



THE SCIENCE OF
Food



THE MYSTERIOUS MARCHING VEGETABLES

By Barbara Tharp, Judith Dresden, James Denk and Nancy Moreno
Illustrated by T Lewis

BCM
Baylor College of Medicine



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BRIGHTWATER CORNERS





Cookies Anyone?

Riff put the box of cookies down and frowned as he munched and stared off into space. “Rosie, will you please read that weird message from Mr. Slaptail again?”

“I’m not sure where it is,” Rosie replied. “You buried it under all your luggage and junk.”

“I kind of lost track of it when I looked for those cookies Grandma made for us and Mr. Slaptail. I think the note’s under that nature guide to arthropods, next to my hand magnifier.”



Rosie sighed at her favorite cousin. She loved Riff, but whenever he came to visit, he brought too much gear. She shoved some of it aside and found the folded note. Rosie read aloud:

“It happened again last night! They’re vanishing! I need your help! Come for lunch today at 11:30 sharp! And bring some of your Grandma’s cookies!”

Rosie bit into a cookie and said, “What could he be talking about?”

“What’s vanishing? And how did he know Grandma sent him cookies?”

Riff looked into the cookie box and then at his cousin. “Speaking of vanishing, look!” he said.

“The cookies from Grandma are all gone.”

“Gone?” said Rosie, surprised. “That’s such a big box, and I only had”

“Only . . .” Riff interrupted, “only about a zillion!”

“Well, then you must have had *two* zillion, because I know I didn’t eat half a box of cookies,” answered Rosie.

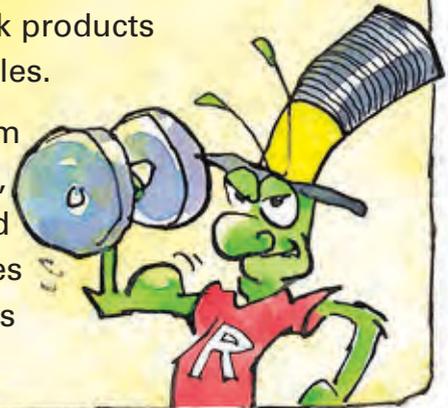
“I am feeling kind of sick,” groaned Riff, as he rubbed his stomach. “I guess a cookie breakfast was a bad idea.

Good food choices keep your mind and body working properly.

Vitamins and minerals in fruits and vegetables help keep you healthy.

Protein in dried beans, meats, chicken, fish and milk products builds muscles.

Calcium from milk, cheese, sardines and yogurt makes strong bones and teeth.



I've been trying to figure out Mr. Slaptail's mystery and cookies aren't very good food for thinking."

"Yeah," Rosie agreed. "I can think better when I have cereal and milk, especially with strawberries on top. YUM!"

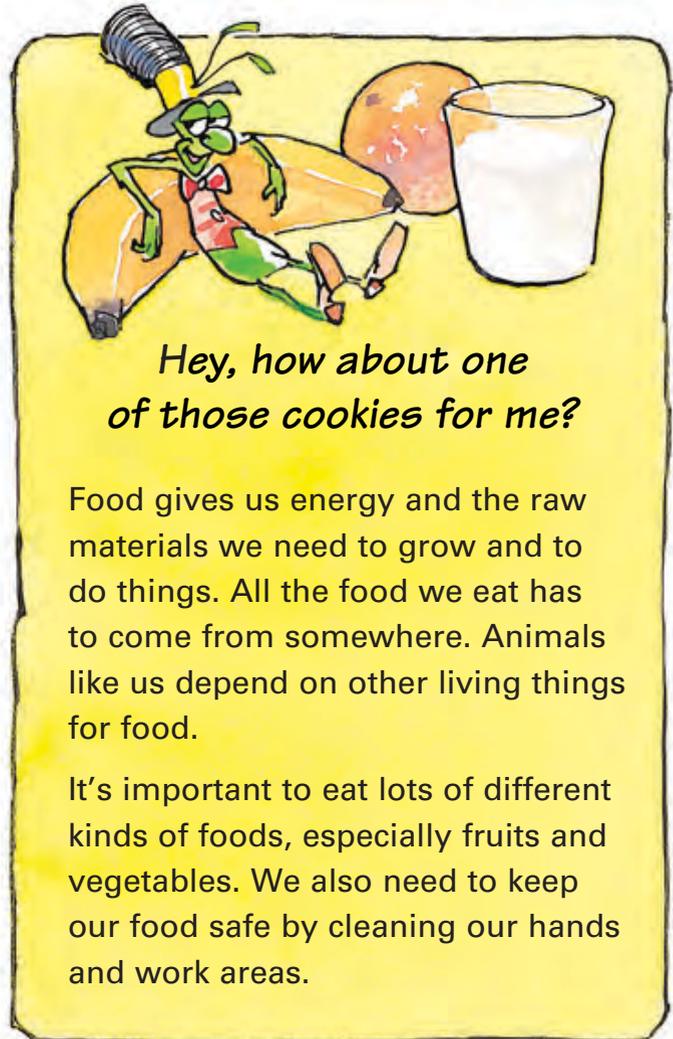
"Think about this. Grandma wanted us to enter a dozen cookies in the bake-off at the Bright Water Corners picnic," Rosie continued.

"I've seen Grandma make those cookies." Riff exclaimed in an inspired voice.

"You must be thinking again," said Rosie with a grin. "I've seen Grandma make them, too. I'll bet we can make more ourselves."

"How hard can it be?" asked Riff. "I know how to pop popcorn and I make great hot chocolate. Besides, we have to do it. Mr. Slaptail's expecting a batch of Grandma's delicious *Choco-Crunch Cookies*. He's our best friend and we didn't save any for him. Let's hurry. We have to be at Mr. Slaptail's house by 11:30."

Rosie giggled as Riff jumped to his feet. "Calm down, Cookie Boy," she said. "It's a good thing these are no-bake cookies. We don't even need to get permission to use the oven or stove-top. Come on. Let's get busy."



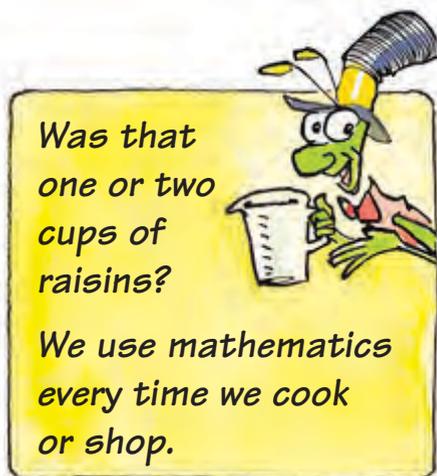


Mixing It Up

“I found Grandma’s recipe,” said Rosie. “It looks easy,” she said, while showing the recipe to Riff. “See? It gives complete directions. We just have to read and follow each step exactly!”

Riff was puzzled. “Look at this, Rosie. It says to add one cup of raisins. That can’t be right. I love Grandma’s cookies, but I never eat raisins!”

“Well, it also has peanut butter, sunflower seeds, chocolate chips and rice crunchies,” said Rosie. “It’s Grandma’s recipe, and it *does* call for some raisins!”



“Well,” mumbled Riff as he filled the measuring cup. “I guess I like eating raisins after all.”

Rosie measured the other ingredients, put them into a bowl, and then carefully stirred the mixture with a big spoon.

Riff, still looking doubtful, poured in the raisins.

Now it was Riff’s turn to stir.

“I just can’t get my mind off Mr. Slaptail’s mystery,” he thought out loud.

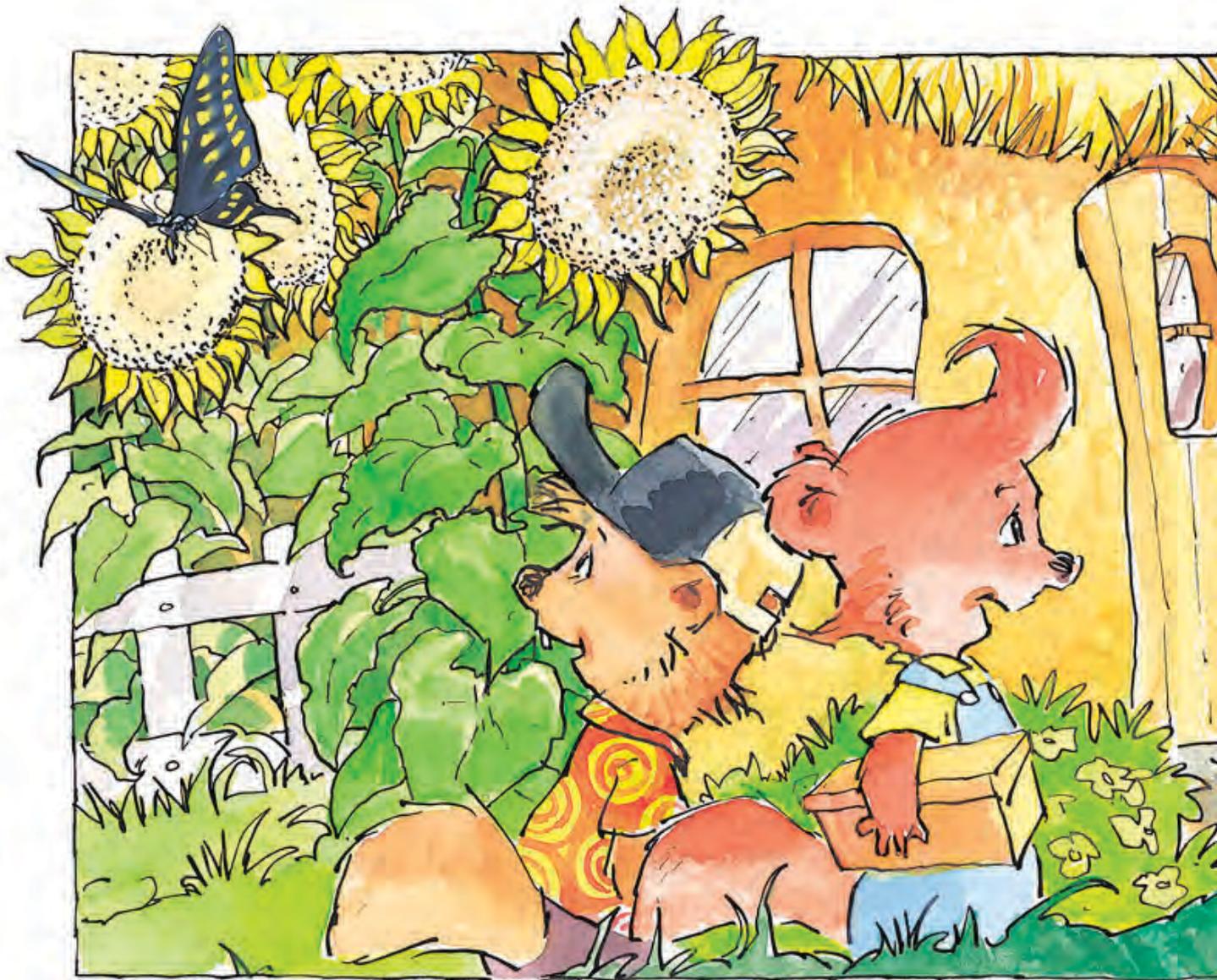
Rosie wasn’t listening, for at that moment, she was trying to sneak a sample of their cookie dough. “Hey, no fair!” scolded Riff. “Stay out of the bowl.”

Riff glanced at his watch. “11:10. We only have 20 minutes to get to Mr. Slaptail’s. Now, the recipe says to roll the cookies into one-inch balls,” he said as he pulled a ruler from his pocket.

“We don’t have time to measure each little cookie with that ruler, Riff,” Rosie said. “Let’s estimate instead. Just roll the balls about the same size as a walnut.”

Riff and Rosie rolled and measured and rolled and measured.





Being Neighborly

The cookies were done and the big box was full once again, with a few seconds to spare. Best of all, Mr. Slaptail wouldn't be disappointed. Riff and Rosie ran out the door to visit their friend.

As they reached his house, Riff stopped and stared in disbelief. "Wow! This looks like a jungle!"

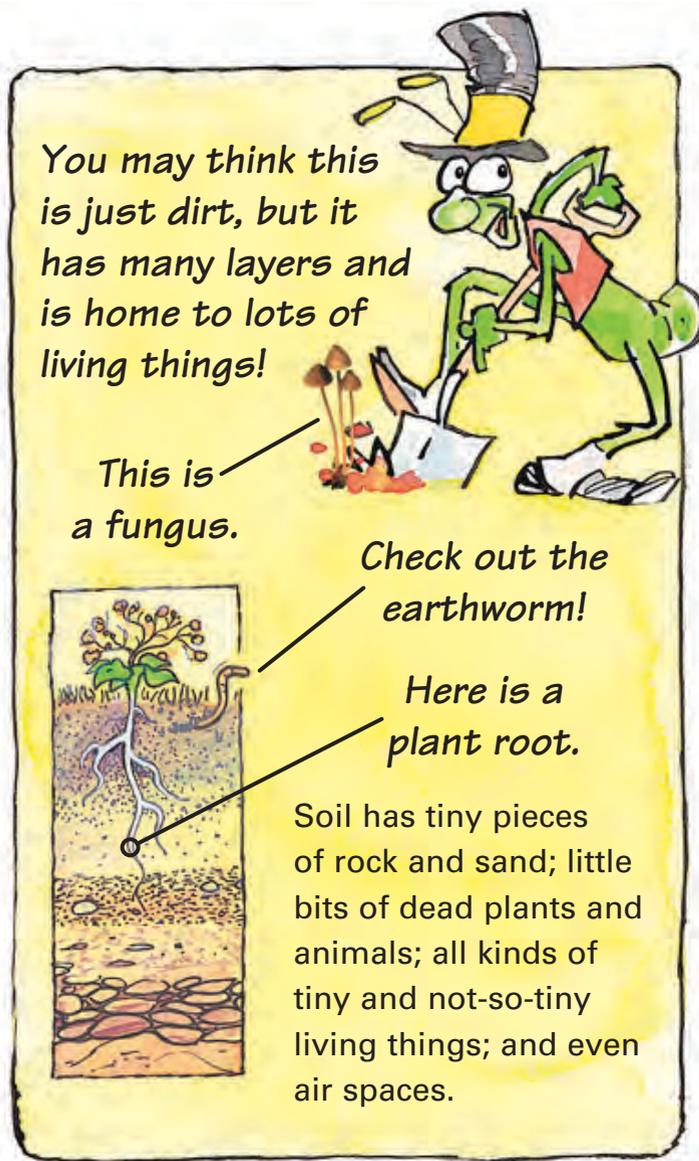
"It's Mr. Slaptail's garden," said Rosie. "Ever since he took up



gardening, he’s been planting things everywhere. He grows the biggest and best vegetables and fruits in Bright Water Corners!”

There were thick green vines with purple and yellow flowers hanging along the fence. Bright yellow sunflowers blossomed higher than the gate. Bees and butterflies hummed and fluttered everywhere. The spicy scent of flowers and ripening vegetables filled the warm air.

Mr. Slaptail appeared from behind a huge bush that was covered with red peppers. “I smell something . . . different,” he mumbled to himself.



“It’s a strange smell. Doesn’t belong here. Hmm, chocolate?”

“Surprise!” cried Riff and Rosie excitedly, as they jumped from behind the sunflowers.

“Could it be my two favorite friends?” The old beaver hugged Riff and Rosie, then pulled out his pocket watch. “I was afraid you might miss our appointment. I’ve been looking forward to seeing both of you, and to having some of your Grandma’s famous cookies.”

“Well, we’ve been kind of busy,” said Rosie, “making . . .”

Riff quickly interrupted, “Hey, this is great! What a garden! Those are the biggest vegetables and flowers I’ve ever seen. What’s your secret?”

“No secret. Just good gardening,” said Mr. Slaptail,

proudly. “All it takes is rich soil, sunshine, water and natural fertilizers. Of course, it takes lots of care. That’s why I’m so upset about these mysterious disappearances.”

Vegetable Wonders

Rosie couldn’t contain herself. “Mr. Slaptail, what’s vanishing?”

“Let’s talk about it over lunch,” answered Mr. Slaptail. “I always think better after a good meal.”



“Hey, me too!” Riff said.

Rosie sighed.

Riff continued, “I don’t see anything here that looks much like lunch. What’s in the fridge?”

“Not in the refrigerator.” said Mr. Slaptail. “Lunch awaits us in the garden! Let’s collect something fresh and make vegetable sandwiches.”

“Vegetable sandwiches?” mumbled Riff, shaking his head. “First, raisins in my cookies and now, vegetables in my sandwich?”

“Let’s start with these fine yellow squash,” said Mr. Slaptail, pulling a shiny little squash from the vine. “They’re crunchy and delicious. I like them sliced thinly and sprinkled with a little salt and pepper.”

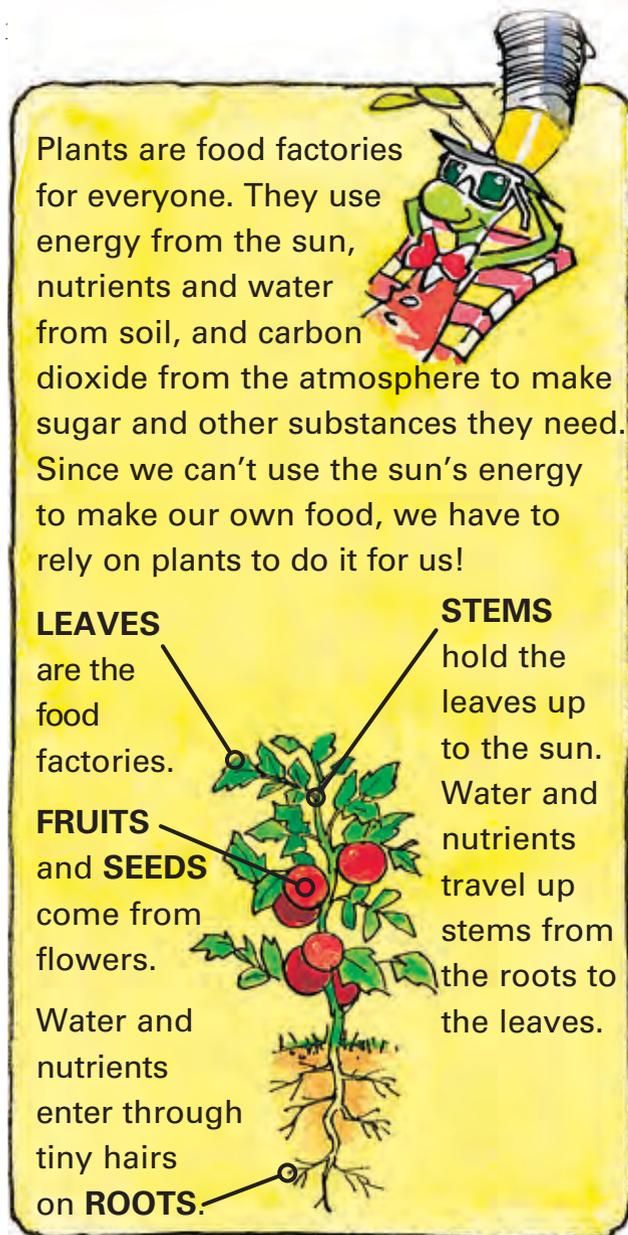
Riff looked doubtful. “How about tomatoes?” he asked. “I like tomatoes on sandwiches.”

Rosie was growing impatient. “Mr. Slaptail, can’t we talk about the mystery?”

“Of course, Rosie. As soon as we finish here. Oh, and Riff, go ahead and pick some tomatoes,” said Mr. Slaptail.

“But Mr. Slaptail . . . !” Rosie thought she might explode from curiosity about his mystery.

Mr. Slaptail just said, “Rosie, would you help Riff gather those juicy-looking tomatoes? Hmm. What about lettuce? Would you care



Plants are food factories for everyone. They use energy from the sun, nutrients and water from soil, and carbon dioxide from the atmosphere to make sugar and other substances they need. Since we can't use the sun's energy to make our own food, we have to rely on plants to do it for us!

LEAVES are the food factories.

FRUITS and **SEEDS** come from flowers.

Water and nutrients enter through tiny hairs on **ROOTS**.

STEMS hold the leaves up to the sun. Water and nutrients travel up stems from the roots to the leaves.

“It doesn't really matter to me,” said Rosie. “They all look like leaves. Now Mr. Slaptail, please tell us about your mystery.”

“You're right, Rosie! All varieties of lettuce are leaves. In fact, we eat many kinds of leaves,” said Mr. Slaptail, “including spinach, mustard greens, turnip greens and cabbage. Sometimes, we even eat flowers, like broccoli and artichokes.”

The trio finished gathering fruits and vegetables, and carried them into Mr. Slaptail's kitchen.

“Now give everything a good rinsing,” said Mr. Slaptail. “You must always rinse fresh fruit and vegetables before eating them.”

Rosie muttered, “I wish we could get to the mystery!”

A Crunchy Lunch

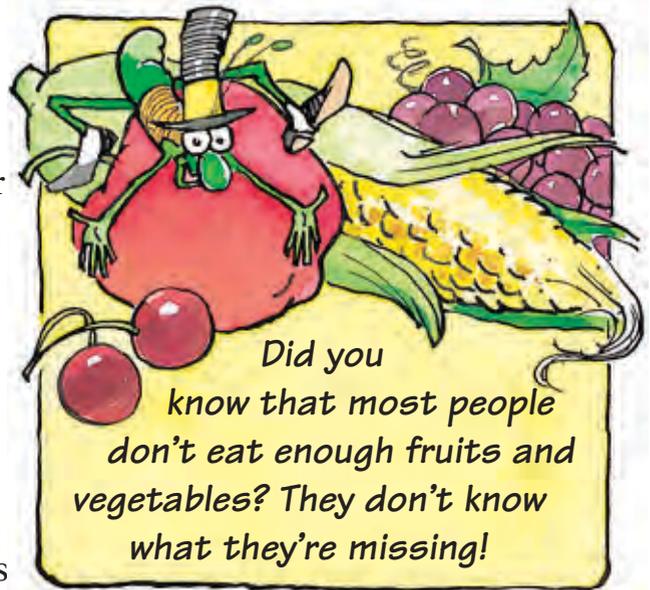
After they finished washing their food, the three friends made their sandwiches and sat down outside at Mr. Slaptail's picnic table.

"This is fun!" Riff said. "We made our own lunch, right from your garden."

"Yeah! This lettuce, apple and peanut butter sandwich is great. It's nice and crunchy!" said Rosie. "Now, about the mystery"

"You know you're eating leaves and fruit, Rosie," said Mr. Slaptail, "but did you know you're also eating seeds from a legume?"

"Legume? Sounds like a disease," said Rosie, wrinkling her nose at her sandwich. "Can we talk about it now, Mr. Slaptail?"





All animals depend on plants, or other animals, for food. We eat many different parts of plants. How many of these have you tried?

Spinach and **lettuce** are leaves. So are **kale**, **greens** and **cabbage**. **Onions** and **garlic** are made of leaf parts, too.

Carrots, **parsnips**, **radishes**, **beets** and **turnips** are roots.

Potatoes grow underground, but they're not really roots. They're a special kind of stem for storing food.

Asparagus is a stem. So is **sugar cane**.

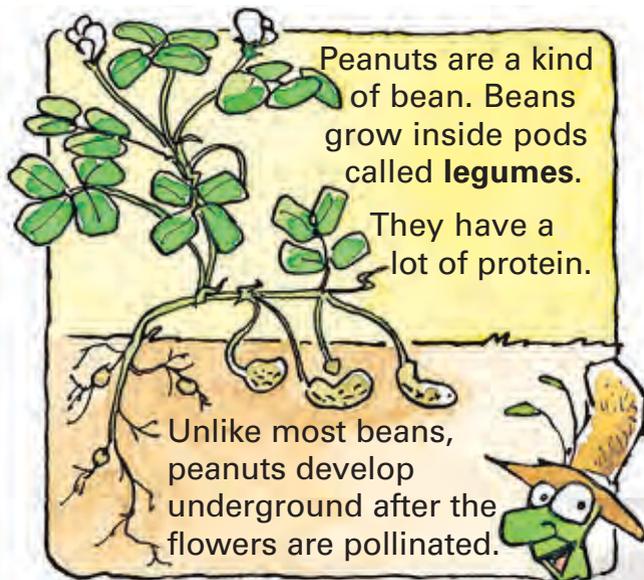
Broccoli, **cauliflower** and **artichokes** are flowers.

Apples, **oranges**, **peaches**, **bananas**, **grapes**, **berries** and **melons** are fruits. Fruits have seeds inside.

Did you know that cucumbers, squash, tomatoes, okra, olives, avocados, peppers and eggplant are really fruits?

Mr. Slaptail smiled. "Peanuts belong to the legume, or bean, family. They're full of protein. I grew these myself. That's where your peanut butter comes from!"

Rosie sighed happily. "Mighty tasty legumes."



Peanuts are a kind of bean. Beans grow inside pods called **legumes**.

They have a lot of protein.

Unlike most beans, peanuts develop underground after the flowers are pollinated.

"I'll bet my cheese with squash and tomato on wheat bread is better," boasted Riff.

"They are both great inventions, but I'll stay with my spinach and corn relish on rye," said Mr. Slaptail.

"Spinach is my favorite. In fact, I was going to enter my *Spinach Delight* in the vegetable contest at the Bright Water Corners picnic tomorrow.

The only problem is . . . "

Mr. Slaptail's bright mood darkened.

He frowned, leaned forward and whispered, “. . . *my fresh spinach is vanishing!*”

“At last, the mystery!” Rosie shouted.

“I figured he’d get around to it,” said Riff, finishing off his sandwich.

“Every day, a few more big tender leaves are gone,” said Mr. Slaptail.

“That’s terrible! I’ve never had spinach,” said Rosie. “If we don’t stop the bandit, I may never get the chance.”

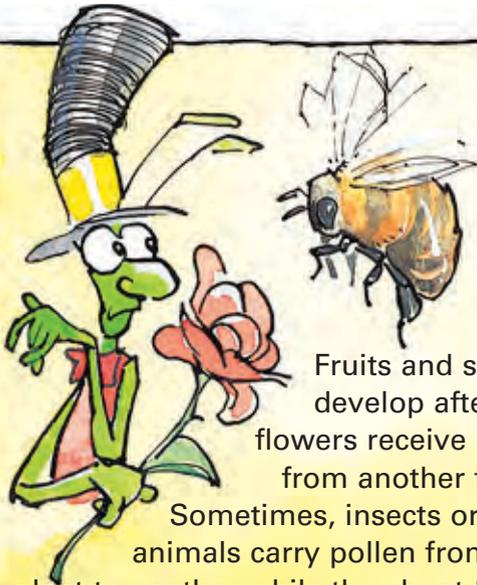
“Maybe it’s the Rabbit family,” Riff suggested. “Rabbits love spinach!”

“That’s not likely. They know I’ll share if they ask.” Mr. Slaptail answered.

“Have you seen anyone sneaking around your garden?” asked Rosie.

“Of course he hasn’t,” Riff reasoned, “or he would know who it was! Maybe it’s a burglar who gets hungry when he’s out at night.”





Fruits and seeds develop after flowers receive pollen from another flower.

Sometimes, insects or other animals carry pollen from one plant to another while they hunt for food. Wind and water also carry pollen.

All animals have to get their food from somewhere.



Some animals eat parts of plants. Plant-eaters, called **herbivores**, usually need to eat a lot to get the energy they need.

Some animals eat only other animals. These animals are called **carnivores**.



Some animals eat plants and other animals. They might even eat other living things like fungi and protozoans. Everything-eaters are called **omnivores**.

Fungi, worms and other **decomposers** eat parts of plants and animals that have died.



“But there weren’t any footprints on the ground in the morning,” Mr. Slaptail said, scratching his head.

“Maybe it’s a bat. It flies at night and could steal the spinach without touching the ground,” Rosie suggested.

“I’m afraid I’ve never heard of a spinach-eating bat,” said Mr. Slaptail.

Riff and Rosie looked at each other and both said, “Then who can it be?”

“I wish I knew,” Mr. Slaptail replied.

“Well, whoever it is, we’ll help you find the spinach bandit, Mr. Slaptail.” Rosie offered.

Riff nodded in agreement. “You bet we will!”

At this, their friend grinned. “Great!” said Mr. Slaptail. “To celebrate, how about some . . .”

“Cookies!” exclaimed Riff and Rosie together.

Riff served the cookies. He was relieved that they looked and tasted just like Grandma’s! Maybe he would tell Mr. Slaptail about the first batch of cookies some other day.



As they sat around the picnic table, Rosie exclaimed, “Look at all the ants!”

“It looks like a bug convention,” said Riff. “They’re everywhere! We need to get rid of them!”

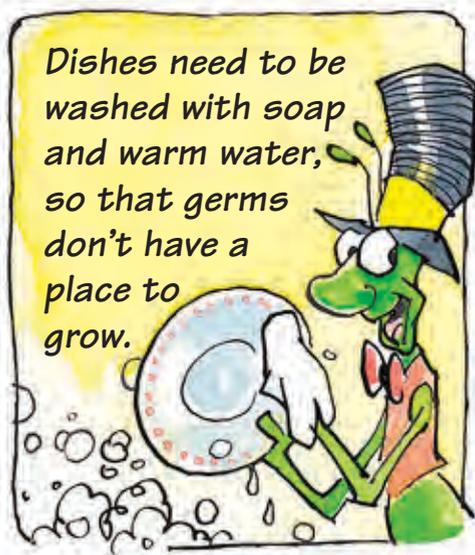
“Not really,” Mr. Slaptail explained. “Many insects, like butterflies, bees, and even ants, are important. They need plants for food, but we need them to pollinate plants. Without insects, many plants would not produce the foods we need. Even these little ants help out in my garden.

They break up dead leaves and other things into little pieces that then become part of the soil.”

“Huh! Who ever thought bugs could be a gardener’s friends?” said Riff, surprised.

Picking a Plan

Riff and Rosie went home after lunch. They still had to clean up from making the cookies before they could work on a plan to trap the spinach bandit.





Riff filled the sink with warm soapy water. “C’mon, Rosie, you’re fooling around again. You have to dry the dishes.”

“I’m going to let them air-dry. Evaporation will do the work for me. All the liquid will turn into water vapor and POOF, it’s gone,” Rosie said. “Hey, while we’re waiting for the dishes to dry, why don’t we plan a trap for the spinach bandit?”

“Let’s try brainstorming! It’s always a great way to solve problems,” said Riff. “My teacher, Mrs. Warthog, always has us brainstorm when we need a solution. Like she says, ‘Nothing is ridiculous when you brainstorm.’ Sometimes, we

come up with pretty silly ideas, but we usually find an answer.”

“OK. Then let’s brainstorm ways to catch the bandit for Mr. Slaptail,” said Rosie.

“We could build little wire traps around the spinach,” suggested Rosie.

“We could hang a bucket of water and a rope over the garden gate,” said Riff. “And connect the rope to the gate latch. When the bandit opens the gate to get in, POW! The water will dump all over him . . . ”

“Or her,” interrupted Rosie.

“Or her,” continued Riff.

“Or we could sprinkle flour around the spinach and look for footprints in the morning!” suggested Rosie.

“Or use my night vision binoculars to watch the spinach from the apple tree,” said Riff.

“Or we could disguise ourselves and hide in the garden!” said Rosie.

“Hey, that sounds like fun! We have a lot of brainstorming ideas,” said Riff. “Let’s find Mr. Slaptail so he can help us pick a plan.”

Riff and Rosie put the dry dishes away and hurried back to Mr. Slaptail’s house. When they arrived, Mr. Slaptail was putting some of his vegetables into containers, so he could store them in the refrigerator. Riff and Rosie excitedly began to tell him about their ideas.

“You two are full of great plans,” said Mr. Slaptail, “and it’s time to get serious. One of your ideas is my favorite. Can you guess which one?”

“*Disguises?*” asked Riff.

“You mean dressing ourselves as vegetables and hiding in the garden?” added Rosie.

“That’s right. It sounds like a great plan to me,” answered Mr. Slaptail. “It’ll be fun, too.”





Night Watch

The three friends took turns covering each other in leaves and vines. By the time it was dark, they were hidden and ready for the bandit!

“These leaves are tickling my neck,” whispered Rosie.

“Only tickling?” asked Riff, loudly. “I feel wrapped like a mummy in these vines! *And* they itch!”

“Shhhh,” Mr. Slaptail whispered softly. “The burglar might hear us!” The cousins stopped talking and sat very quietly in the dark shadowy garden.

The night was filled with spooky noises. Tree frogs chirped and bullfrogs croaked. Cicadas buzzed in the trees, and owls “hoot, hoot, hooted” in the night. There were other strange sounds, too.

“What was that?” Riff whispered, afraid to move.



“A bat?” Rosie squeaked. “Did something fly over our heads?”

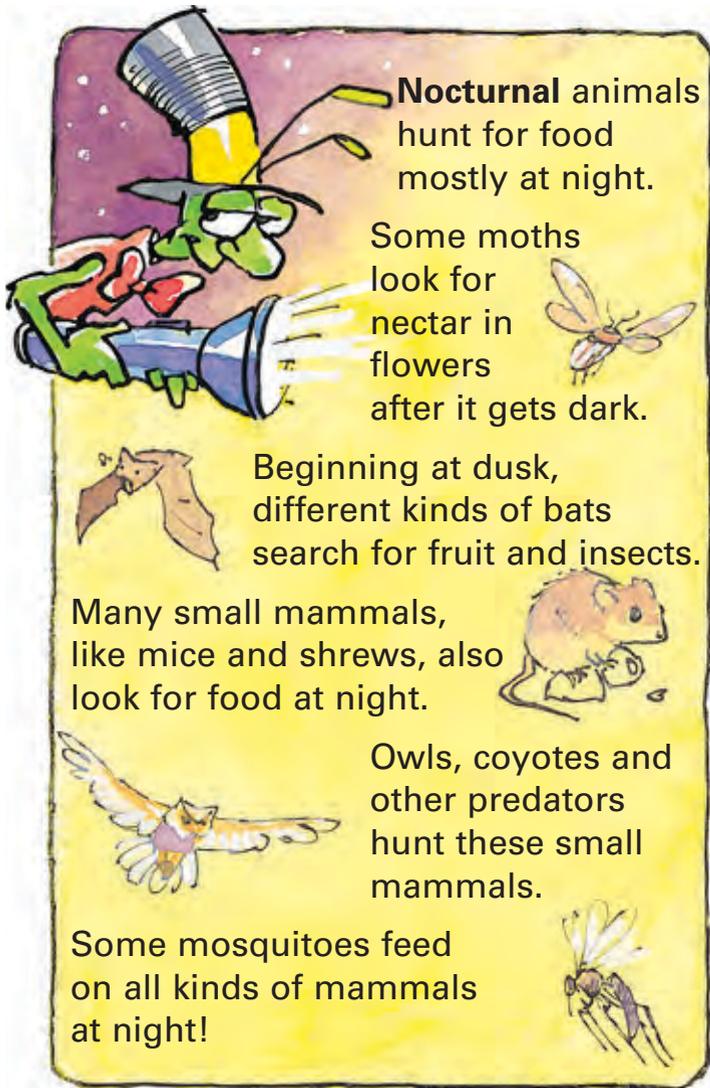
Not daring to shift anything but their eyes, Riff and Rosie looked anxiously for bats and burglars. At the same time, they both noticed that something definitely *was* moving on the ground close by. They held their breath.

Then Rosie sighed in relief. “It’s only the wind moving those little pepper plants,” she whispered. “This isn’t so much fun after all.”

Just then, there was a sudden noise!

“Did you hear that?” Riff asked.





“Yes,” Rosie barely whispered in a shaky voice.

“There it is again!” gasped Riff. The ground seemed to shake as the sound grew into a loud roar.

Slowly, Rosie peeked out from her hiding place.

“Riff!” Rosie whispered. “Look!”

Riff looked where Rosie pointed. It was Mr. Slaptail, sprawled in his chair by the edge of the garden. He was fast asleep and snoring like a hibernating bear!

With a sigh of relief, Riff said, “No burglar is going to come here tonight. That snore would scare a grizzly away! We might as well go home.”

“And leave Mr. Slaptail here all alone?” asked Rosie. “Come

on, Riff. Let’s just wait for morning.”

Riff was too tired to disagree. He curled up in his leafy nest. “I guess you’re right!” he yawned. “Wake me at sunrise!”

Rosie settled into a cozy spot to wait. Mr. Slaptail stirred in his sleep and stopped snoring. In the dark silence, it wasn’t long before Rosie’s droopy eyes closed and she fell asleep, too.

As the light of dawn crept across the sky, Rosie’s eyes popped open. She could barely move. Her arms were numb and tingly from sleeping on the ground.



In the dim light, she thought she saw something moving. Rosie rubbed her eyes and stared at an amazing sight. “What’s happening?” she asked herself. “It’s not just the peppers moving this time!”

Rosie’s voice woke Riff. She pointed toward the edge of the garden and said, “Look! That spinach leaf is walking away!”

“You’re right,” Riff whispered in amazement. “And there goes another leaf, and another. And another!”

“Are we both dreaming?” Riff asked, pinching himself.

What To Do?

Rosie’s answer was cut off, for at that moment, a large dark shape suddenly rose from the other side of the wall. Its huge leafy arms swayed, and it made wheezing, choking sounds.

Rosie yelled, “Look out, Riff! It’s a vegetable monster!”

“We *must* be dreaming!” Riff shouted.

“That’s a . . . a giant cabbage!” Rosie whispered in amazement.

“Oh no! LOOK OUT!”

The mass of cabbage leaves staggered into the low wall, fell over it, and flopped on top of Riff.

“Oomph!” it snorted.

“Hey!” cried Riff. “Now I know we’re not dreaming! Rosie! Wake Mr. Slaptail!”



Both cousins started yelling at the top of their lungs, “Mr. Slaptail! Mr. Slaptail! It’s a cabbage monster! *HELP!*”

Mr. Slaptail sprang up with a bound, scattering leaves all about. “What? What?” he muttered, still groggy.

“Riff’s being attacked by a giant cabbage!” Rosie cried, thumping at it with a huge parsnip.

Without hesitation, Mr. Slaptail lunged at the wiggling lump of damp leaves. There was a struggle! Leaves flew everywhere. Then, from beneath the cabbage leaves came a voice.

“Get off of me, you crazy beaver, or I’ll bean you with one of your own bean poles!”

Riff and Rosie looked at each other, confused. “*Mr. Otterbee!*” they both shouted.

The otter and beaver sat stunned for a moment, staring at each other.

“*I knew it!*” exclaimed Mr. Slaptail.

“*HOO-HAA!* Caught you red-handed, Slaptail!” shouted Oscar Otterbee, Mr. Slaptail’s oldest friend. “*You’ve been stealing my vegetables!*”



“What? *Me?* Stealing *your* vegetables?” huffed Mr. Slaptail.

“Exactly!” said the otter. “You’ve snagged ’em with a *Veggie Magnet* or hypnotized ’em with one of your dad-burned inventions! I dressed up like this and followed ’em over here right to *you*.”

Mr. Slaptail was getting confused. “Followed them? What or who are you talking about?”



“*Here’s* what he’s talking about, Mr. Slaptail.” Rosie said.

And, as if nothing had occurred, four spinach leaves appeared to walk calmly between the astonished foursome.

“Well I’ll be,” whispered Mr. Slaptail. “Look at those marching leaves.”

“Y’see! Y’see!” hollered Mr. Otterbee. “Explain that, Slaptail!”

“Mr. Slaptail! Mr. Otterbee!” cried Riff and Rosie.

Riff held his pocket magnifier close to the base of one of the mysterious leaves. “It’s ants! Ants are taking the leaves away.”

“*Ants?*” howled Otterbee “Well, I’ll be . . . and all along I thought it was you, Slaptail.”

“You might have asked me about it sooner,” sniffed Mr. Slaptail. “I’ve been having the same problem as you. We could have worked together.”

“Look!” interrupted Riff. Everyone looked downward. The ants were marching single file, like tiny soldiers, out of the garden. They were carrying spinach leaves many times their size. Riff, Rosie, Mr. Otterbee and Mr. Slaptail followed silently. The insects already in the garden joined up with Mr. Otterbee’s ants. They formed a line that led down the hill to a huge ant colony. As each ant arrived with its heavy load, helper ants were waiting. Together, the ants pushed and pulled and tugged on each leaf until it disappeared into the mound.

“Well, even if it wasn’t you Slaptail,” muttered Mr. Otterbee. “The ants are on your land! They’re your ants, and they’re taking my plants!”

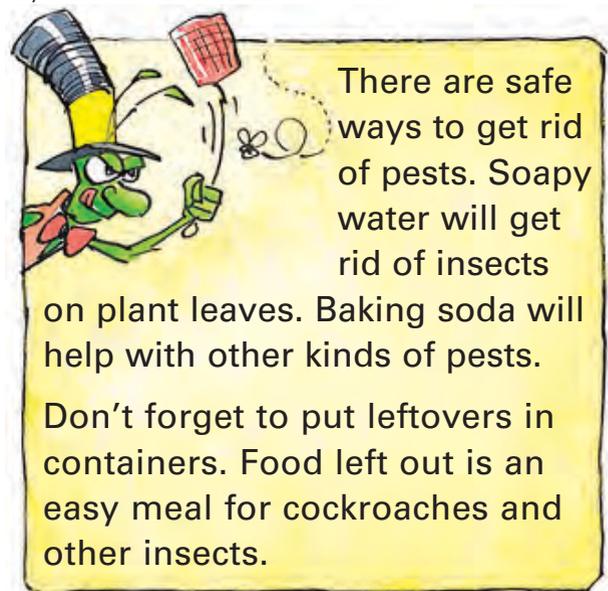
“Let’s dig up the mound!” said Riff, eagerly.

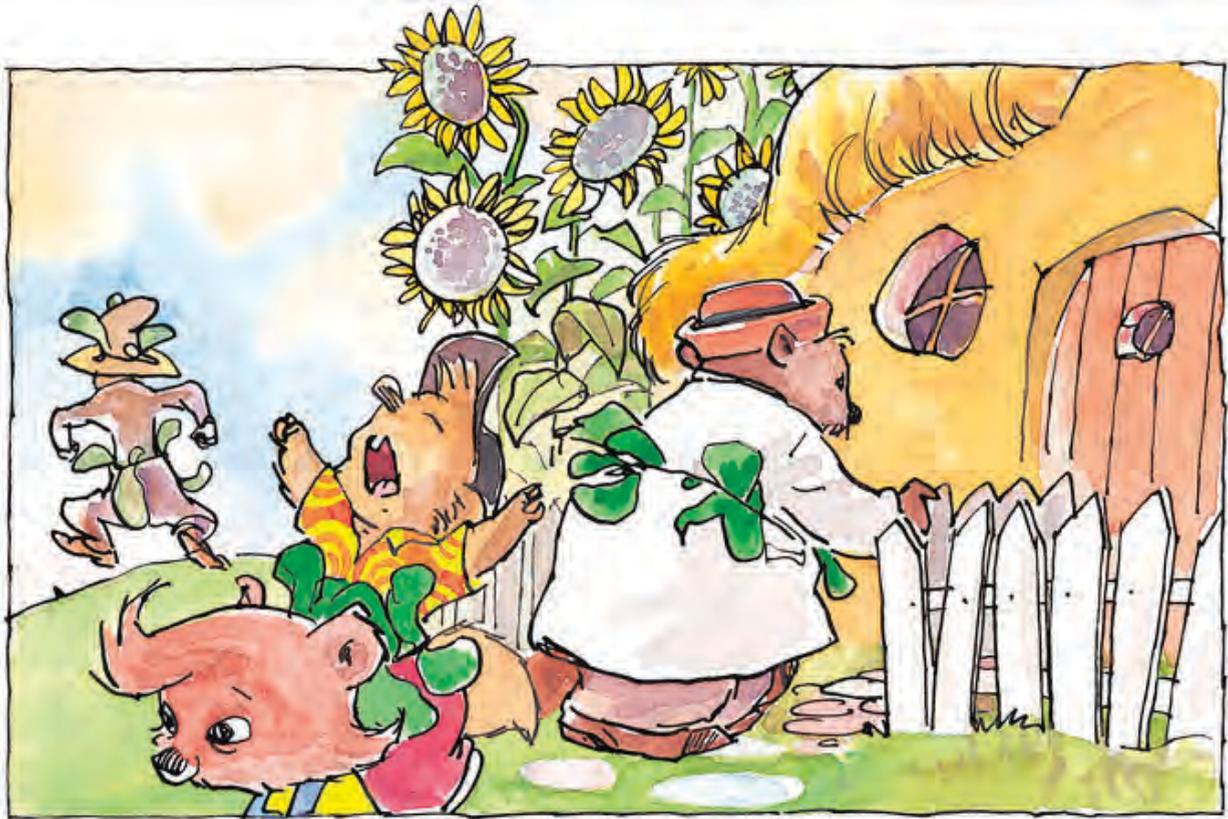
“Not so fast!” said Mr. Slaptail. “That’s their home!”

“But they’re taking your spinach!” said Rosie.

The Trap

“I noticed the beginnings of this ant colony when I was planting my garden,” said Mr. Slaptail. “They’ve been adding to it bit by bit. That’s a lot of work for such





tiny creatures! I don't want to destroy their home any more than I want them to destroy my garden."

"Then how can we keep them out?" asked Riff.

"I know," said Rosie. "Uncle Red Tail uses ant poison."

"Rosie, we don't want to kill them. We just need to keep them out. Anyway, remember how pesticides can wash into the water supply?" said Mr. Slaptail. "That wouldn't be good for anyone."

"Well, we could dig a ditch around the garden and fill it with water!" suggested Riff.

"Ooh. Like a moat! That sounds cool!" Rosie said. "Can we do it, Mr. Slaptail?"

"I'll think about that," Mr. Slaptail said, rubbing his eyes. "But right now, I'm going inside to get some real sleep."

Riff and Rosie decided they needed some rest, too. They headed home slowly in the early morning light, with bits of their disguises still clinging to their clothes.

Friends for Dinner

After a short nap, Riff and Rosie were back at Mr. Slaptail's house. They found him outside, sprinkling white powder around the edge of his garden.

"Mr. Slaptail, I thought you said we couldn't use pesticides! What are you doing?" asked Riff excitedly.

"You're right, Riff, but don't worry," said Mr. Slaptail. "This is only baking soda. It's not a poison, but ants don't like it. I think this will convince them to find their leaves somewhere else."

"But we were all ready to build a moat. Look, we even brought a shovel," said Rosie disappointedly. "Now what can we do to help?"

"Did you forget? Today's the neighborhood picnic. We're all going to share our best recipes. Since those ants got so much of my spinach, I've decided to make my fabulous *Potato Surprise* instead. You can put that shovel to work by helping me harvest the potatoes," said Mr. Slaptail.



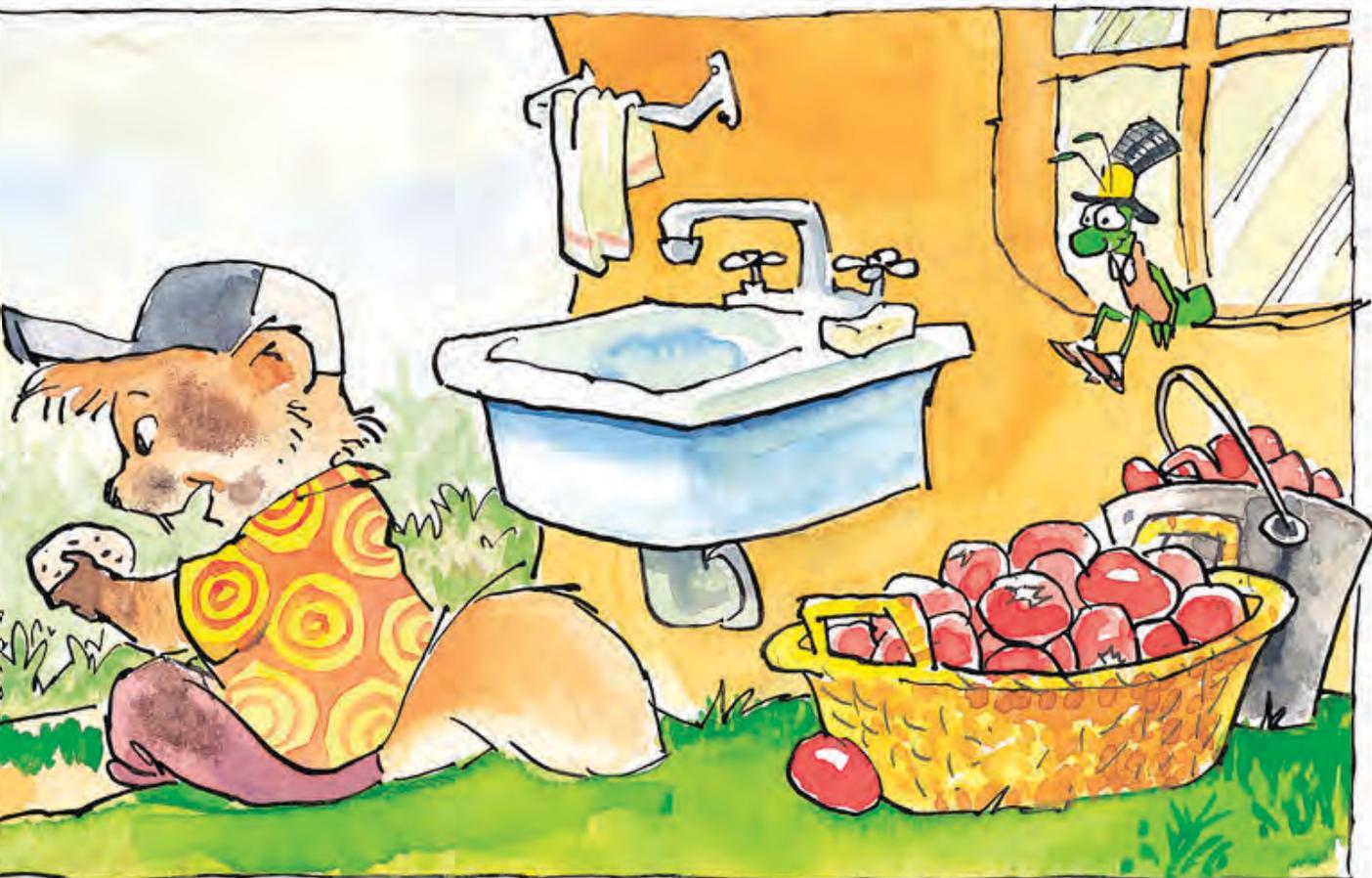


“Potatoes?” asked Riff. “Mr. Slaptail, we haven’t seen a single potato in your garden.”

Mr. Slaptail chuckled, pushed his shovel into the ground and turned up some potatoes. “You can’t see potatoes unless you dig them up,” he said. “Some kinds of food, like carrots and the peanuts in your sandwich, stay right in the soil while they’re growing.”

“We want to help!” said Riff and Rosie. They went to work with their shovel. Soon they had a bucket-full of new potatoes and several baskets full of green beans, melons, tomatoes and corn, too.

“Wow! I didn’t know there were so many different kinds of vegetables,” Rosie said.



“Oh yes,” said Mr. Slaptail. “And there are many more varieties than I have room for in my garden. Now, remember, our harvest must be rinsed thoroughly,” said Mr. Slaptail.

“But these things don’t look dirty,” said Riff.

Mr. Slaptail explained, “Germs and chemicals that can make you sick are often very tiny. You may need a microscope to see them. Fruits and vegetables should be well-rinsed before they are eaten or prepared. And of course, the first thing you should *always* wash is . . . ”

“Your hands!” yelled Riff and Rosie.

As they ran towards the kitchen to wash up, Rosie said, “Riff, we promised Grandma we’d enter her cookies in the baking contest, but we ate them all.”

“I wish your Grandma was here to make some more,” said Mr. Slaptail.

“Me too,” hollered a voice from the other side of the garden. “I’ve been told those are the best, humdinger cookies in the county,” said Oscar Otterbee, as he came through Mr. Slaptail’s gate, carrying a sack.

Riff and Rosie looked at each other and whispered, “*Uh-oh.*”

“What is it now, Otterbee?” asked Mr. Slaptail.

“Now calm down, calm down,” said Oscar Otterbee. “I’ve come to patch things up. Thought maybe you’d trade a bottle of your ant repellent and some cookies for a sack of my prized pecans.”

Mr. Slaptail sighed and said, “Alright, my friend.”

“But there *still* is a problem. It seems we’ve already eaten all of the cookies.”



Riff puffed out his chest.
“I’ll bet we can make more!”

“You can?” Mr. Slaptail said with a smile.

“Yes, I was going to tell you. We made the ones we brought yesterday because we ate all the ones Grandma sent!” admitted Riff.

“That’s okay. I knew something was strange,” Mr. Slaptail said, patting his stomach. “Your Grandma’s cookies aren’t all the same size and perfectly round, like yours were. Your cookies were very good! Very good, indeed.”

“You know,” Mr. Slaptail continued, “I have most of the ingredients to make more cookies right here: peanut butter, seeds from last year’s sunflowers, raisins made from my very own grapes. Hmmm, what else?” asked Mr. Slaptail.

“That’s almost everything.” Rosie said, as she gathered Mr. Slaptail’s offering of ingredients. “We’ve got the rest at home.”

“Let’s go get started,” said Riff anxiously. “The dinner starts in an hour!” They raced off with Mr. Slaptail’s supplies towards Rosie’s house.

When they arrived, they ran to the kitchen, washed up, and then quickly set to work.

The sun was just setting as Riff and Rosie finished making the cookies. Delicious smells filled the air as the neighbors began to arrive at Mr. Slaptail’s house.



Wow! Look at
the great variety
of food!

Some foods are
produced far away
and must be
transported long
distances.

Cook meats,
fish, chicken,
turkey and
eggs until they
are well done
to kill bacteria.

Food gives you energy
to move, think and grow.
Food also provides building
materials for strong,
healthy bodies. Exercise is
important, too!



Keep fresh food and cooked foods from spoiling by storing them in the refrigerator.

Wash all your cooking gear with warm soapy water. Wash your hands, too! Rinse fruits and vegetables with running water.

Fish, low-fat dairy foods, lean meats and legumes make strong muscles and bones.

Have a varied diet, with lots of fruit, vegetables and grains. Eat less sugary and greasy foods.



How can you keep food safe to eat?

People have invented many ways to transport and preserve food to keep it safe to eat.

When things like bacteria have a chance to grow on food, the food will spoil and rot. Spoiled food can make you sick. We keep food safe by . . .

- rinsing fruits and vegetables before eating them;
- drying foods (like raisins);
- cooking food to kill harmful bacteria;
- keeping food cold or frozen; and
- washing hands, work areas and utensils with warm soapy water before and after preparing food.

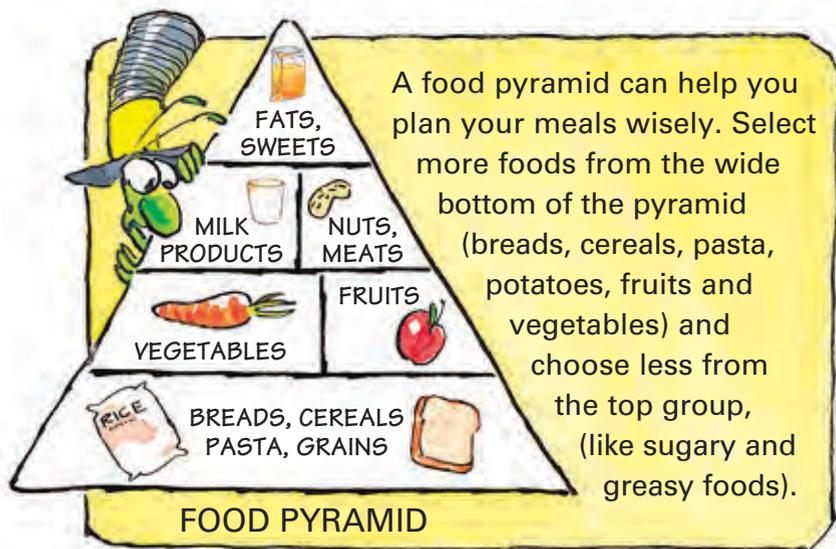
Food for All!

Every neighbor brought his or her own special dish. Mr. Slaptail’s big porch, overlooking the pond, was the perfect place for everyone to celebrate a great harvest.

Riff turned to Mr. Slaptail and stated confidently, “And we made enough cookies for”

But suddenly he stopped, pointed and said, “Uh-oh! Look who’s here!”

Rosie and Mr. Slaptail turned to see who was arriving so late. Mr. Slaptail laughed and said, “You know what they say”



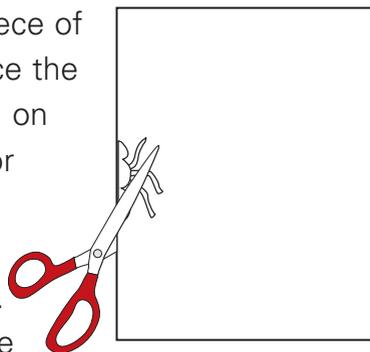


How to Make a Paper Ant Chain

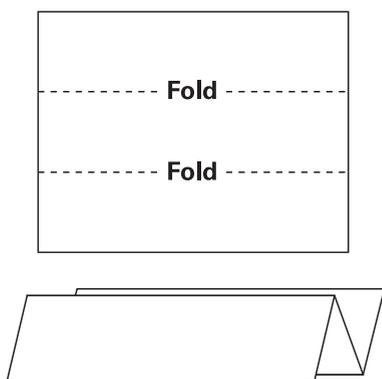
Materials: Two 8½-in. x 11-in. pieces of paper (notebook or copy paper is easier to work with than heavy construction paper); ruler; scissors; pencil or pen and clear tape.

Procedure

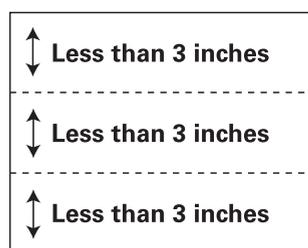
1. On one piece of paper, trace the ant shown on page 37, or draw one of the same size. Cut out the ant shape. This is your template. Use tape to repair cuts.



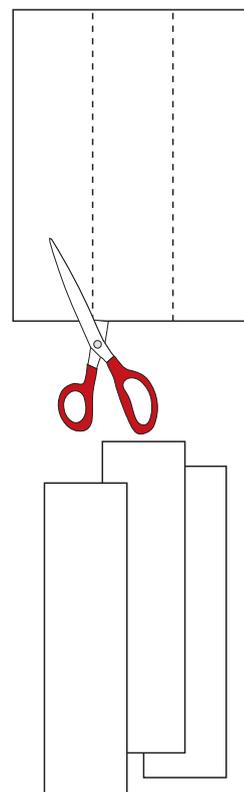
2. Lay the other sheet of paper horizontally in front of you.
3. Starting at the bottom, fold and crease the paper twice, so that three equal segments form on the page.



4. Using a ruler, measure the height of each segment to be sure that each is a little less than 3 inches tall.

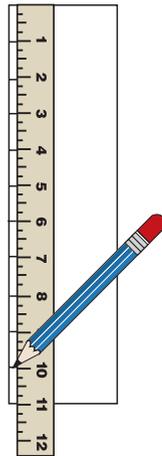


5. Use your scissors to cut carefully along the creases. You should now have three strips of paper that are about the same size.

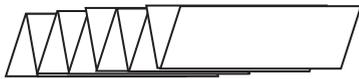


6. Lay the paper strips vertically in front of you.

7. Beginning at the top of one strip, use a ruler and make a mark for every inch until you reach the bottom of the paper.

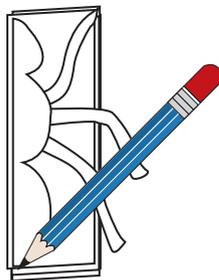


8. At each 1-inch mark, fold the paper, making a firm crease. Alternate the direction of your folds (one toward the top of the paper, one toward the bottom).

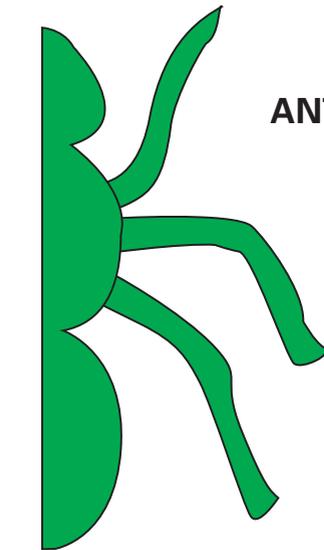


You will end up with a “paper accordion.” Press your accordion closed firmly so that it is flat.

9. Hold the ant template on one closed end of your paper accordion, with the ant’s “body” positioned so that the very tips of the ant “legs” hang a little bit over the edge.



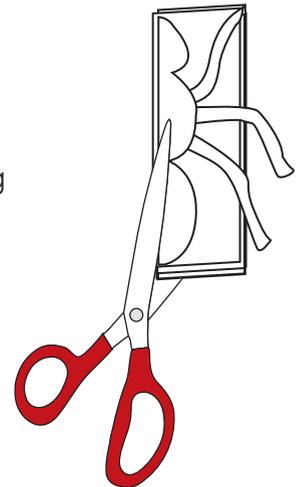
10. Use your pencil to draw an outline of



ANT TEMPLATE

the template. You will not be able to outline the very ends of the ant’s legs.

11. With your paper accordion still closed, cut along the outline you just drew.



Unfold the paper accordion to reveal your ant chain!

You may wish to color your ant chain, or even give your ants names. Repeat steps 7 through 12 to create two more ant chains.

Glossary

arthropod (*ARTH-roh-pod*) - An animal with jointed legs and a body divided into segments, such as an insect or a spider.

atmosphere (*AT-muhs-feer*) - Air surrounding the Earth.

baking soda (*BAY-king SO-duh*) - A powdery white chemical used in baking.

bacteria (*bahk-TEER-ee-uh*) - A kind of tiny organism that has only one cell. Most bacteria are helpful to other living things; however some can make you sick.

calcium (*KAL-see-uhm*) - A mineral that is important for living things. It is found in substances such as milk, bone and shells.

carbon dioxide (*KAR-buhn dy-AHK-side*) - A gas made up of carbon and oxygen. You cannot see or smell it.

carnivore (*KAR-nih-vohr*) - Something that eats only animals as food.

chemical (*KEM-ih-kuhl*) - A pure substance. Water, salt and baking soda are examples of chemicals.

cicada (*sih-KAY-duh*) - A large insect with four transparent wings.

colony (*KAH-loh-nee*) - A group of animals, plants or microbes of the same kind living or growing together.

decomposer (*dee-kuhm-POH-zer*) - An organism that breaks down dead plants and animals into tiny pieces that can go back into the soil.

evaporation (*e-VAHP-oh-RAY-shun*) - To change from a liquid form to a gas.

energy (*EHN-uh-ree*) - Usable power; strength. The ability to act or to do work.

fertilizer (*FUHR-tih-LY-zuhr*) - Something, such as manure or chemicals, that is added to soil or water so that plants, such as grass or corn, will grow better.

fruit (*FROOT*) - Plant part that forms from a flower and contains the seeds.

fungus (*FUN-guss*) - A living thing, such as a mushroom or mold, that uses other organisms for food, has no green coloring and does not move.

germ (*JURM*) - Any very tiny living thing that can cause disease.

herbivore (*HERB-eh-vohr*) - A living thing that feeds entirely on plants.

leafcutter ant (*LEEF-kuht-er ant*) - An ant that uses leaves to produce its food.

legume (*lay-GYOOM*) - The edible fruit or seed of various plants that bear pods. Examples are peanuts, beans, peas and lentils.

magnifier (*MAG-neh-FY-ehr*) - A lens that makes objects seen through it look larger.

mammal (*MAH-muhl*) - An animal that is warm-blooded, has a backbone and some fur or hair, and produces milk to feed its young.

mineral (*MYN-eh-ruhhl*) - An element required in very tiny amounts by the body for good health. Calcium, sodium and potassium are minerals.

nectar (*NEK-tuhr*) - A sweet liquid made in flowers to attract insects and birds.

nocturnal (*nahk-TUHR-nuhl*) - Active or blooming at night.

nutrient (*NOO-tree-uhnt*) - A substance used by organisms as a source of energy or building material.

omnivore (*AHM-nih-vohr*) - An organism that eats both meat and vegetables.

pesticide (*PEHST-eh-side*) - A chemical used to kill unwanted weeds and insects.

pollen (*PAH-lihn*) - Tiny grains produced by flowers that are necessary for the production of fruits and seeds.

pollination (*PAH-lihn-AY-shun*) - The transportation of pollen from one flower to another to begin the development of seeds.

predator (*PREH-duh-tawr*) - An animal that hunts and eats other animals.

protein (*PRO-teen*) - A substance that occurs in the cells of all living things, and is necessary to life. Meat, beans, milk, eggs and fish are sources of protein.

repellent (*ree-PEHL-ent*) - Something used to keep pests away.

shrew (*SHROO*) - A small mammal with a narrow pointed nose.

soil (*SOYL*) - A mixture of tiny pieces of rocks, sand and bits of decaying plants and animals.

vegetable (*VEHJ-eh-tuh-bull*) - A plant whose parts are used as food.

vine (*VYNH*) - A climbing plant with long stems or branches.

vitamin (*VY-tuh-mihn*) - Something found in small amounts in the bodies of plants or animals and which is necessary for good health.

The authors of this story are Barbara Tharp, Judith Dresden, James Denk and Nancy Moreno. Ms. Tharp, Mr. Denk and Dr. Moreno are members of the Center for Educational Outreach (CEO) at Baylor College of Medicine in Houston, Texas. Ms. Dresden was a team member in the CEO while this story was being developed. The team worked together for several years on science education projects involving teachers and students from kindergarten through college and graduate school.

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- Nancy Moreno, Ph.D., originally from Wisconsin and Michigan, is a biologist with a specialization in botany. She studied and classified neotropical plants in Mexico before completing her doctoral degree. Her current interests focus on the involvement of scientists in the education of students and teachers. She designs curricula, conducts workshops for teachers on creative methods for teaching science and using technology, and is involved in science education at all levels. BCM's My Health My World project, which she directs, builds upon her special interests in ecology and environmental issues.

The illustrator, T Lewis, was born in Texas but has traveled extensively, living in such exotic locales as Africa, Switzerland and Alaska, and now makes his home in Washington State. His illustrations were first used in the CEO educational storybook, *Skullduggery*, as part of the BrainLink project. In all, Lewis illustrated 10 storybooks for the CEO, including *Trouble at Tsavo*, *The Cookie Crumbles*, *Danger at Rocky River*, *Mr. Slaptail's Secret*, *Mystery of the Muddled Marsh*, *Mr. Slaptail's Curious Contraption*, *The Mysterious Marching Vegetables*, *Tillena Lou's Day in the Sun* and *Tillena Lou's Big Adventure*.

Lewis co-authors and illustrates the nationally syndicated comic strip, "Over the Hedge," which served as the basis for several books, a video game and the 2006 DreamWorks SKG movie, "Over the Hedge." While his broad range of professional artwork has appeared in many formats, he is especially fond of creating illustrations for children and has illustrated more than 20 storybooks. In 1999, he won the National Cartoonists Society Rueben Award for book illustration.



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