

Informational
Nonfiction

Grasshopper or Cricket?

by Susan Ring



Read to Find Out

Are grasshoppers and crickets alike? How are they different?

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STRATEGIES & SKILLS AT A GLANCE Comprehension

- Strategy: Analyze Text Structure
- Skill: Identify Text Structure: Description

Vocabulary

- astronomer, communication, investigates, nutrients, overcome, prehistoric, solitary, territory

Support Words

- covering, depend on, imitator, sheds

High-Frequency Words

- type, wings

Vocabulary Strategy

- Word Parts: Greek Roots

CONTENT-AREA VOCABULARY

Words related to insects

(see *glossary*)

NATIONAL CONTENT STANDARDS

Life Science

- Characteristics of organisms

Word count: 1862**

B

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**The total word count is based on words in the running text and headings only. Numerals and words in captions, labels, diagrams, charts, and sidebars are not included.



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Introduction

Imagine you are walking outside on a nice spring day. The sky is blue. You are walking in tall, green grass. It may seem quiet and still. But all around you, there are animals. Grasshoppers hop in the tall grass. A grassy place like this is the perfect **habitat** for them.

At night, another type of small insect moves in the grass. It is the cricket. Crickets also live in grassy places. You may not always see crickets. But you often hear them chirping at night.

Grasshopper

Grasshoppers and crickets live in most places on Earth. But they do not live at the freezing-cold North and South Poles.

Cricket



A grasshopper investigates the territory with its antennae. Antennae help a grasshopper smell and feel things moving around them.

Grasshoppers and crickets are insects. All insects have three body parts. They have a hard shell over their body. This shell is called an **exoskeleton**. All insects have six legs. They have two **antennae**. Grasshoppers and crickets also have four wings. The front wings of grasshoppers and crickets are thin and long. These wings cover and protect the back wings of the insect. The back wings are light, and they fold up like a fan. Grasshoppers and crickets also have strong muscles in their long back legs. They can jump very high.

Grasshoppers and crickets may seem the same, but they are different. Most grasshoppers have short, thick antennae. Most crickets have long, thin antennae.

Chapter 1

Grasshoppers

A grasshopper has two big eyes. The **compound eyes** of a grasshopper are made up of hundreds of tiny eyes. A grasshopper uses tiny **spiracles** along the sides of its body to breathe. Air comes in through the front spiracles. Air goes out through the back spiracles.

Grasshoppers can make chirping sounds. To do this, they rub their back legs against their front wings.



Clue: Along is a preposition. Along the side is a prepositional phrase. Can you find more prepositional phrases on page 2?

🔍 All insects have three main body parts. These parts are the **head**, the **thorax**, and the **abdomen**.



Take a Leap

Grasshoppers are amazing jumpers. They have very strong back legs. A grasshopper's legs can help them leap 20 times the length of their bodies. Grasshoppers jump to escape from their enemies.



The Eyes of a Grasshopper

The eyes of a grasshopper are compound. This means there are hundreds of smaller eyes inside each eye. Grasshoppers also have smaller eyes on the tops of their heads. They use these eyes to see shadows. Grasshoppers can see colors.



Antennae help the grasshopper smell things.

Food for Grasshoppers

When a grasshopper wants to find food, it uses its antennae to find out what is moving on the ground. The grasshopper listens for enemies or danger with ears that are on its abdomen. If it does not hear any enemies, it looks for plants to eat. Grasshoppers have two pairs of jaws to help them eat. Some grasshoppers eat only leaves and flowers. Others eat whatever they find in a farmer's field, such as barley or corn.

Keep Watch

Grasshoppers must watch out for their enemies. Some lizards eat grasshoppers. Spiders, birds, snakes, and monkeys eat them too. But grasshoppers can protect themselves.

Some grasshoppers use their coloring to protect themselves. A green grasshopper can use a green leaf as **camouflage**. Some grasshoppers have bright colors. This tells enemies that the grasshopper is full of poison or tastes bad.

Some grasshoppers spit at their enemies. When they are scared, they spit a brown liquid. Other grasshoppers smell bad. This keeps enemies away. And of course, many grasshoppers can just hop to safety.



The green color of the Costa Rican grasshopper helps it hide.

The bright color of the South African Red grasshopper makes enemies think it will taste bad.



All Kinds of Grasshoppers

There are about 10,000 different kinds of grasshoppers. The smallest grasshopper is as small as the tip of a pencil. The largest grasshopper can be as long as a person's hand!

Monkey-Hopper

There are more than 1,000 kinds of monkey-hoppers. These grasshoppers got their name because they move through trees like monkeys. Some bright colored monkey-hoppers are found in tropical rain forests. There are not many flowers in the rain forests. So people call these insects the "flowers of the jungle."



Clue: Person's hand means "the hand of a person." It is possessive. Can you find more possessives on page 5 and page 6?



Painted Grasshopper

This type of grasshopper lives in the hot, dry desert. Painted grasshoppers live only in the southwestern United States. Their bright colors warn birds not to eat them.



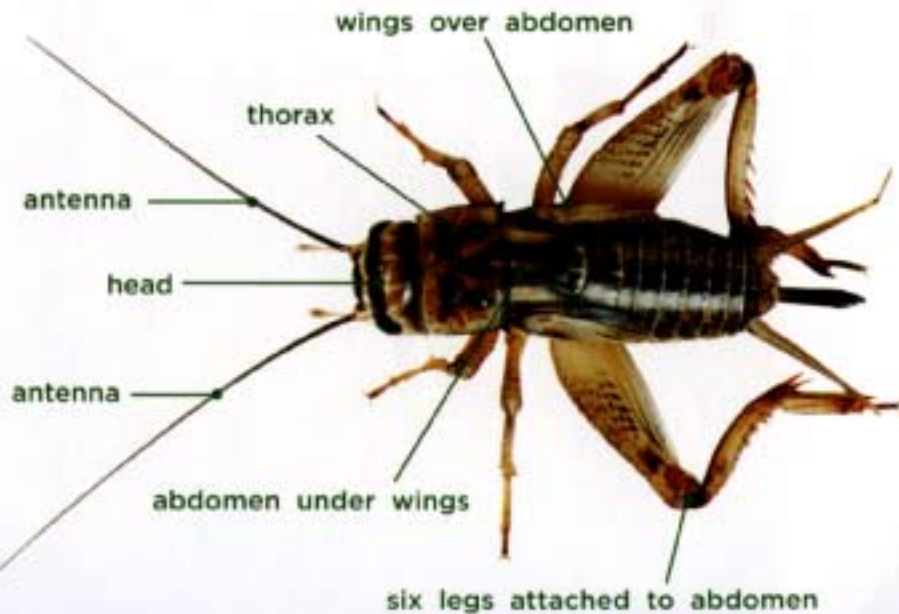
Lubber Grasshopper

This grasshopper uses bubbles to protect itself! If the grasshopper thinks danger is near, a smelly, bubbly liquid comes out its sides. The liquid makes a hissing sound as it comes out. The lubber lives anywhere weeds and shrubs grow. It can even live along the sides of roads.



Chapter 2 Crickets

A male cricket sings to call a female cricket. Chirping is a type of cricket communication. When the male cricket scrapes its front wings together it makes sounds. Each wing has a sharp edge. The wing also has a bumpy part. First the cricket lifts its wings. Then it rubs the sharp edge of one wing against the bumpy part of the other. The cricket looks like it is playing a violin. Each type of grasshopper has a different song.



Crickets Tell the Temperature

You can find out the temperature outside with help from a tree cricket. You also need a watch with a second hand.

Count the number of chirps you hear in 15 seconds. Then add 40 to that number. The sum is the outdoor temperature. For example, if you hear 30 chirps in 15 seconds, it is 70° Fahrenheit (21° Celsius) outside.



Crickets do not see well. They depend on their ears to help them find things. The ears of a cricket are on their front legs. Each ear is a small hole with a thin covering.

House Crickets

A long time ago, house crickets liked to live near warm kitchen stoves. The crickets ate crumbs that fell from the stove. They would also sit near a warm fireplace that heated the home. People liked to listen to the chirping crickets on cold nights. Today crickets inside homes must find a warm place to hide.

covering: something that is on top of something else
depend on: to need or use

A Cricket Story

Stories from ancient Chinese folklore say that crickets can bring good luck. Here is an old Chinese legend, or story. It shows how one cricket brought a man some very good luck.

The Cricket's Cage

Long ago, there lived a Chinese emperor. One day, the emperor decided to build a new palace to live in. He asked his builder to draw a plan. But none of the plans pleased the emperor. The drawings were too ugly, too tall, or all wrong. The builder told his friend about this problem. The friend gave the builder a cricket. "This cricket will surely bring you luck," the friend said.

The builder put the solitary cricket in a tiny cage. The builder promised the cricket that he would build it a bigger cage. The cricket decided to let the builder know what kind of cage it needed. One night, the cricket left its cage. It hopped over to the table. The cricket dipped its antennae into the ink, and began to draw. The cricket worked all night. It drew a wonderful plan. Finally the cricket finished. It hopped back to its small cage and went to sleep.

The next morning, the builder saw the drawing. He began to build the cricket a new cage. That night, the emperor visited the builder. "I'm sorry," said the builder, "but I don't have your plans yet." The emperor said, "Don't be silly! This drawing is perfect for my palace!"

So the builder built the emperor a new palace. From that day on, the cricket went everywhere with the builder. Over the years the cricket lived in many fine cages. However, the cage the cricket had drawn was the grandest cage of all.



Kinds of Crickets

Crickets can be all shapes and sizes. There are more than 4,000 kinds of crickets in the world.

Mole Cricket

Moles are small animals that dig holes underground. Mole crickets got their name because they live underground too. Their front legs are like little shovels. Mole crickets use them to dig dirt. The mouths of mole crickets work like scissors. Mole crickets use their mouths to cut roots to eat.



Stone Cricket

Can you see the cricket in the stones? This is a stone cricket. It lives in the rocky deserts of South Africa. The stone cricket is the same color as stones. This hides the cricket from predators or enemies.



Ant-Loving Cricket

Ant-loving crickets live in ant colonies. They have an interesting way of getting food. They tickle worker ants until the worker ants throw up partially digested food. This food was for the baby ants. But the cricket eats it before baby ants can eat it. The crickets like living with the ants. But you can see why the ants do not like the crickets.

Weta Cricket

These large crickets have no wings. They can protect themselves with their sharp, spiny legs. Wetas can put their legs straight up in the air and kick their enemies. Wetas live on only a few small islands in New Zealand.



Chapter 3

Baby Grasshoppers and Crickets

In the summer, male crickets and grasshoppers chirp as they call the females. Female crickets and grasshoppers make little holes in the dirt. Then they lay their eggs in the holes. The females cover their eggs with sticky foam or bubbles. The foam protects the eggs. The eggs look like tiny grains of rice. A female cricket or grasshopper might lay more than 100 eggs at one time.

⦿ Before the female grasshopper lays eggs, she digs a hole in the dirt.



⦿ Nymphs eat more than adults eat. In order to grow, they need to eat many nutrients.

In the spring, baby grasshoppers and crickets slowly push out of their eggs. A baby is called a **nymph**. It has no wings. Nymphs are little, but they eat a lot.

As the nymph grows, it sheds its skin, or **molts**. Most grasshoppers and crickets molt about 6 to 10 times during their life. Each time an insect molts, its wings grow a little bit more. By the last molt, the insect has wings that are big and fully grown.

sheds: removes; takes off

Chapter 4 Katydid and Locusts

Grasshoppers and crickets are members of the insect family. Many other insects look or act like grasshoppers and crickets. Two examples are katydids and locusts.

The Katydid Call

Katydid are named for the sound they make. They call out, "Katy-did, Katy-didn't." They are calling to find a mate or partner. Only male grasshoppers and crickets sing. But female katydids call out with the males.



Katydid are like the cousins of crickets and grasshoppers. Katydid have long horns. They hide among green leaves and bushes. The wings of some katydids look like leaves. This helps katydids hide from their enemies. Katydid have other ways of staying safe, too. One type of katydid is a good imitator. When it thinks danger is near, it stands on its head so that it looks like a wasp. This scares predators.

Locusts have short horns. Locusts make noise by rubbing their back legs against the front of their wings. They have ears just below their knees. These ears help them hear the sounds of other locusts. Locusts can fly in huge **swarms**. They can destroy or ruin fields.

imitator: something that copies another thing

ⓘ In 1870 a swarm of locusts flew through the Great Plains of the United States. The swarm was 300 miles (483 km) long and 100 miles (161 km) wide.



Conclusion

Grasshoppers and crickets have been on Earth for millions of years. They have overcome many dangers to live in a world where most things are bigger than they are. In many places, grasshoppers and crickets are part of people's lives.

Scientists divide all animals into groups. Grasshoppers and crickets belong to the same insect group, or order. The order is called **orthoptera**. This word means "straight wings." Scientists believe that insects in this order have been on Earth since prehistoric times.



Entomologists are scientists who study grasshoppers, crickets, and other insects. Farmers study these insects because sometimes grasshoppers and crickets can harm crops. In some places, animals eat grasshoppers and crickets. In some places in the world, people eat them, too. And some people just like to watch grasshoppers jump across their lawns and listen to crickets chirp at night.



🔍 An astronomer uses a telescope to study stars far away in the sky. An entomologist holds a magnifying glass to study insects that are close.

Glossary

- abdomen** the rear part of an insect's body (*page 4*)
- antennae** a pair of long, thin feelers that help an insect to sense, or feel, things. The singular is antenna. (*page 3*)
- camouflage** colors or shapes on an animal's body that help it hide (*page 7*)
- compound eye** an eye made up of many small eyes that work together (*page 4*)
- entomologist** a scientist who studies insects (*page 21*)
- exoskeleton** an insect's hard outer covering (*page 3*)
- habitat** the place where an animal lives (*page 2*)
- molt** to grow out of, or shed, old skin and grow new skin (*page 17*)
- nymph** a young insect (*page 17*)
- orthoptera** the scientific order, or group of animals, that includes grasshoppers and crickets (*page 20*)
- spiracle** a small breathing hole on the side of an insect's body (*page 4*)
- swarm** a huge group of insects (*page 19*)
- thorax** the middle part of an insect's body (*page 4*)

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Comprehension Check

Summarize

Complete a Description Chart with the class. Summarize the story. You can use the chart to help you organize your ideas.

```
graph TD; A[ ] --> B[ ]; B --> C[ ]; C --> D[ ]
```

Think and Compare

1. Reread pages 16 and 17. Describe the life cycle of a grasshopper. How does it go from an egg to an adult? (**Identify Text Structure: Description**)
2. The next time you see a cricket or a grasshopper, will you know what kind it is? What will you look for? (**Apply**)
3. Why do you think some scientists like to study insects? What do scientists investigate about insects? (**Evaluate**)

Literacy Activities



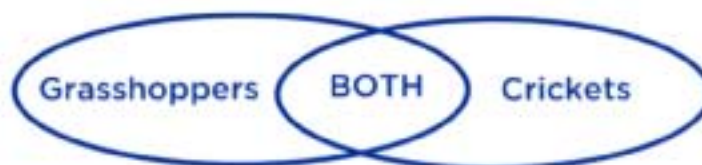
A Day in the Life

With a partner, reread pages 6-7. Pretend you are grasshoppers. It is the end of the day. Together, write a few paragraphs to describe your day. Write about any dangers you faced and how you stayed safe.



Compare and Contrast

With a partner, use a diagram like the one below to compare and contrast grasshoppers and crickets. Use information from the book to describe how grasshoppers and crickets are alike and different.



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Grasshopper or Cricket?

They spit at their enemies. They chirp on cold nights. They travel in groups. Read about these amazing insects.



4.6 Week 5

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