



Let's Do

SCIENCE

Primary 1

Textbook

A





The 5E Model – Guided Inquiry

The Let's Do Science series is based on the Biological Sciences Curriculum Study (BSCS) 5E teaching and learning instructional model. The 5E model is centered on the idea that students understand science concepts best by using prior knowledge to pose questions and find answers through guided inquiry.

This hands-on approach, integrated with engineering and design skills, has students learn science by doing science. Teachers guide the learning process and are able to assess student performance by evaluating student explanations and the application of newly acquired knowledge and skills.

Engage

The Engage phase of the 5E model provides students with the opportunity to demonstrate their prior knowledge and understanding of the topic or concept. Students are presented with an activity or question which serves to motivate and engage students as they begin the lesson. Teachers identify and correct any misconceptions and gather data from students which will guide informed teaching and learning.

Essential to stimulating and engaging students is the use of mixed media such as colorful photos, illustrations and diagrams found throughout the textbooks and activity books. Let's Do Science also includes extensive digital resources such as narrated videos, interactive lessons, virtual labs, slideshows and more.



Explore

This phase encourages exploration of concepts and skills through hands-on activities and investigations. Students are encouraged to work together and apply various process skills while gaining concrete, shared learning experiences. These experiences provide a foundation for which students can refer to while building their knowledge of new concepts. This student-centered phase comes before formal explanations and definitions of the concept are presented by the teacher.

Explain

This phase follows the exploration phase and is more teacher-directed. Students are initially encouraged to draw on their learning experiences and demonstrate their understanding of the concept through explanations and discussion. After the students have had the opportunity to demonstrate their understanding of the concept, the teacher then introduces formal definitions and scientific explanations. The teacher also clarifies any misconceptions that may have emerged during the Explore phase.

Elaborate

In the Elaborate phase, students refine and consolidate their acquired knowledge and skills. Opportunities are provided for students to further apply their knowledge and skills to new situations in order to broaden and deepen their understanding of the concept. Students may conduct additional investigations, share information and ideas, or apply their knowledge and skills to other disciplines.

Evaluate

This final phase includes both formal and informal assessments. These can include concept maps, physical models, journals as well as more traditional forms of summative assessment such as quizzes or writing assessments. Students are encouraged to review and reflect on their own learning, and on their newly acquired knowledge, understanding and skills.

Let's Do Science

Let's Do Science is based on the United States Next Generation Science Standards (NGSS). The series consists of full-color textbooks and full-color activity books for Grades K to 6.

Let's Do Science engages students with a highly visual presentation of the disciplinary core ideas in the textbooks and places an emphasis on applying scientific knowledge using NGSS practices through numerous scientific investigations. Let's Do Science sees engineering as an essential element of science education and as such is tightly integrated into both the textbooks and activity books.

The Let's Do Science textbooks include the following features:



Think Deeply

Topic-related questions for group discussion aimed at deepening students' understanding of the topic.



Engineer It!

Goes beyond inquiry by encouraging students to design, model and build to engineer solutions to defined problems.



In the Field

Inspirational science-related professions to stir interest in science-related careers.



A Closer Look

Invokes enthusiasm in science by presenting interesting topics beyond the syllabus.

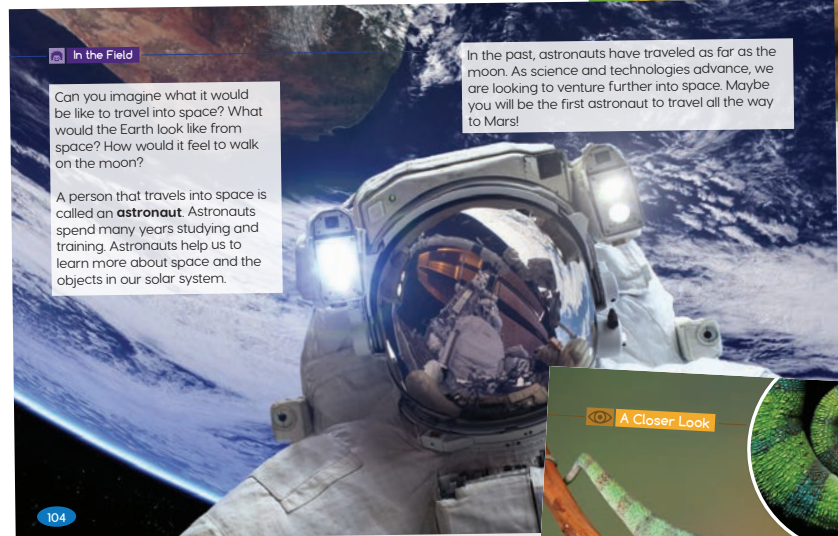


Needs and Peculiarities

Animals have different needs and peculiarities for living things like food, water, and shelter.



Some animals are predators for food. Other animals are both predators and prey.





Needs of Animals and People

Animals and people are living things. They need food, water and air.

Some animals eat plants or food. Others eat other animals. Some animals eat both plants and animals.

Animals and people drink the water they need.

People and land animals breathe in the air around them. Some animals, like fish, are able to get the air they need from water.



How do you get the things you need from day to day.



Science Words

- roots
- stem
- leaves
- flowers
- fruits
- fur
- feathers
- scales
- lungs
- gills
- respond

Review

1. Use the words in the box to label the picture.

- fruit
- roots
- stem
- leaves
- flower

(a) _____ (d) _____



- Describe two ways roots help a plant.
- True or false.
 - The roots hold the seeds for the plant.
 - Leaves use water, air and sunlight to make food for the plant.

4. Copy and complete the table.

Body Covering	Animal 1	Animal 2
Hair or Fur		
Feathers		
Scales or Shell		

- Which body part do fish use to breathe in water?
- Describe one way an animal can respond to changes in its surroundings.
- Describe how a wire fence is similar to the blackberry bush.



They have a long, sticky tongue that they shoot out to catch food such as insects.

Chameleons have curled tails which help them to hold on to tree branches.

Some chameleons can change the color of their skin. This helps them to blend in with their surroundings and avoid being spotted by predators such as birds.

Review

Topical questions at the end of each chapter for formative assessment.

Amazing Fact!

Interesting facts to build interest and enthusiasm.

Did You Know?

Extra information to build students' knowledge base of the current topic.

Try This!

Optional hands-on activities to be conducted in groups or at home.

AB Activity

Links students to the Let's Do Science Activity Book at the appropriate juncture.

Discussion

Topic-related questions and situations for class discussion to build a deeper understanding of topics.

Science Words

Lists the essential science vocabulary covered in each chapter.





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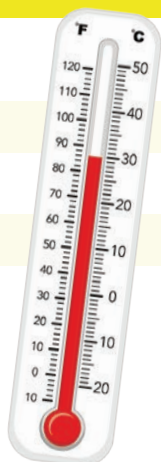


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Science Skills

Scientists use special skills to learn about the world around them.

Let's look at how you can use these skills so you can be a scientist too.

Observe

You **observe** when you gather information about something using your senses. You can observe how something looks, feels, sounds, smells or tastes.





What senses are the children using to observe?

You can use different tools to observe things closely. You can use a hand lens, binoculars or a telescope.





Compare

You **compare** things when you observe and tell how things are similar or different.



How are the hen and chick similar? How are they different?



Classify

When you compare two or more things, you can **classify** them into groups based on ways they are similar.



How have the leaves been classified into groups?



Leaves in the Garden





Measure

You **measure** when you find the size or amount of something.



You can use tools to help you measure things. You can use a ruler to compare and measure length.

You can use a balance to compare and measure mass.





Make a Model

You can make a model to test or see how something works.

You can make a model by drawing a picture.

You can also make a model by using the things around you to make a smaller version of something to show how it works.





Infer

You **infer** when you make a guess about something based on what you know or what you observe.



What can you infer about the cause of the holes in the leaf?



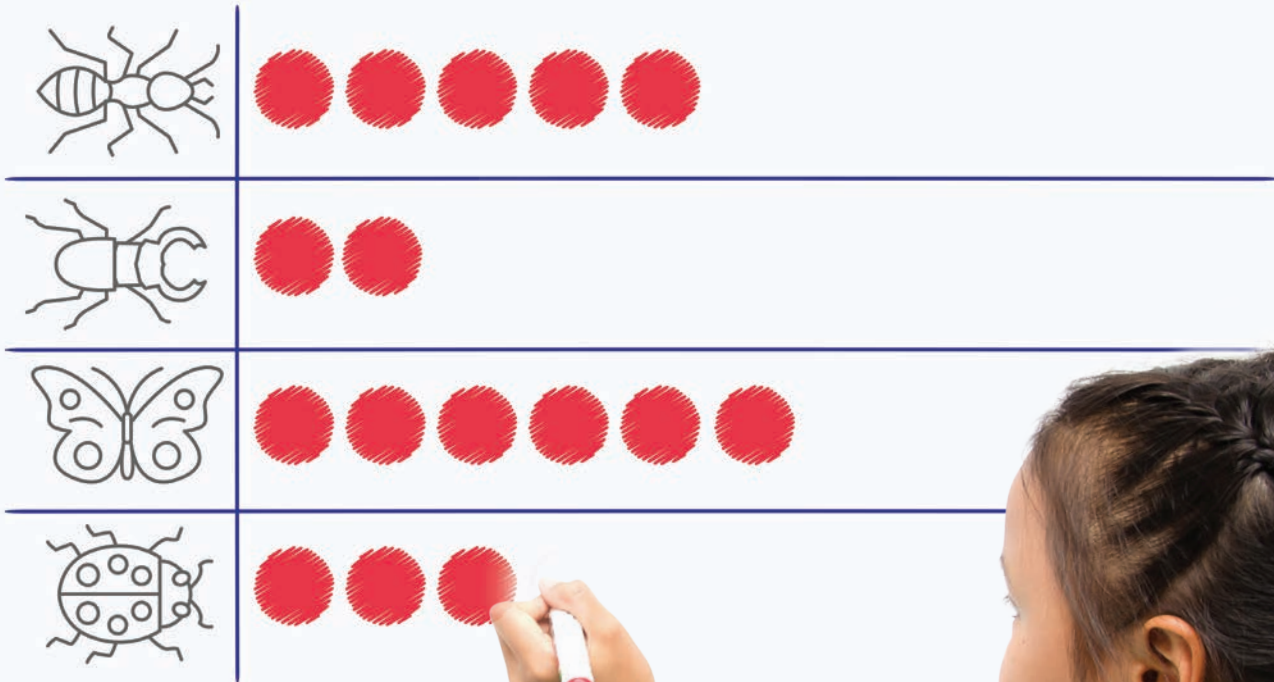
What can you infer from observing the tracks in the sand?



Communicate

You **communicate** when you tell or show other people what you find out.

Insects in School Garden



You can communicate by making charts, drawing pictures or writing about what you find out.



Science Investigations

Ask Questions

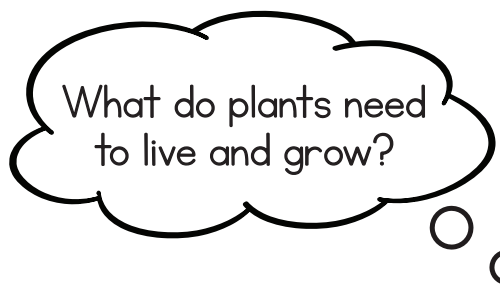
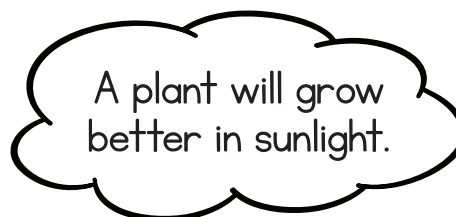
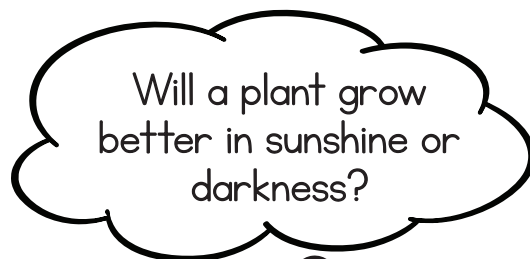
Before a science investigation, ask questions about what you would like to find out.

Make a Prediction

A prediction is a guess about what you will observe before you make the observation.





What are some things you would like to find out about in science?



Plan and Carry Out an Investigation

Make a plan with steps that others can follow.
List all the materials you will need.

Procedure	Materials
1. Measure the heights of the plants.	
2. Put one plant near a window. Put the other plant in a dark cupboard.	two plants
3. Water and observe the plants every day for one week.	 ruler spray bottle with water

Observe and Record Data

Record the things you observe. You can write or draw the things you observe. You can use charts and tables.





Analyze and Interpret Data

You analyze when you look closely at recorded data.

You interpret when you understand and explain what the data means.

Make a Conclusion and Communicate

Make a conclusion and communicate it to others.



Science Safety

Follow these safety rules when carrying out investigations.



Wear safety gear.



Follow your teacher's instructions.



Keep your workspace clean.



Be careful with sharp objects.



Wash your hands after every activity.



1

Living and Non-living Things



In this chapter you will ...

- distinguish living things from non-living things.
- list the needs of living things.
- list the characteristics of living things.



What do living things need?



Go Online! 

Access interactive content relating to this topic on the NGScience website.
ngscience.com



How can you tell if something is a living thing?





Living Things

What Are Living Things?

Look out of a window. What things do you see? Some of the things you see are alive. Something that is alive is called a **living thing**.

Plants and animals are living things. You are a living thing too.



Living things need food, water and air to live and grow.

Some of the things around you are not alive. They are called **non-living things**.

Non-living things do not need food, water or air.



AB

Activity 1.1





Needs of Plants

Like all living things, plants need food, water and air.

Many plants take in water from the soil using roots. They take in air through their leaves.



What happens if a plant does not get the things it needs?



Plants also need sunlight.
They use the energy
from sunlight to make
the food they need.



AB Activities 1.2 – 1.3





Needs of Animals and People

Animals and people are living things. They need food, water and air.

Some animals eat plants for food. Others eat other animals. Some animals eat both plants and animals.





Animals and people drink the water they need.

People and land animals breathe in the air around them. Some animals, like fish, are able to get the air they need from water.



How do you get the things you need from day to day?



AB

Activity 1.4





Living Things Move

Living things **move**. Animals and people can move from place to place.



Go Online!

Watch a video about the different ways animals move on the NGScience website.

QuickCode: **A1A1**

Some animals crawl, walk or run. Some live in water and move about by swimming. Other animals, like many birds, can fly.



AB

Activity 1.5





Plants cannot move from place to place, but there are things moving inside the plant.

Some plants can move their parts. The Venus flytrap closes its leaves to trap insects.

The mimosa plant closes its leaves when touched.



Think Deeply

Some plants move their leaves to face the Sun. How does this help the plant?



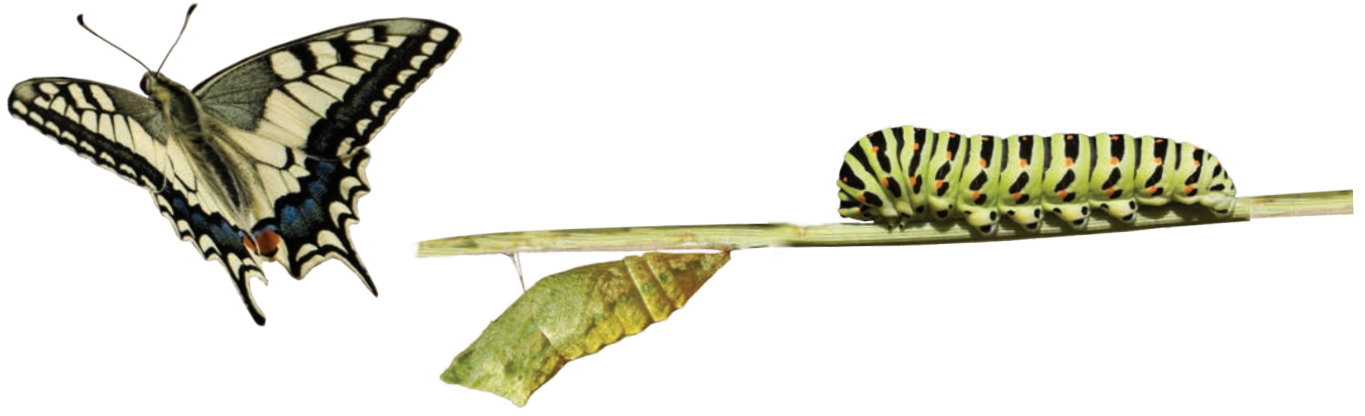


Living Things Grow and Reproduce

Living things make new living things just like themselves. They **reproduce** and **grow**.

Many plants grow from seeds. Young plants grow and change as they get older. They look more and more like the parent plants.





Animals reproduce too. Some animals look a lot like their parents when they are born. Other animals look different from their parents. As they grow, they change to look more like their parents.



AB Activities 1.6 – 1.7





Non-living Things

What Are Non-living Things?

Non-living things are not alive.
They do not need food, water or air.



What non-living things can you see? How do you know they are non-living things?

Non-living things cannot move by themselves. They cannot reproduce. They do not grow and change.



AB

Activities 1.8 – 1.10





Science Words

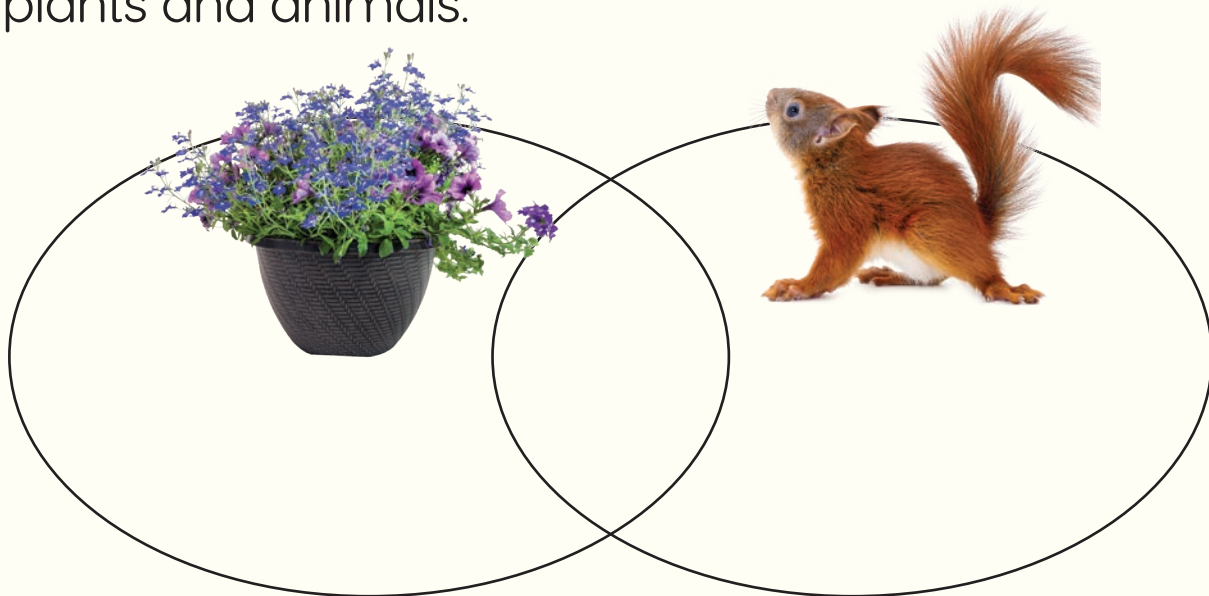
living thing
non-living thing
food
water
air

sunlight
move
grow
reproduce



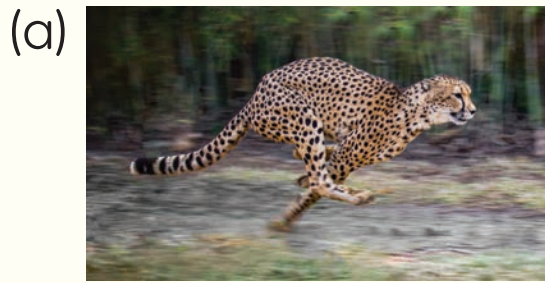
Review

1. List three living things.
2. List three non-living things.
3. Use a Venn diagram to compare the needs of plants and animals.



4. True or false.
 - (a) Plants use the energy in sunlight to make food.
 - (b) Plants eat other plants for food.

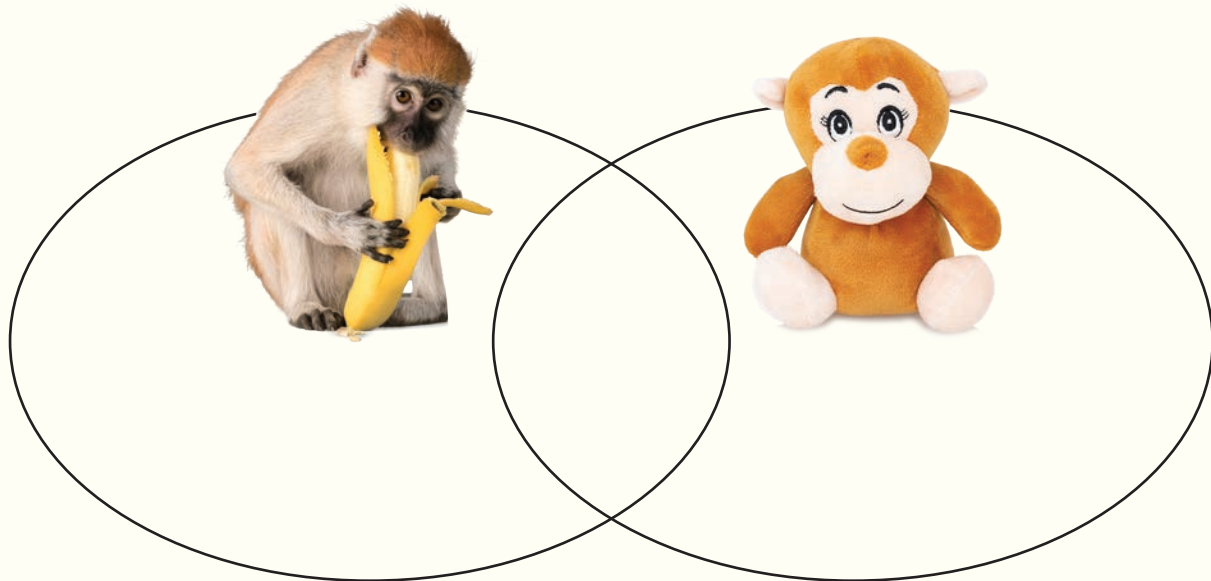
5. Tell how the animals move.



6. How does a plant change as it gets older?

7. How does an animal change as it gets older?

8. Use a Venn diagram to compare living and non-living things.





2

Plant and Animal Parts



How do the different parts of plants help them get the things they need to survive?




Go Online!

Access interactive content relating to this topic on the NGScience website.
ngscience.com



 In this chapter you will ...

- list and describe the functions of the parts of a plant.
- list and describe the functions of animal body parts.
- explain how plants and animals respond to changes.
- provide examples of how people mimic plants and animals to solve real-world problems.

 How do people mimic nature to help solve problems?



◀ tomato plant

Plant Parts

Plants have different parts. Each part helps the plant to get the things it needs to survive. Many plants have **roots**, a **stem** and **leaves**.



▲ *tomato flower*

Many plants also have **flowers** and **fruits**.



How does each plant part help the plant to get the things it needs?



AB

Activity 2.1

Go Online!



Label the parts of different plants on the NGScience website.
QuickCode: **F1K6**

▼ *tomato fruits*





Try This!

Use your fingers to trace the path water takes from the roots to the stem.

Roots

Many plants have **roots**. The roots grow down into the soil. They take in the water and nutrients the plant needs.



How is the shape and structure of roots suited to their function?



Some plants have roots that branch out in all directions. Other plants have long, thick roots that go deep into the soil.

Along with taking in water, roots also help to hold the plant in the soil.

 **AB** Activities 2.2 – 2.3

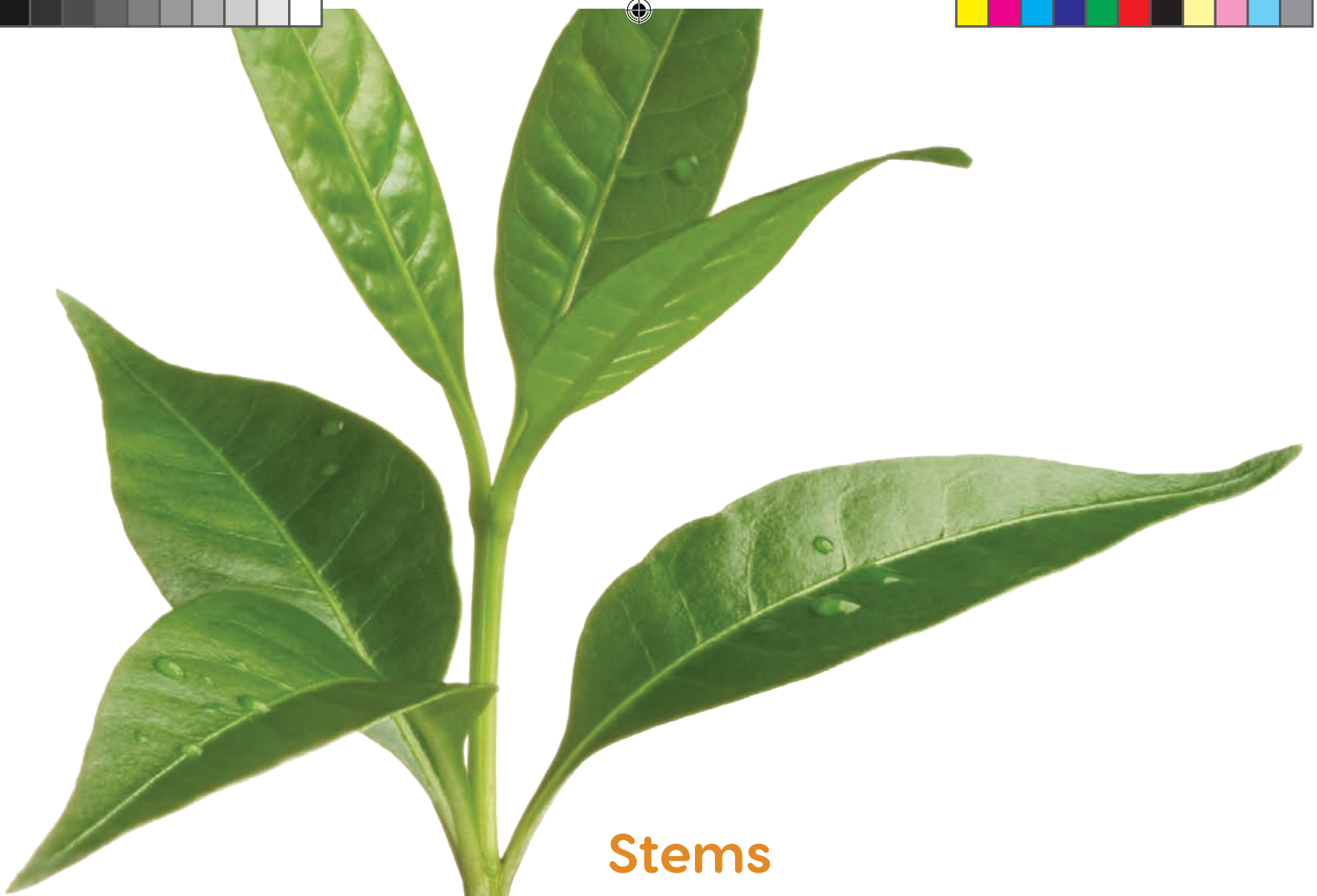
Go Online! 

Observe roots growing on the NGScience website.
QuickCode: **E6U3**

 **Did You Know?**

People eat the roots of many different plants. Carrots, beetroots and radishes are all root vegetables. Can you think of others?





Stems

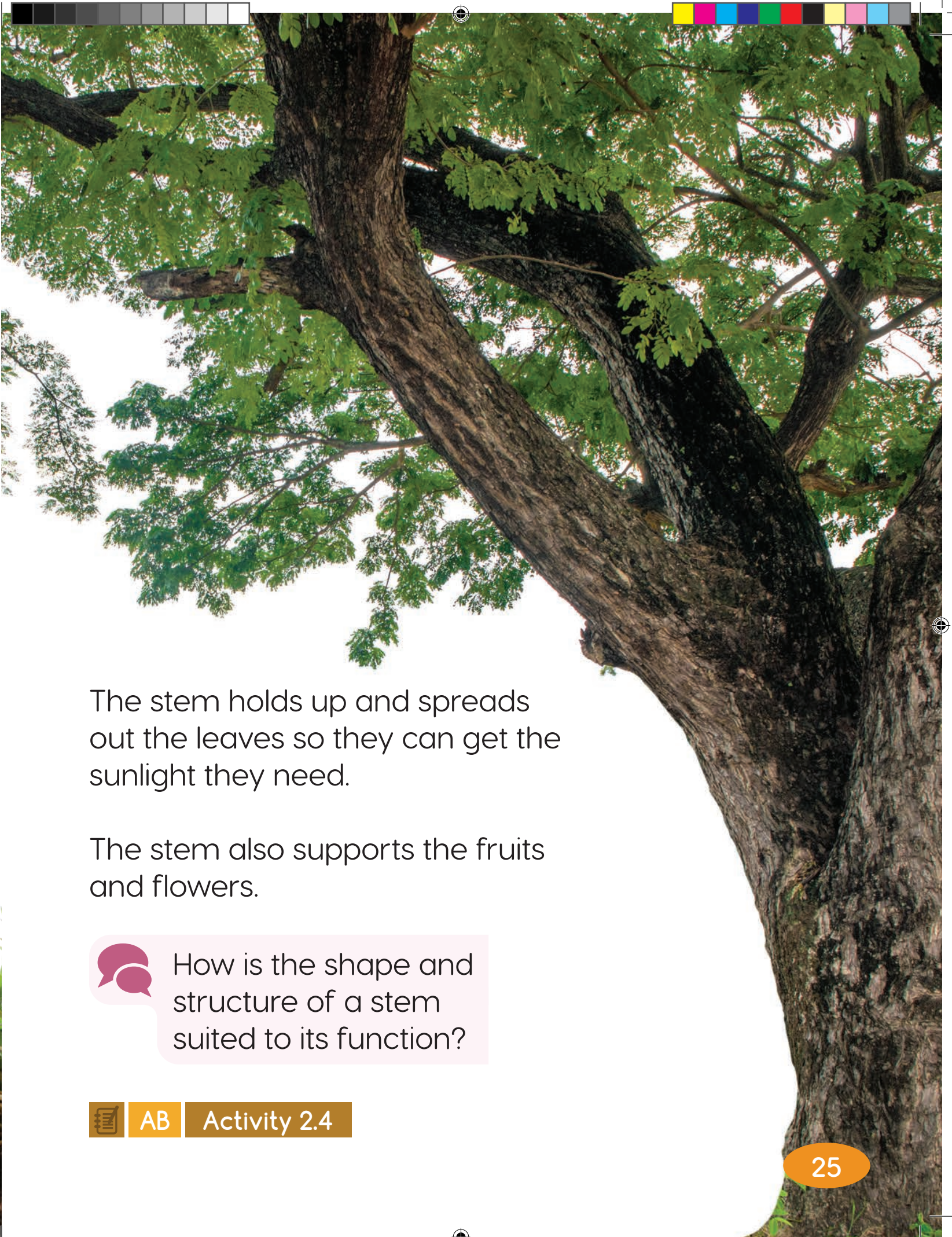
The **stem** is the part that holds up the plant.



Try This!

Use your fingers to trace the path water takes from the roots, through the stem, to the leaves.

The water and nutrients taken in by the roots move through the stem to the leaves.



The stem holds up and spreads out the leaves so they can get the sunlight they need.

The stem also supports the fruits and flowers.



How is the shape and structure of a stem suited to its function?



AB

Activity 2.4



Leaves

The **leaves** are the parts that use sunlight, air and water to make food for the plant.

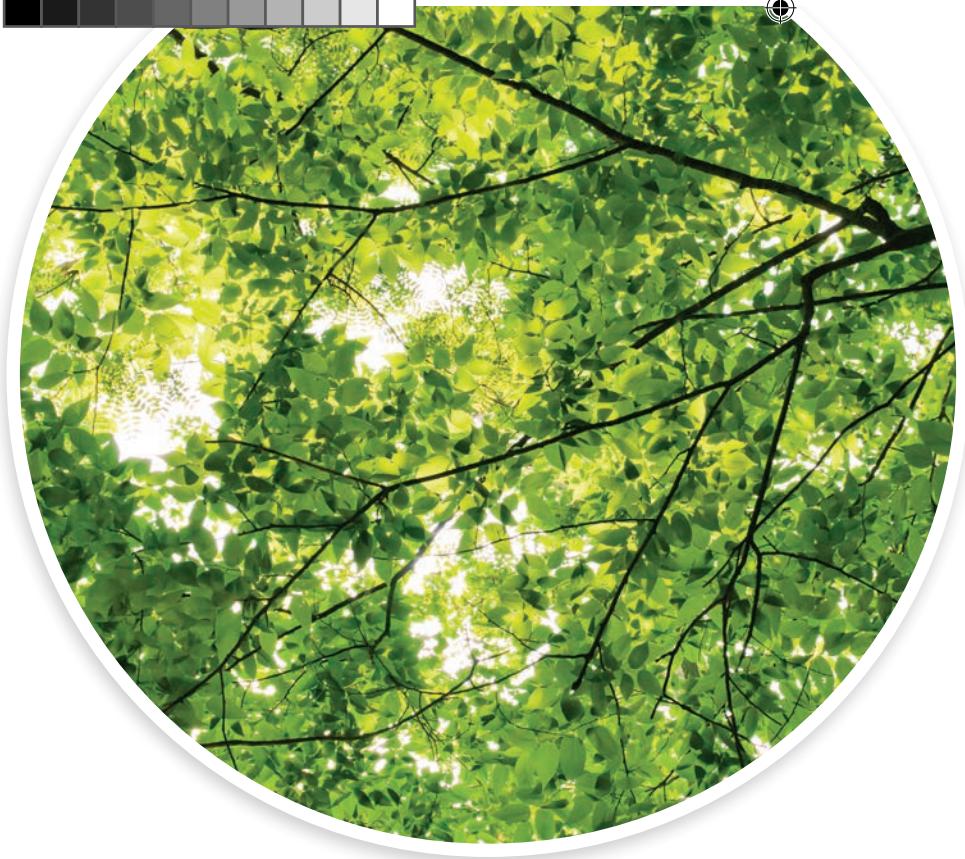


Think Deeply

What do you think would happen to a plant if you took off all its leaves?

Leaves come in many different shapes and sizes. Many leaves are often flat and thin. This helps them to take in more sunlight.





Think Deeply

Some cacti have sharp, spiky leaves. How does this help a cactus?

The food made in the leaves is moved to all parts of the plant.

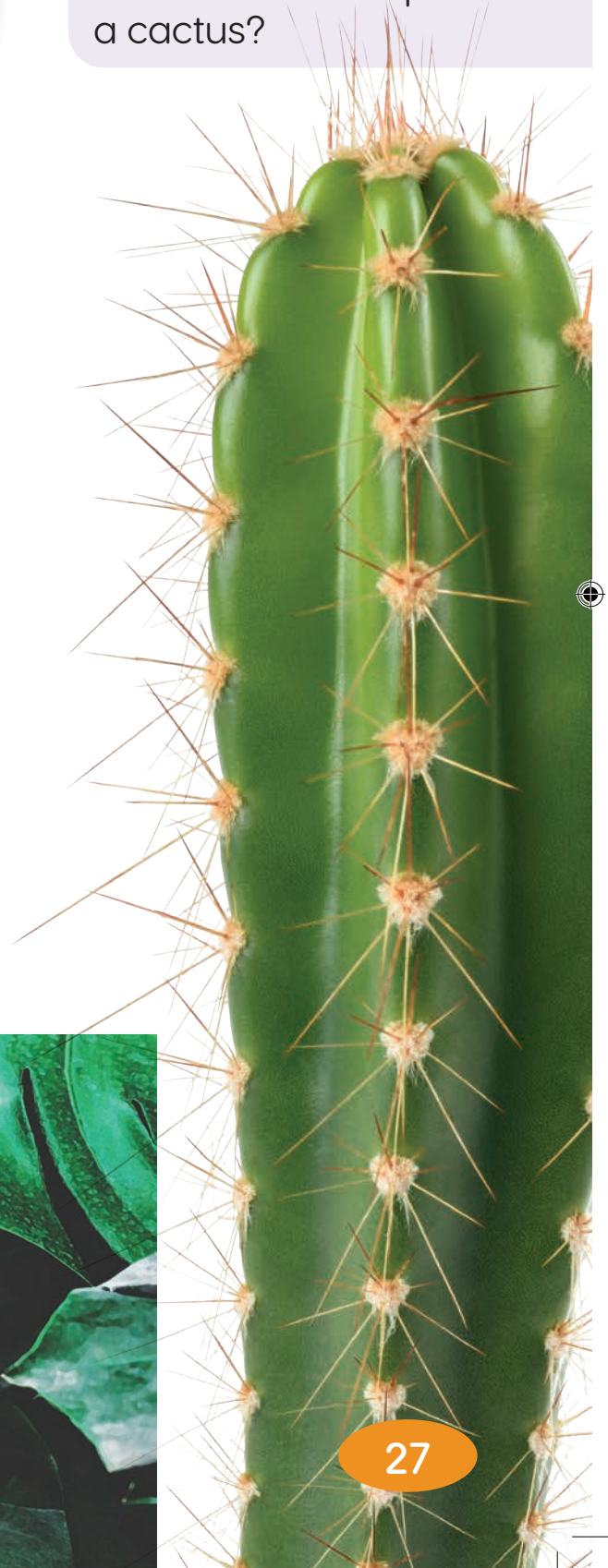


How is the shape and structure of a leaf suited to its function?



AB

Activity 2.5





Flowers

Many plants have **flowers**.

Flowers come in many different shapes, sizes and colors.

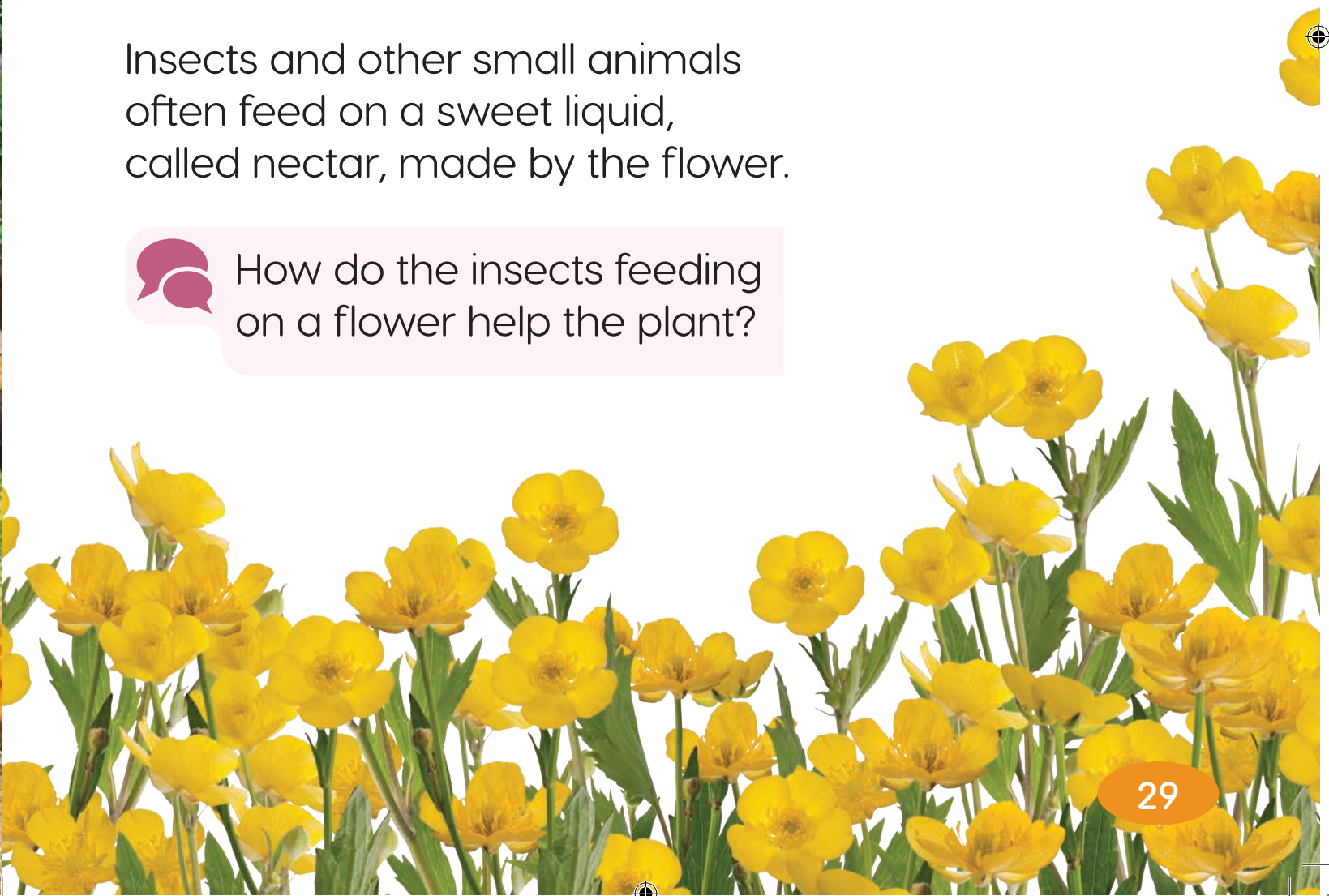


The flower is the part of the plant that makes **seeds**. The seeds can grow into new plants.

Insects and other small animals often feed on a sweet liquid, called nectar, made by the flower.



How do the insects feeding on a flower help the plant?





Fruits

Flowers may grow into **fruits**. The fruit is the part of the plant that grows around the seeds. They help to protect the seeds.

