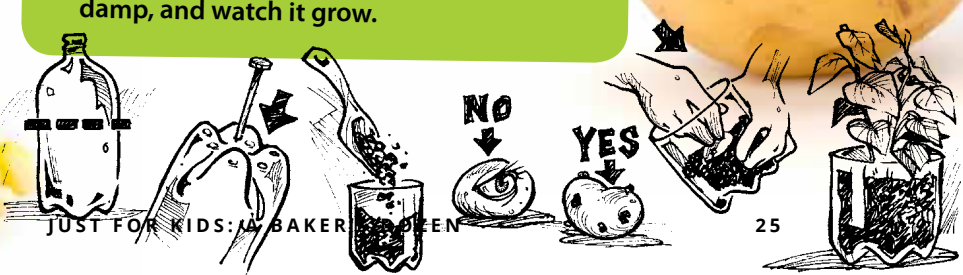
If you've ever had to peel potatoes for supper, you know what potato eyes are. If you don't know what eyes are, go to your kitchen and find an unpeeled potato. Look closely at it. See those little dents and hard spots? Those are potato eyes.

The eyes are where the sprouts come out. The sprouts look like little white roots growing from the potatoes. That's exactly what they are . . . roots!

Gardeners plant a potato patch by cutting up potatoes with eyes. They leave an eye (or a sprouted eye) in each part. Then they plant the parts into loose soil. Each potato section sprouts into a new potato plant.

You can grow your own potatoes. In many parts of North America, it's too cold outside to do that now. But you can plant a potato inside and watch it grow. Here's how.

1. Find a tall clear 2-liter plastic bottle. Clean it well.
2. Cut off the upper third of the bottle. You should have a tall, straight clear bottle.
3. Using a nail, poke a few small holes into the bottom of the bottle.
4. Fill the bottle about  $\frac{3}{4}$  full with loose soil.
5. Find a small potato with eyes in it. If you can find a small potato with sprouts, that's better yet. This is your seed potato.
6. Push the seed potato gently into the soil inside the bottle.
7. Cover it with a little more soil, keep the soil damp, and watch it grow.



Joanne De Jonge is a freelance writer and a former U.S. National Park ranger. She attends West Valley Christian Fellowship in Phoenix, Ariz.

# God's Green Earth Day

**Somebody goofed—this title has too many words, right? Wrong! Every word's here for a purpose. Read on.**

Earth Day is coming up April 22. We can't talk about the whole earth in these two pages. So let's just take a look at green plants.

All our food comes from green plants in some way, as you'll see later. So does the oxygen in the air we breathe. We can't live with-

out green plants. That's why I used the word "Green" in the title.

The Bible tells us that God made the earth and everything in it. Look closely at a tiny blade of grass and you'll see the hand of a great Creator. This definitely is God's world.

So that's why I called the title "God's Green Earth Day."

If you can, go outside to read the rest of these pages. Take a pencil and your Bible with you. You'll understand why pretty soon.

Look at the flower. See all those "petals"? They're really not petals--each one is a tiny flower, or a "floret." There are 100-300 florets in each dandelion flower. Why did God make dandelions this way? Because dandelions need bugs to spread pollen and help make seeds. Bugs don't notice one floret, but they can't miss more than 100 florets packed together.

If you see a fluffy white dandelion seed head, look at it closely. Those tiny "parachutes" help the seeds float far from the parent plant. Each dandelion wants its own growing space.

Run your finger over a dandelion seed, if you can. You'll feel tiny backward pointing hooks. Those hooks help keep the seed in the soil when it's planted.

Look at a leaf. See the big rib down the middle? This rib helps water roll down to the plant roots. And see the prickly edges? Some animals don't like to eat prickly leaves, so prickly dandelion leaves protect the plant.

Try to pull the dandelion plant out of the ground. That's tough to do, isn't it?

That's because the dandelion has a long taproot that keeps the plant firmly anchored. If you break the plant off from the taproot, another dandelion can grow in its place. It doesn't want to be moved! It wants to grow right where it was planted.

Of course the plant doesn't really "want" anything. It's alive, but it can't think. Obviously, Someone is thinking for it—and that Someone made the dandelion just right.

## Dandy-lion

Find a dandelion and sit down next to it. (If you can't find one, just imagine one, or look at a picture of a dandelion in a book.) Either way, you'll see that this plant's a real "dandy-lion."



SCOTT HOLLADAY

# Treemendous

If you can, sit under a tree to read this. Be careful! You're sitting beneath another living being.

You know what? This tree does exactly what you do to stay alive:

- It **breathes**. Its leaves or needles absorb carbon dioxide and release oxygen.
- It **eats**. It uses sunlight and carbon dioxide to make its own food. Its roots hunt for and absorb the minerals it needs.
- It **drinks**. The tree's roots absorb tons of water to carry food throughout its body.

But the tree does more than those things. Read on:

- It **grows**, just like most living things.
- It **reproduces** (makes more trees like itself). That why it makes seeds. Most tree seeds grow inside cones, fruits, or nuts on the tree.

Look at those words in color above. All green plants do the things that this tree can do. If this tree died, could you fix it and make it do those things again? Of course not. Only God can give things that spark of life.

## Food for Thought

Try to think of one food that doesn't somehow come from a green plant.

Hamburger? That's usually beef. Beef cattle eat green plants. (If you eat soyburgers, those come from soybean plants.)

Hamburger buns? They're made of flour, which comes from wheat.

Tuna? Fish eat tiny water plants or other creatures who have eaten plants.

Mushrooms? Nope. They use dead plants for food.

Candy? Sugar comes from beets or from the sugar cane plant.

Keep thinking; maybe you'll come up with something. But as far as we know, all our food comes from green plants. There's been only one exception. Read Exodus 16:13-17, 31 for that story.

## fun facts

Scientists think that the **world's oldest living thing** is a bristlecone pine tree named Methuselah. It's about 4,600 years old. That means it was alive when Moses was born! It's somewhere in the White Mountains of California (scientists don't want to say where exactly it is because they want to protect it).

Poison ivy is for the birds. More than 50 different bird species **eat poison ivy berries** without getting sick.

Bamboo is a type of **grass**.

Banana plants are, technically, **very large herbs**.

Aspirin originally came from willow trees. It's manufactured by drug companies now, but the formula came from a **chemical found in willow tree bark**.

God created green plants on the \_\_\_\_\_ day (check Genesis 1:11-13).



**Joanne De Jonge** is a freelance writer who has written many kids' pages for *The Banner* in the past. We are happy to welcome her back! She attends West Valley Christian Fellowship in Phoenix.

## Mysterious Miner

Have you ever found a leaf with a strange whitish trail winding through it? What a story that tells!

That trail was made by a tiny fly, wasp, or moth called a "leaf miner." The leaf miner spends part of its life between the top and bottom of a leaf. There are hundreds of different kinds of leaf miners, and each kind needs a different leaf.

Certain wasps are "parasites" of leaf miners. The wasp has to find a leaf miner at one specific time of the leaf miner's life. It can't be too late or too early.

These two creatures meet each other at the right time and place between the top and bottom of a leaf!

Sometimes we see God's hand at work most clearly in small details.

