

2

STEPS



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Science and Living in God's World

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In Consultation With

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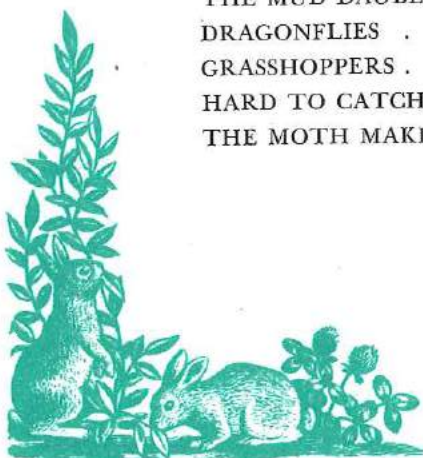
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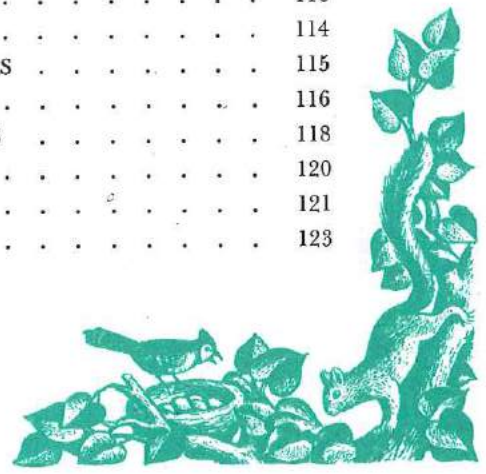
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THE AUTHORS

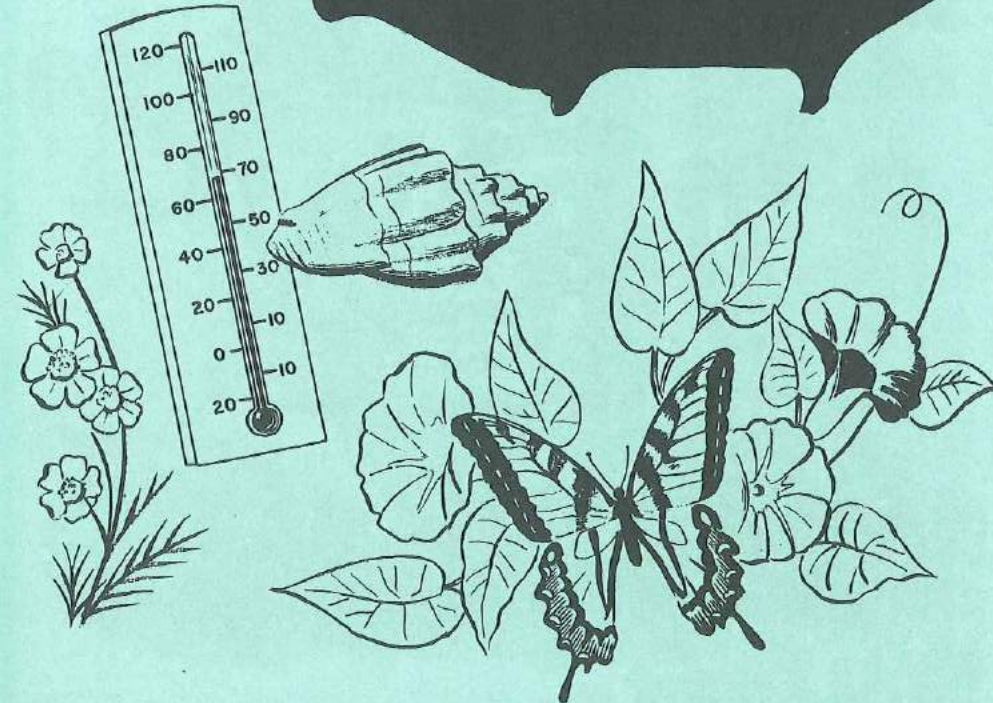
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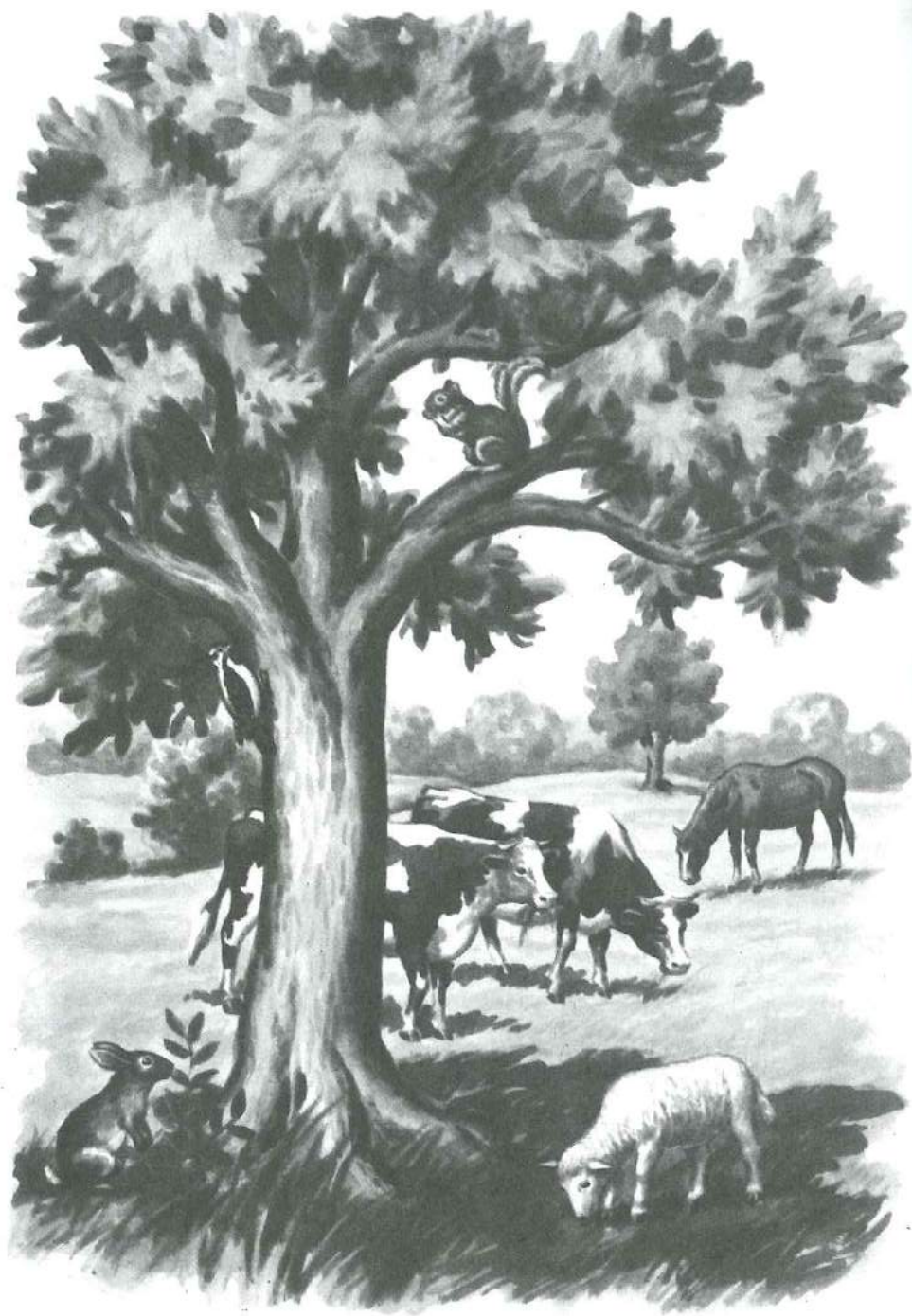
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UNIT 1
ALL ANIMALS DEPEND ON PLANTS FOR FOOD





And God said: Let the earth bring forth the living creature in its kind, cattle and creeping things, and beasts of the earth, according to their kinds. And it was so done.

And God made the beasts of the earth according to their kinds, and cattle, and everything that creepeth on the earth after its kind. And God saw that it was good.
Genesis, 1:24-25

Holy Mother Church teaches us that God created plants for man to have to eat, and to feed animals, including those man keeps for milk and meat. We should never forget that God gave man "dominion over the fishes of the sea, and the fowls of the air, and the beasts, and the whole earth, and every creeping creature that moveth upon the earth." Man raises animals, cultivates crops for himself and his animals, all for the Greater Glory of God.

1

ALL ANIMALS DEPEND ON PLANTS FOR FOOD

Sue and Tom were playing a guessing game. It was Sue's turn to think of something. Tom would try to guess what it was after asking questions. He had used up all but three of his questions.

He had learned four things about Sue's "guess what."

He knew it was alive.

He knew it could grow.

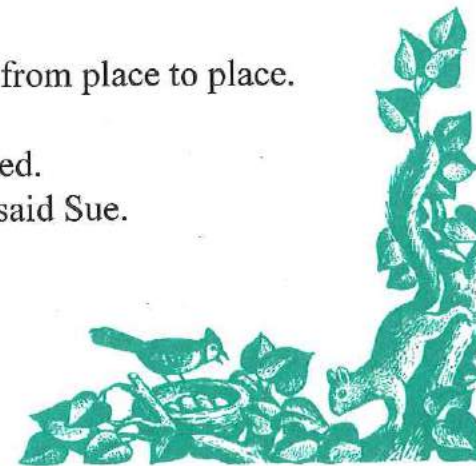
He knew it could not move from place to place.

He knew it was large.

"Does it eat plants?" he asked.

"No, it doesn't eat plants," said Sue.

"Does it eat animals?"





“No, it doesn’t eat animals.”

“Then it’s a plant,” said Tom. “Is it the rosebush?”

“No,” said Sue. “It is not a plant. It is an oak tree.”

“That is a plant,” said Tom. “All trees are plants.”

Sue was surprised. “Are you sure?” she asked.

“Yes,” said Tom. “If it is alive and is not an animal it is a plant.”

LEARNING ABOUT PLANTS

Sue and Tom learned that some plants are large, and some are small.

They learned that plants grow in many different kinds of places.

Find the plants in the picture.

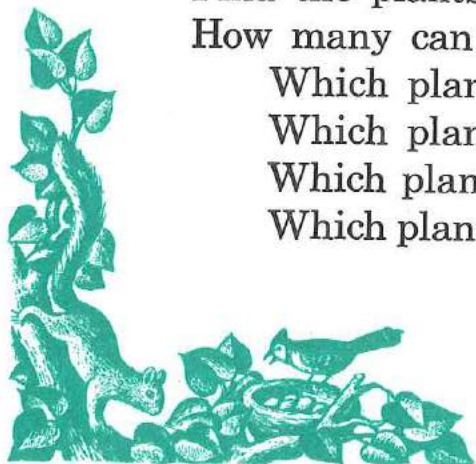
How many can you find?

Which plant is the largest?

Which plant is the smallest?

Which plant has the largest leaves?

Which plant has long slender leaves?

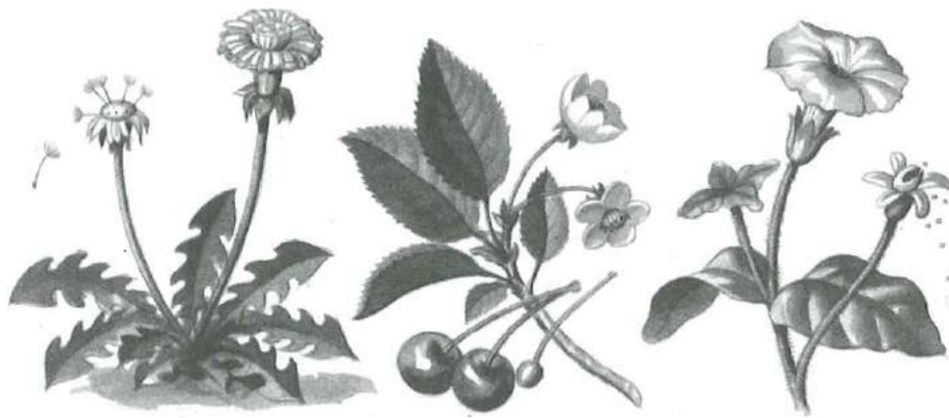




They learned that most large plants are green when they are growing.



They learned that a few plants are not green when they are growing.

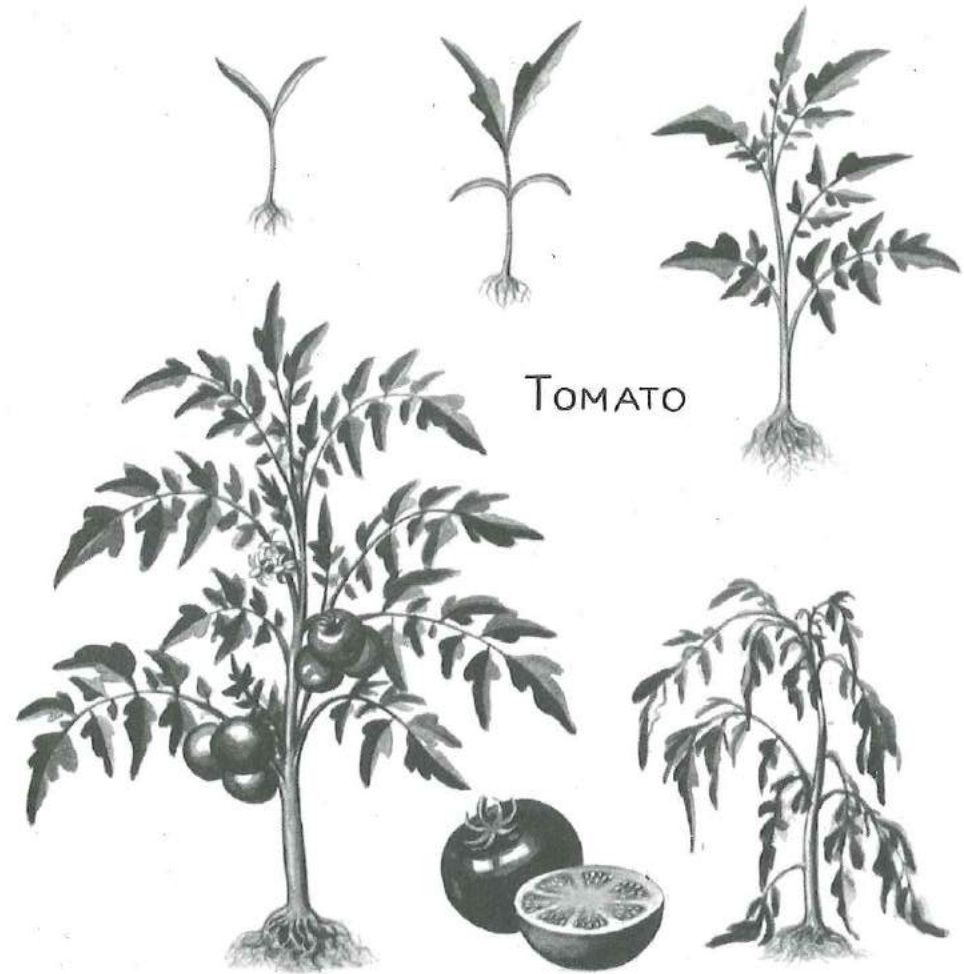
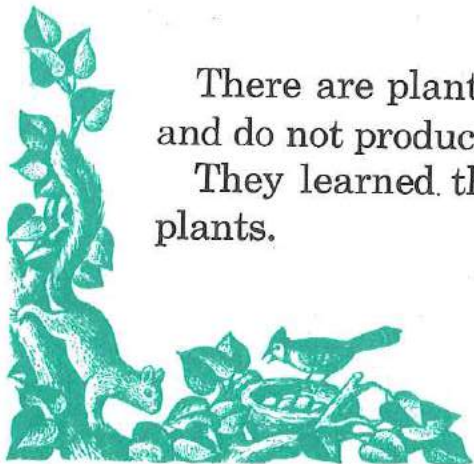


There are plants that have flowers and produce seeds.

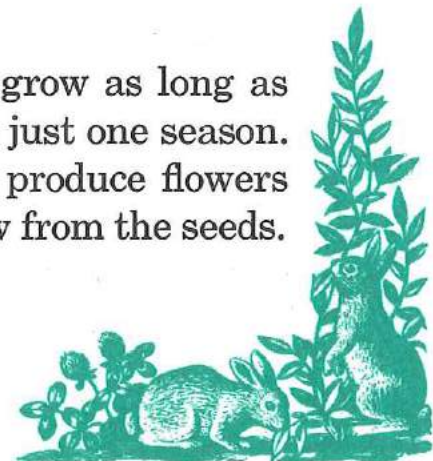


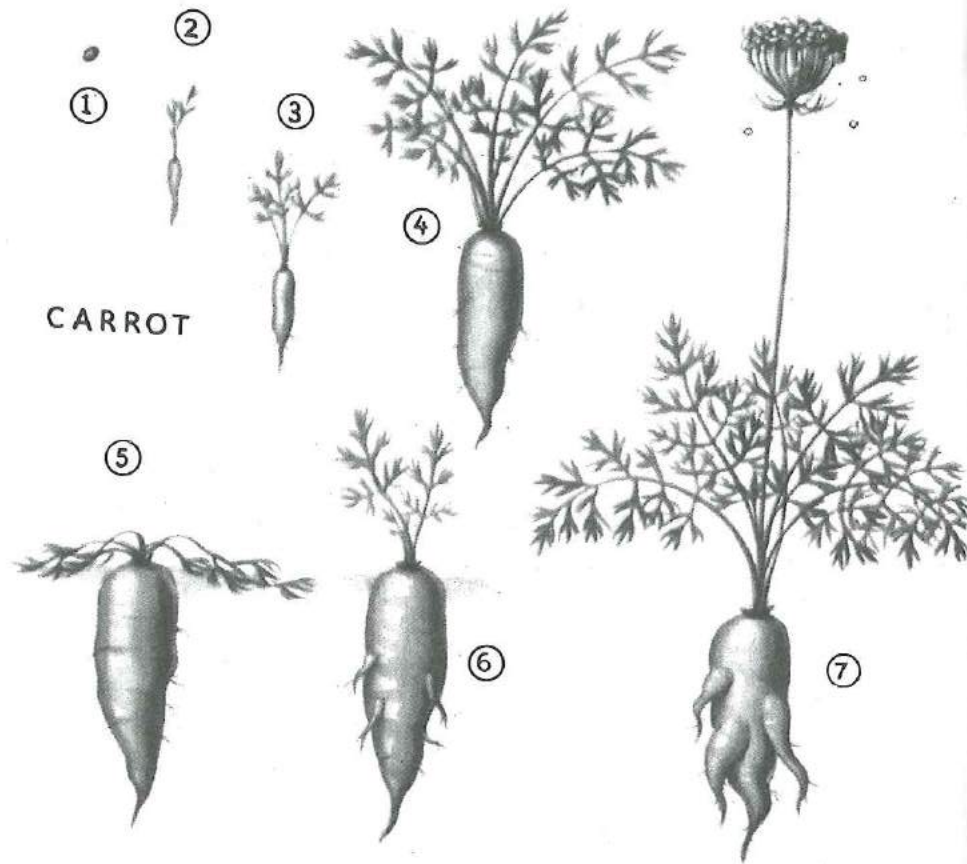
There are plants that do not have flowers and do not produce seeds.

They learned that there are two kinds of plants.



They learned that plants grow as long as they live. Some plants live just one season. They grow all summer and produce flowers and seeds. New plants grow from the seeds.





CARROT

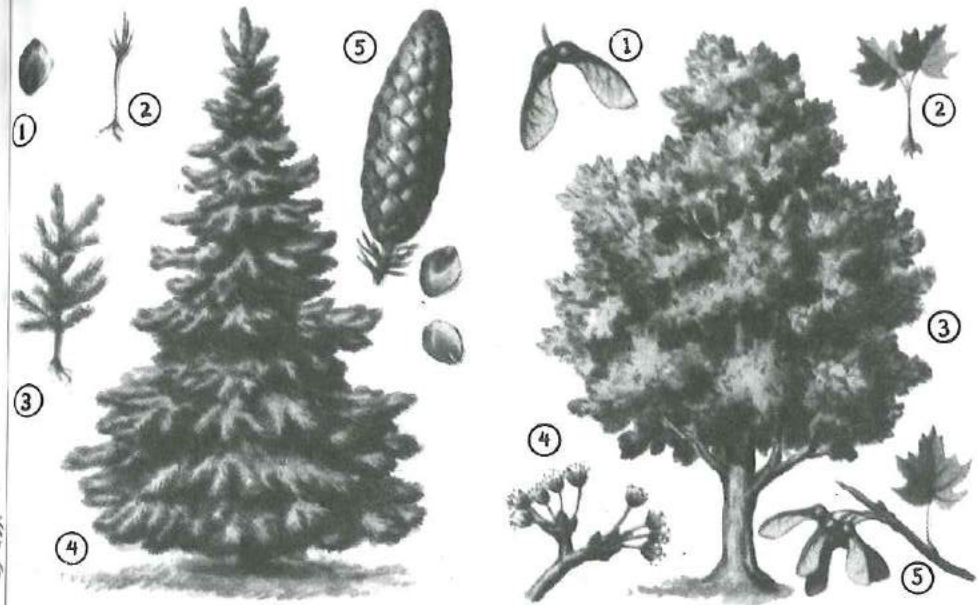
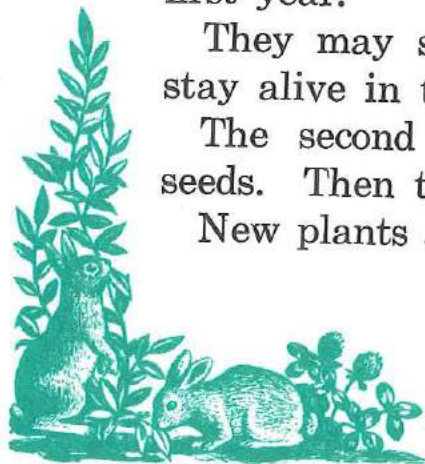
Some plants live for two years.

They do not have flowers or seeds the first year.

They may seem to die, but their roots stay alive in the ground.

The second year these plants produce seeds. Then they die.

New plants are started from the seeds.



Some plants live for many years.

In the fall these plants store food in their roots or stems.

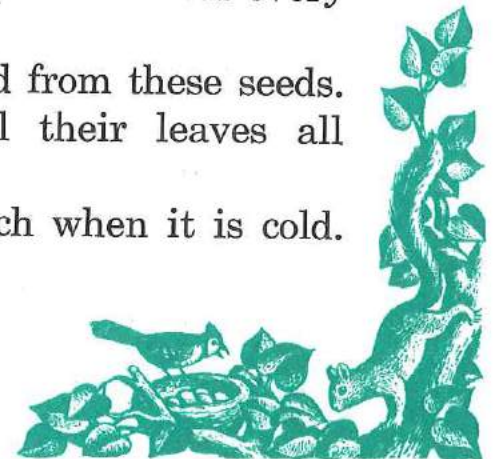
Some plants shed their leaves in the fall.

When it gets warm in the spring they use their stored food and begin to grow. These plants first grow new leaves. Soon the new green leaves are making more food.

Many of these plants produce seeds every year.

New plants are started from these seeds. Some plants keep all their leaves all winter.

They do not grow much when it is cold.





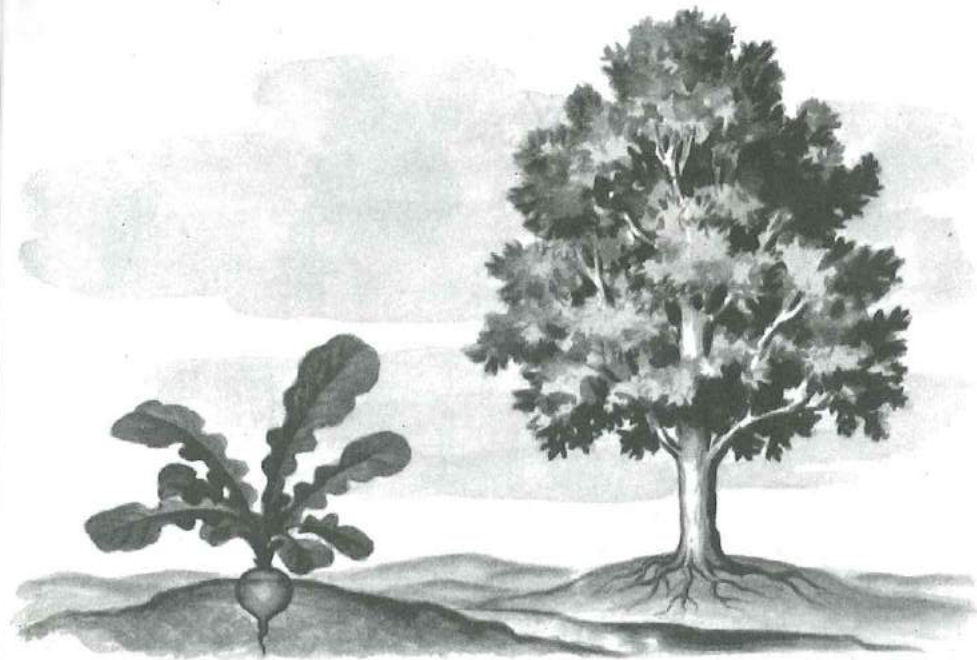
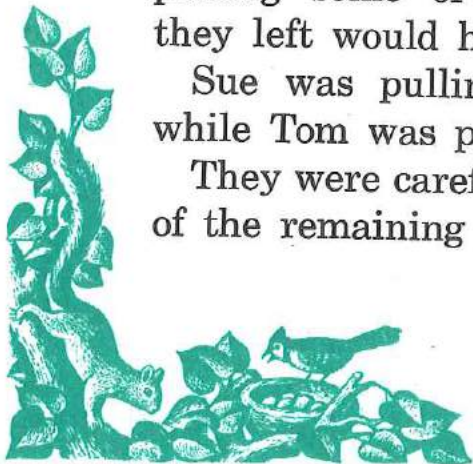
PARTS OF PLANTS

Sue and Tom were helping Father in the garden.

There were so many plants that they were too close together. They did not have room to grow well. The children were pulling some of the plants. The plants they left would have room to grow.

Sue was pulling the extra sweet peas while Tom was pulling up some radishes.

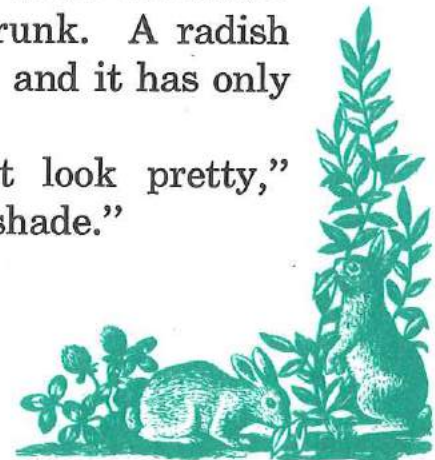
They were careful not to disturb the roots of the remaining plants.

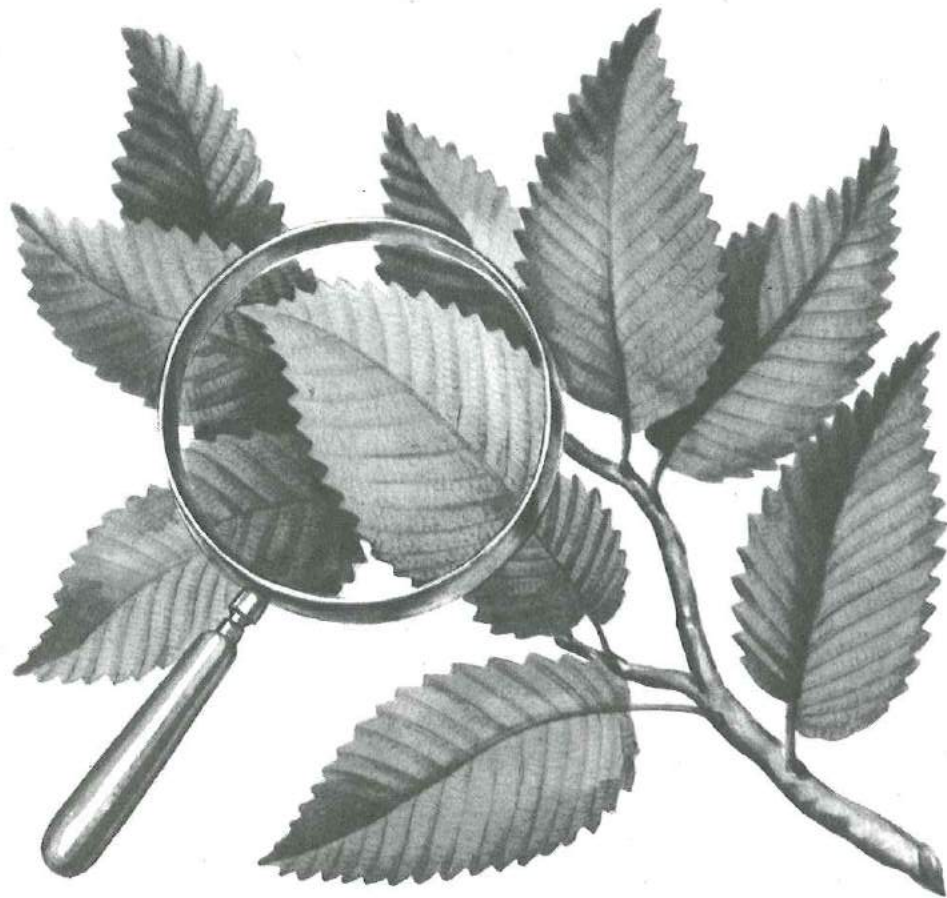


“Roots help a plant,” said Sue. “They hold the plant in the ground. They get water and food from the soil. We must not disturb them. Roots are important parts of plants.”

“Stems help hold the leaves up,” said Tom. “A tree would not have room for many leaves if it had no trunk. A radish does not have a large stem, and it has only a few leaves.”

“Leaves make the plant look pretty,” said Sue. “They give us shade.”

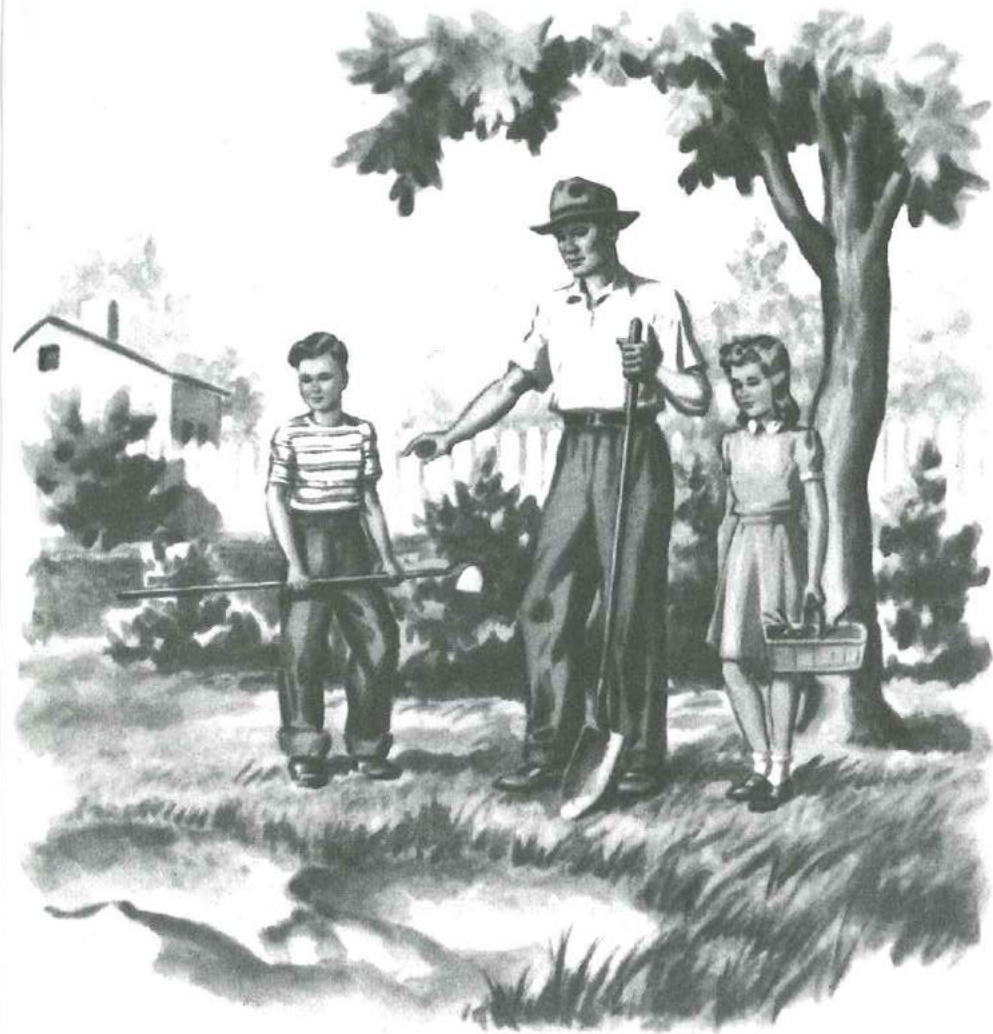
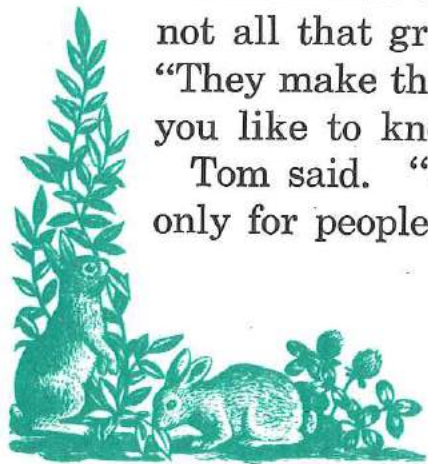




Father had been listening. "And that's not all that green leaves can do," he said. "They make the food for the plant. Would you like to know how they do it?"

Tom said. "I thought plants made food only for people."

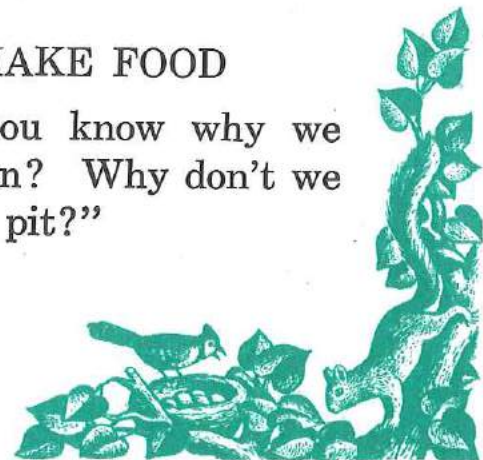
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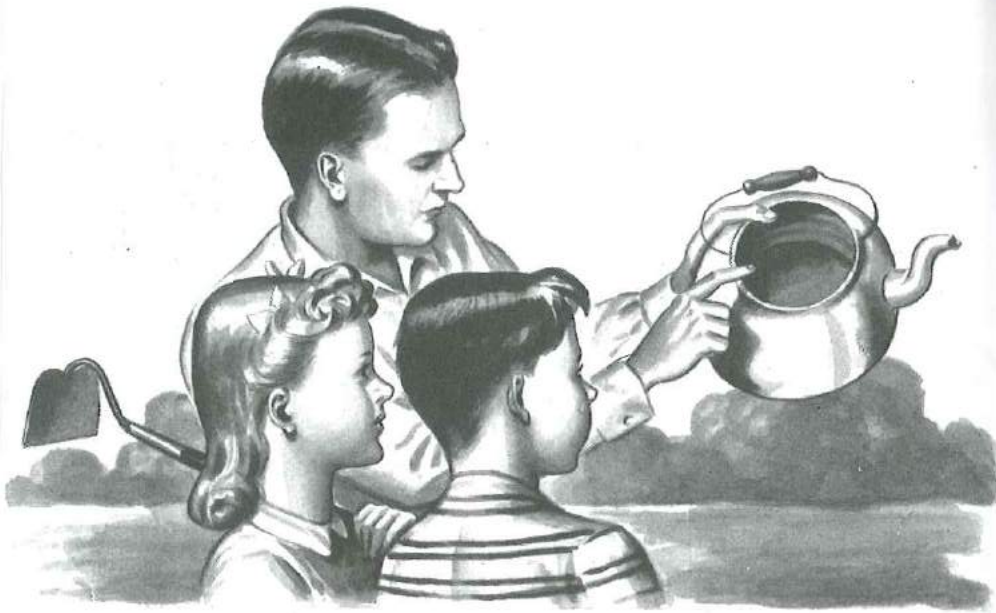


HOW PLANTS MAKE FOOD

Father asked, "Do you know why we plant seeds in the garden? Why don't we plant them in the sand pit?"

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Tom said, "Plants need good soil. They need light, too. The grass does not grow in the shade of the pine tree."

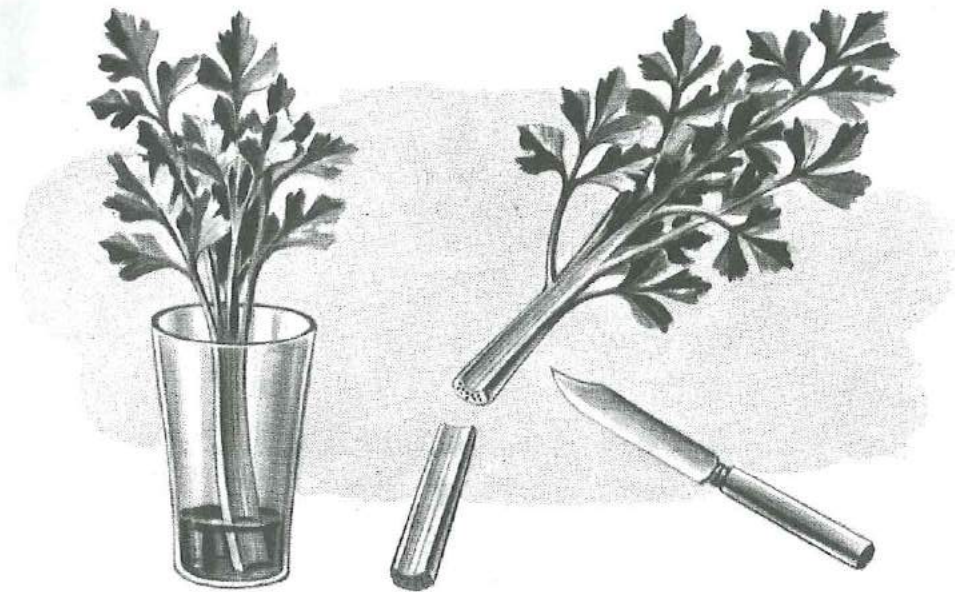
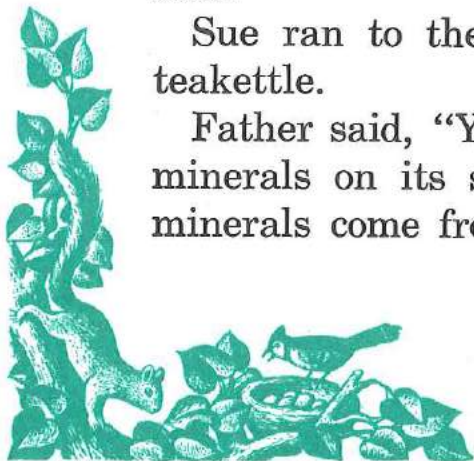
Sue said, "Plants need water. They wilt when the soil is dry. The sand is too dry."

Father said, "That is right. Good soil holds water well."

"Now let us look at the teakettle," he said.

Sue ran to the house and brought the teakettle.

Father said, "You can see the kettle has minerals on its sides and bottom. These minerals come from the water."



"Water in the ground takes minerals from the soil. Roots of plants take water and minerals from good soil."

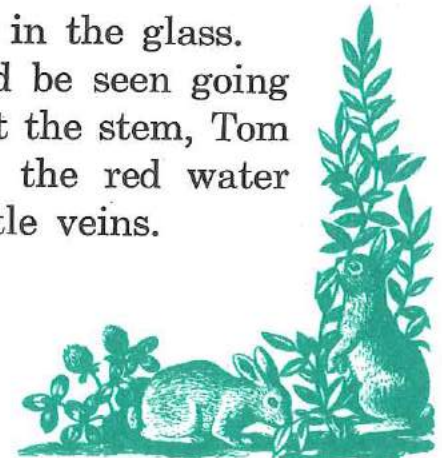
HOW THE STEM HELPS

"Now let us see how the water goes up from the roots through the stem," said Father.

Father put a little red ink in a glass of water.

He put a piece of celery in the glass.

Soon the red water could be seen going up the stem. When he cut the stem, Tom and Sue could see where the red water went. It went through little veins.





HOW THE LEAVES HELP

Father said, "Plants can't make food of just minerals and water. They need air, too."

"There are tiny holes on the underside of the leaves. These little holes let in the air. The stem takes the water and minerals to the leaves. The veins in the leaves carry the water to every part of the leaf. The sun shines on the leaves and they make food from air, water, and minerals."

"The leaves are important," said Sue. "Plants with green leaves can make their own food."

WHERE THE FOOD IS STORED

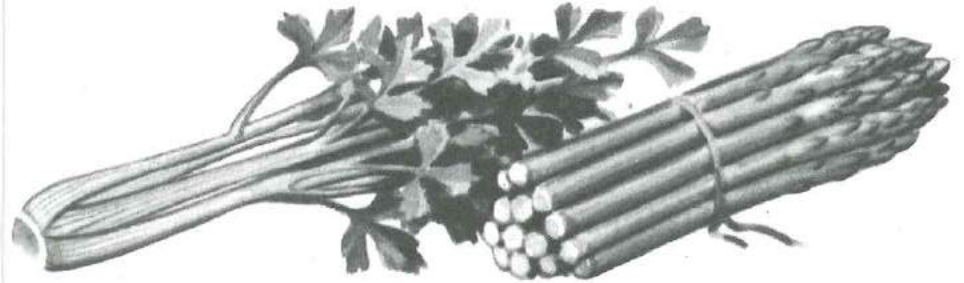
The food is carried to every part of the plant.

Plants may make more food than the plant can use. This food is stored in different parts of the plants.

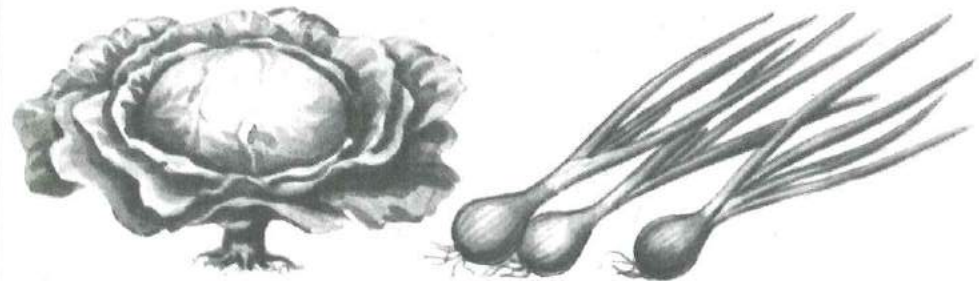
All plants store food in their seeds. This food is used by the new plant.



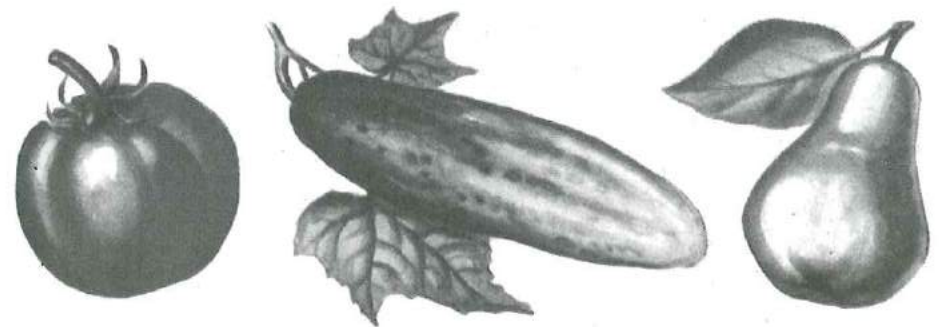
Many plants store food in their roots.



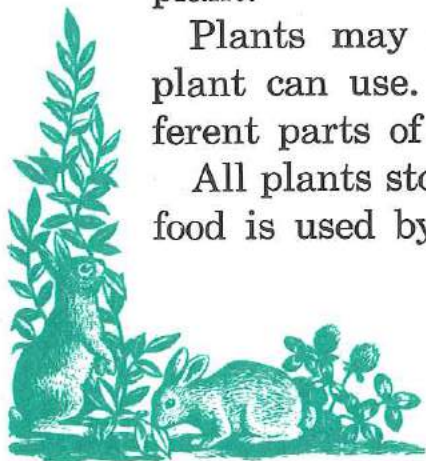
Many plants store food in their stems.



Many plants store food in their leaves.



Some plants store food in their fruits.





HOW NEW PLANTS GROW

A seed contains a small plant with food enough to start it growing. The seed must have water before the little plant can grow.

Seeds first grow in flowers. There are many kinds of flowers. Corn flowers are ears and tassels. Grass flowers form heads on the tops of slender stems. Pussy willows are flowers.

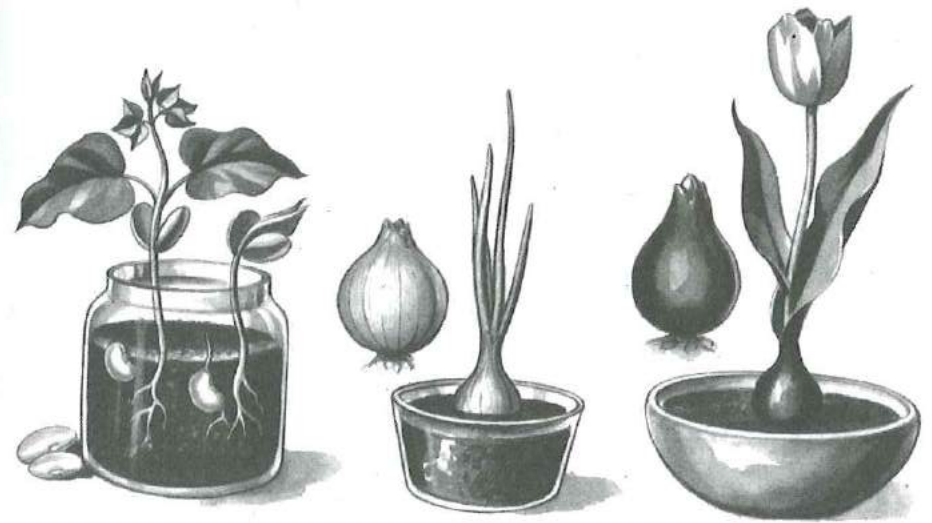
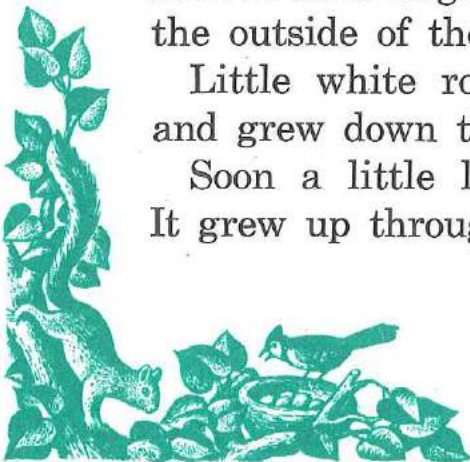
Each kind of flowering plant has its own kind of seed.

Tom and Sue planted some seeds in some soil in a glass dish. They planted the seeds near the glass so they could see them. It was fun to watch them.

The water from the soil caused the outside of the seed to become soft. The seed became larger when it was wet. Then the outside of the seed cracked open.

Little white roots grew from the seed, and grew down through the soil.

Soon a little leaf grew from the seed. It grew up through the soil.



As the plant grew larger, the seed got smaller. The leaf grew above the soil and turned green.

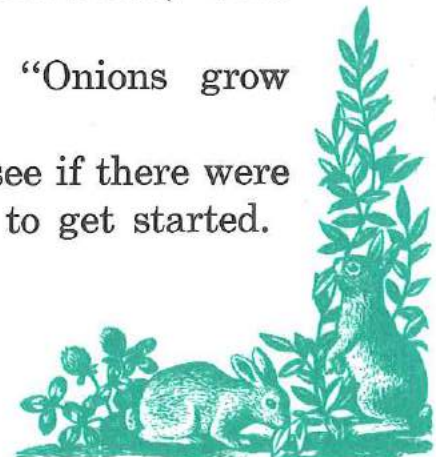
“The plant has used all the food in the seed,” said Tom. “The plant will make its own food now. It has green leaves.”

“What would we do without seeds?” asked Tom. “How would new plants get started?”

“We grew some tulips from bulbs,” said Sue.

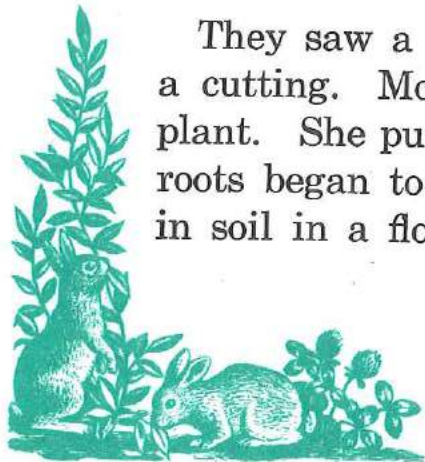
“Oh, yes,” said Tom. “Onions grow from bulbs, too.”

The children watched to see if there were other ways for new plants to get started.

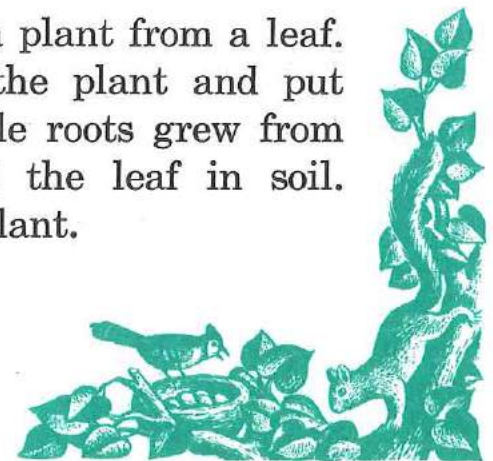




They saw a plant that was started from a cutting. Mother took a cutting from a plant. She put it in water and left it until roots began to grow. Then she planted it in soil in a flowerpot.



Once Mother started a plant from a leaf. She took a leaf from the plant and put its stem in water. Little roots grew from the stem. She planted the leaf in soil. Soon she had another plant.



WE USE PLANTS

Tom and Sue were in the garden. Tom was digging potatoes. Sue was picking green peas.

"The plants stored the food for themselves but we like it, too," said Tom.

"I'm glad they store more than they need," said Sue. "We can use the food they make."

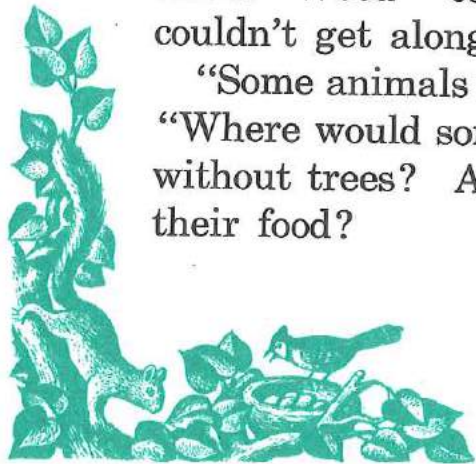
They tried to think what the world would be like if there were no green plants.

"We would have no vegetables, fruits, or nuts to eat," said Tom.

"We would have no meat, milk, or eggs," said Sue. "The cows and chickens could not live and grow without plants to eat."

Tom looked at his baseball bat. "Just think of all the things that are made of wood. Wood comes from trees. We couldn't get along without wood."

"Some animals use plants, too," said Sue. "Where would some birds build their nests without trees? And where would they get their food?"





“We would have to find different kinds of clothes. If there were no plants we could not have cotton and linen for clothes.

“And if animals couldn’t find plants to eat, we wouldn’t have wool or silk.”

Tom and Sue watched a worm eating a leaf. It soon made a hole in the leaf.

When they went away a bird flew from a tree. It caught the worm and carried it to its nest. The bird gave the worm to a little bird to eat.

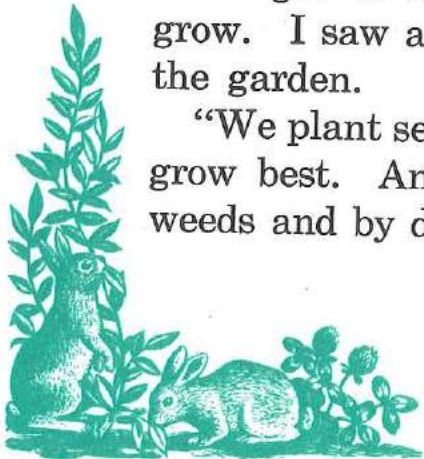
People use plants in many ways.

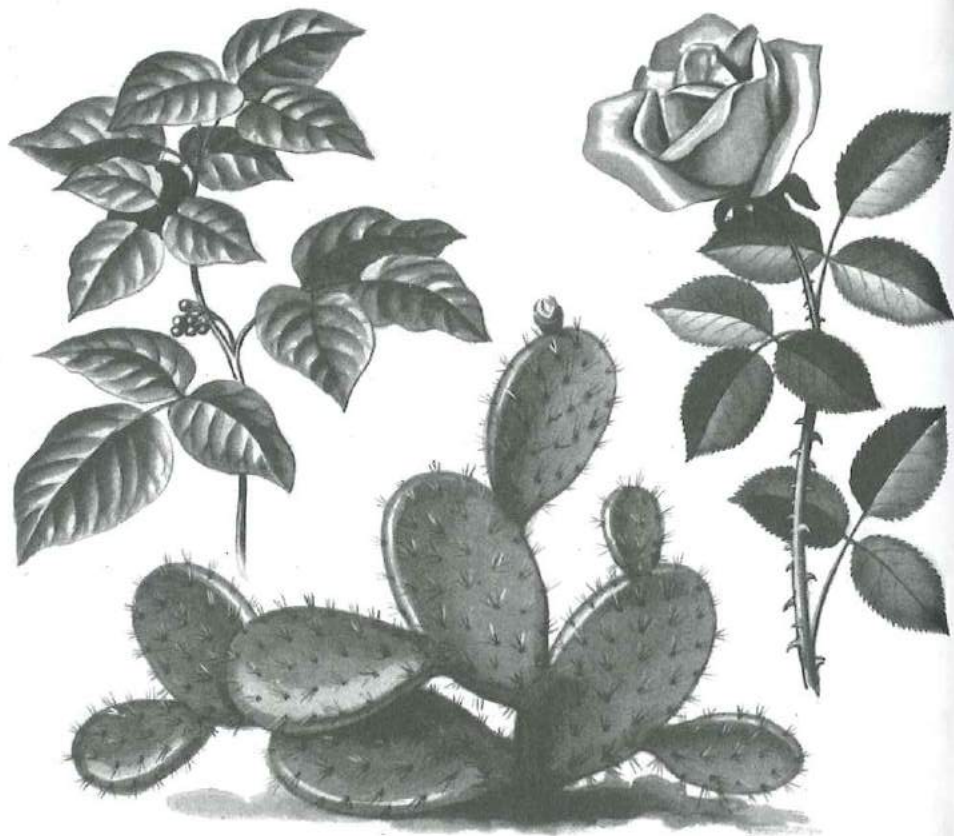
All animals either eat plants or they eat other animals which eat plants.

Sue and Tom tried to think of ways in which people and animals help plants.

Sue said, “Animals carry seeds and help them get to new places where they can grow. I saw a robin drop a cherry seed in the garden.

“We plant seeds in places where they can grow best. And we help them by pulling weeds and by driving away their enemies.”

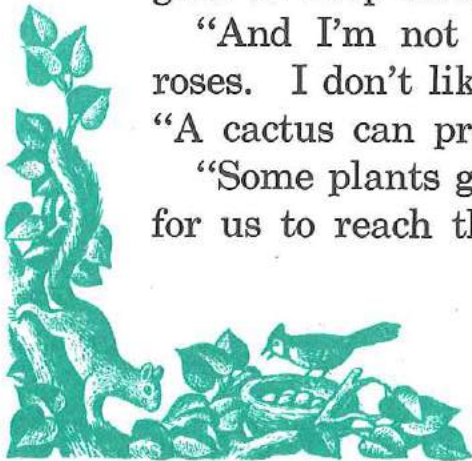




"Some plants don't need our help," said Tom. "They can protect themselves. I'm glad to keep away from poison ivy."

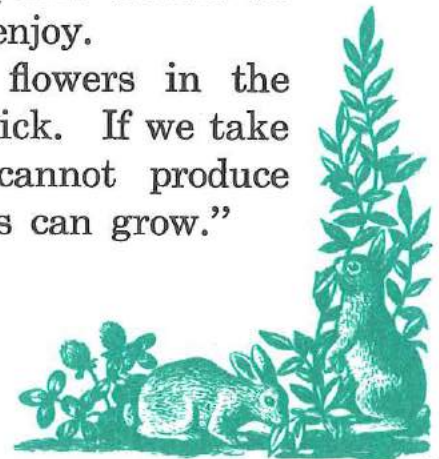
"And I'm not going to pick any more roses. I don't like their thorns," said Sue. "A cactus can protect itself, too."

"Some plants grow so tall that it is hard for us to reach their flowers and fruit."



"There are some plants that can't protect themselves," said Tom. "We have laws to protect them. Flowers in parks should be left there for everyone to enjoy."

"There are some wild flowers in the woods that we should not pick. If we take the flowers, the plants cannot produce seeds. Then no new plants can grow."





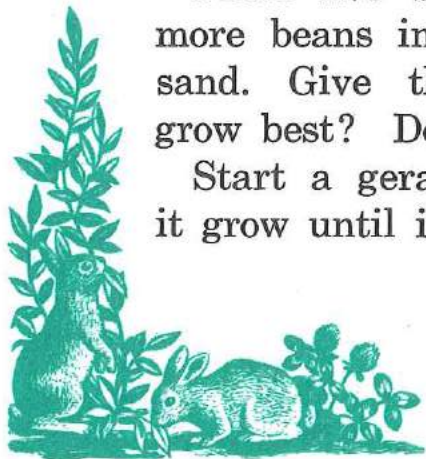
Things to Do

Put some city water in a glass. Let it stand until it dries. Can you see white minerals on the glass?

Put some clean rain water in a glass. Let it stand until it dries. Can you see minerals in this glass?

Plant five beans in water. Plant five more beans in soil. Plant five beans in sand. Give them water. Which beans grow best? Do all seeds grow?

Start a geranium from a cutting. Let it grow until it has flowers and seeds.

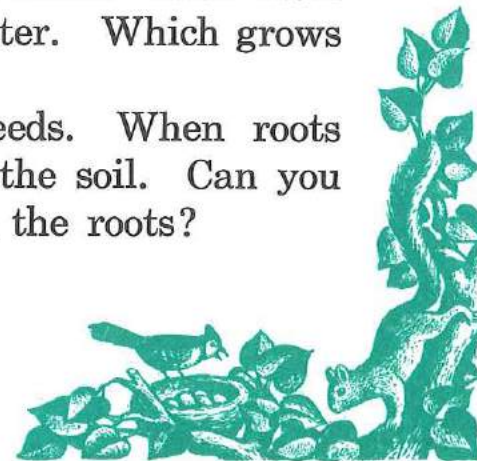


Dig up one grass plant from the yard. Wash the soil from its roots. Can you count the roots?

Put some celery in water colored with ink. See where the water goes up the celery stem.

Put one plant in a sunny window. Put another plant of the same kind and size in the darkest part of the room. Give them the same amounts of water. Which grows best?

Plant some radish seeds. When roots are formed, wash away the soil. Can you see very small hairs on the roots?





Things to Think About

What does a bluebird eat?

What does a sparrow eat?

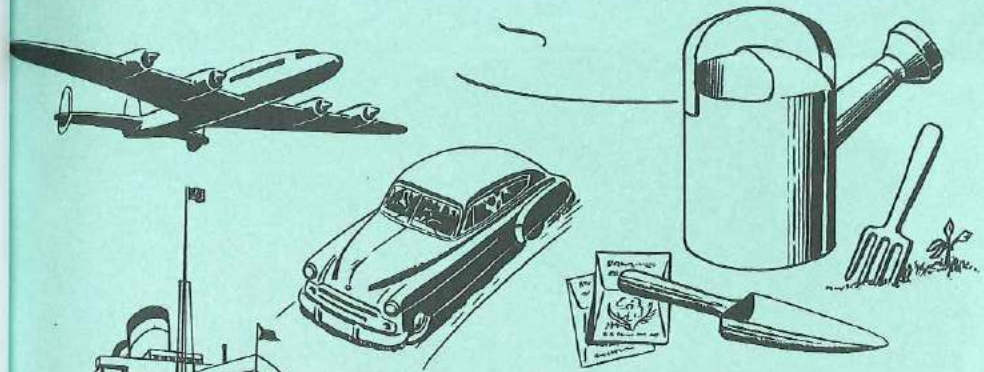
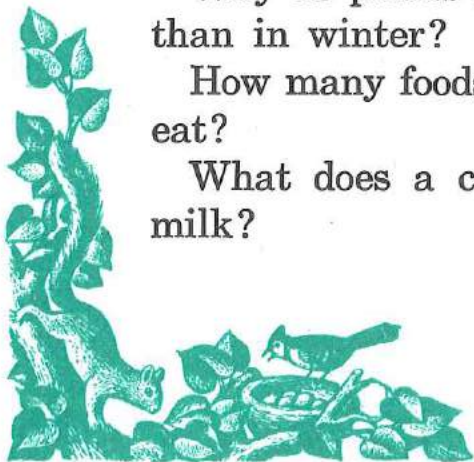
Where do mushrooms grow?

What plants can grow in water?

Why do plants grow better in the spring than in winter?

How many foods made from seeds do you eat?

What does a cow need to eat to make milk?



UNIT 2

MANY INSECTS LIVE IN THE YARD AND WOODS

