

Amazing Insects Curriculum Map

Take your students on an insect safari with the 39 cross-curricular activities. The 11-page reproducible student booklet completes this resource which covers all information learned and may be used as a test or follow-up upon completion of the topic.

This resource is filled with ideas and worksheets that will stimulate student interest and creativity as well as strengthen the following areas of learning.

- Reading
- Vocabulary
- Research
- Language
- Knowledge
- Creative Thinking

Teacher Notes & Information:

For the teacher:

- Teacher Assessment Rubric
- Student Self-Assessment Rubric
- Teacher Notes: About this Book
- Teacher Input Suggestions
- Insect Brainstorming Record Sheet
- Insect Observation Record Sheet
- Teacher Information on Insects
- Insect Vocabulary List

Unit Answer Key

Student Booklet:

- Teacher Notes: Reproducible Student Booklet
- Amazing Insects Student Booklet – Printable - The reproducible student booklet contains 10 fill-in-the-blank worksheets, plus a cover page. Each area pertaining to insects should be discussed prior to working in the booklet. After a discussion each sentence is to be read and possible answers suggested to fill in the blanks. The missing words should be recorded on the chalkboard to ensure the correct spellings are being recorded.

- Amazing Insects Booklet – Google Slides - The links in the PDF direct you to the google slide lesson. There are two links, one for editable slides and one for digital-ready slides. This gives you the flexibility to edit the student worksheets to meet their needs! The PDF includes the worksheets giving you the option for in-class instruction or distance learning.

Phonics Worksheets:

- Teacher Notes: Phonics Worksheets
- **Phonics Worksheet Skills Covered:**
 - Long and Short Vowel Review
 - Blend and Digraph Review
 - Spelling New Vocabulary
 - Blend and Digraph Review
 - Double Consonant Review
 - Double Vowel Combinations Review

Vocabulary Worksheets:

- Teacher Notes: Vocabulary Worksheets
- **Vocabulary Worksheets:**
 - Syllabication
 - Working with Plurals
 - Working with Antonyms
 - Homophones
 - Root Words
 - Compound Words
 - Animal Groups
 - Parts of a Whole
 - Alphabetical Order
 - Using the Suffixes “s, ed, ing”
 - Word Search
 - Crossword Puzzle

Reading Stories and Aesop Fables:

- Teacher Notes: Reading Stories and Worksheets (Aesop Fables)
- **Printable and Google Slides for these Insects:**
 - Reading Story 1: The Ants and the Grasshopper
 - Reading Story 2: The Bear and the Bees
 - Reading Story 3: The Eagle and the Beetle
 - Reading Story 4: The Bees and Wasps and the Hornet
 - Reading Story 5: The Owl and the Grasshopper
 - Reading Story 6: The Ant and the Dove
 - Reading Story 7: The Bees and the Tortoise
 - Reading Story 8: Jupiter and the Bee
- Reading Stories and Worksheets - Google Slides – All of the stories are included in the link. The links in the PDF direct you to the google slide lesson. There are two links, one for editable slides and one for digital-ready slides. This gives you the flexibility to edit the student worksheets to meet their needs! The PDF includes the worksheets giving you the option for in-class instruction or distance learning.

Language Worksheets:

- Teacher Notes: Language Worksheets
- **Language Worksheets Skills:**
 - Insect Expressions
 - Parts of Speech
 - Capitalization and Punctuation
 - Writing Insect Sentences
 - Editing a Paragraph
 - Writing an Insect Story
 - Writing a Pattern Story
 - Writing Similes

Poetry Worksheets:

- Teacher Notes: Poetry Worksheets
- **Poetry Writing Worksheets:**
 - Writing an Insect Limerick
 - Writing an Insect Cinquain
 - Writing a Stair Poem About an Insect
 - Writing an Insect Haiku
 - Writing an Insect Acrostic Poem
 - Writing Rhyming Couplets

Information and Research Worksheets:

- Teacher Notes: Information Sheets and Research Worksheets
- **Printable and PowerPoint for these research topics:**
 - Research 1: All About Ants
 - Research 2: All About Butterflies
 - Research 3: All About Beetles
 - Research 4: All About Moths
 - Research 5: All About Grasshoppers
 - Research 6: All About Crickets
- **PowerPoint Slides** – All of the research topics are included. They are editable giving you the flexibility to edit the student worksheets to meet their needs!

Research Worksheets

1. This section of the book contains detailed nonfiction information sheets about various insects. Each information sheet has a worksheet that can be used as a follow-up.
2. The information sheets and worksheets could be reproduced and stapled together as booklets. The booklets could be worked on independently or in groups of two. The students are to read the information and then complete the activities on the worksheets.
3. The information sheets and worksheets could be prepared in a more permanent way to ensure longer usage. Mount the information sheets and the worksheets on regular file folders and laminate them. Duplications of the various information sheets and follow-up activities may be necessary for large group participation.

Example:

Insect Information

Insect Information
All About Ants

Ants are known as social insects because they live in organized communities. They are the most highly developed social insects in the world. Ants live everywhere on land except in extremely cold areas and have different lifestyles. They are grouped into six groups such as army ants, slave maker ants, harvester ants, dairyants, honey ants and fungus growers.

Army ants are fierce hunters and travel across the land in narrow columns or underground through tunnels in the soil. Army ants prey on other insects and spiders. A colony may contain 10,000 to several million ants. Some army ants do not build underground or permanent nests. While resting they gather in a large cluster and hang from a tree limb or lie inside a hollow log. The queen and her young are inside the large cluster of insects. During the resting period, they stay in one place and the queen lays hundreds of eggs.

Slave maker ants attack the nests of other ants and capture the pupae. The young slaves become adults and help with the work of the colony. They also feed ants that can't feed themselves.

Harvester ants collect and store seeds in special rooms in their nests so they will always have a food supply. They tear off the husks of the seeds and chew the kernels until they are soft pulp called "ant bread." The liquid is squeezed out and then they swallow it. Harvester ants also eat flowers, fruits and other insects.

Dairyants live on "honeydew" which is a sugary liquid that comes from certain insects such as aphids and plant lice. Plant lice suck juices from plants that contain more sugar and water than they need. They discharge the excess juice as honeydew. Dairyants either lick up the honeydew or stroke the plant lice with their antennae until they release drops of the liquid. This is called "ant milking." The ants protect the plant lice by fighting insects that come close while they are feeding.

Honey ants or honey pot ants collect honeydew from insects or from plants and store it in their nests. Workers called "repletes" are used as storage tanks for the colony. The workers keep feeding the repletes until they become so swollen with the juice that they can't walk. They hang from the ceiling of a chamber in the nest and bring up some honeydew whenever a nest mate taps it with its antennae.







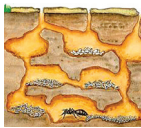

Insect Information
All About Ants

Fungus growers work gardens in their own nests. They raise different kinds of fungi. The fungi produce tiny knobs that the ants feed on. The ants collect leaves, flower petals and other plant materials to fertilize their gardens. The best known and most interesting fungus growers are the leaf-cutter ants. They build huge underground nests where millions of ants may live. At night, workers leave the nest to cut pieces of leaves from trees and carry them back to the nest holding them above their heads.

In almost all ant colonies, the members are divided into three classes or castes – the queen, workers and males. A new colony begins when a queen mates with a male. Once the colony is established the queen's only responsibility is to lay eggs. The workers care for the queen, build and defend the nest, care for the young, and gather food. The male ants do not do any work the colony. Their main responsibility is to mate with the queen and then die.

Most species of ants build their nests underground and carve tunnels and rooms into the soil. Some build large mounds of soil and cover them with twigs and pine needles. Carpenter ants make their nests in tree trunks, tree branches, and the wooden beams inside houses.

Most ant nests have a number of rooms or chambers. One room is for the queen and her eggs, several others serve as nurseries for the growing young. Some rooms are resting places for workers and other rooms are used for the storage of food. As the colony grows more rooms and passageways are added.

Ants help to maintain the balance of nature. They eat many insects and help to keep them from becoming too plentiful. Ants help farmers by killing insects that damage their crops. Ants who build underground nests improve the soil by breaking it up and loosening it so water can be absorbed easily.

Ants are also known as household and agricultural pests. Some ants damage houses while others invade homes, restaurants, hospitals and buildings to eat stored foods. In some areas, ants build large mounds that interfere with the cutting of hay on farms. Dairyants protect aphids and other insects that harm crops.

Insect Research 1
All About Ants

Read the information called "All About Ants."

Research to find the answers to the following activities.

1. a) List the names of the different groups of ants.

b) Which group of ants did you find the most interesting? Tell why.

2. Where do ants build their homes?

3. What are the responsibilities of the following ants in a colony?

a) queen: _____

b) workers: _____

c) males: _____

4. On the chart classify the ways ants are harmful and helpful.



Helpful Ants	Harmful Ants

5. On another sheet of paper draw a diagram of an ant and label its body parts.

These folders could be placed at a reading center or research center.

4. The activities in this section focus on the following skills.
 - Locating and Recording Information
 - Classification
 - Listing Characteristics
 - Completing a Chart
 - Insect Identification
 - Noting Likes and Differences
 - Following Written Directions
 - Writing Descriptive Responses

Insect Information

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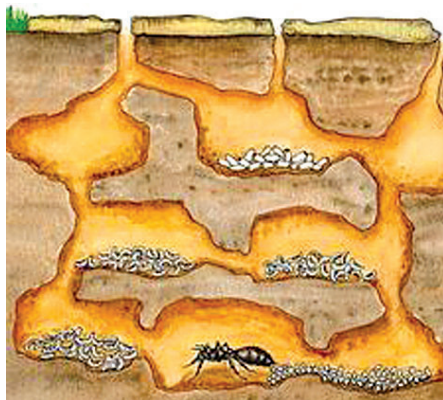
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All About Ants



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b) workers:

c) males:

4. On the chart classify the ways ants are harmful and helpful.

Helpful Ants	Harmful Ants

5. On another sheet of paper draw a diagram of an ant and label its body parts.



Insect Information

All About Butterflies



Butterflies are graceful beautiful insects who live almost everywhere in the world. Butterflies belong to the insect order called “Lepidoptera.” The name refers to the powdery scales that cover the two pairs of wings.

A butterfly’s body has a hard, shell-like skin called an exoskeleton (outer skeleton). This hard shell supports the body and protects the internal organs. A butterfly’s body has three main parts. They are the head, the thorax, and the abdomen.

The head of a butterfly is the center of sensation. It holds the butterfly’s eyes, antennae, and mouth parts. On each side of its head is a large compound eye which contains thousands of tiny lenses. Each lens provides the insect with an image of part of its surroundings. Between its eyes are long, slender antennae which are used for smelling to locate food or to find other butterflies.

The Butterfly has a long, sucking tube called a “proboscis” that is coiled up when not in use. The proboscis is used to suck up nectar and other liquids. The middle section of a butterfly’s body is called the thorax. It is connected to the insect’s head by a short thick neck. The wings and legs of a butterfly are attached to the thorax. The butterfly has two sets of wings - a front pair and a back pair. Throughout the wings is a network of veins that are mainly filled with air and serve as supports for the wings. The outer edges of the wings are quite flexible. They bend when flapped in flight. The bending action pushes the air backward and moves the butterfly forward. The wings are stiff near the front edges and at the bases. The front margins of the wings give the insect “lift” as it flies forward.

Butterflies cannot fly if their body temperature is less than 86° F (30° C). If the air temperature is lower than this point, they must “warm up” their flight muscles either by sunning their bodies or by shivering their wings. The flight muscles then absorb enough heat to make flight possible. A butterfly’s wings are covered with tiny flat scales that overlap. The scales provide color and form beautiful patterns.

Butterflies have three pairs of legs. Each leg has five segments. Joints between the segments enable a butterfly to move its legs in various directions. At the end of each leg is a pair of claws and hairy pads. The butterfly uses its claws to grip surfaces. The hairs on the pads have organs that are used for tasting. Butterflies have weak legs and can only walk short distances.

The butterfly’s abdomen is divided into segments. Inside the abdomen are its reproductive and digestive organs. Its digestive organs digest food and get rid of waste products while its reproductive organs are used to create eggs that develop into new butterflies. Along the segments of the abdomen are breathing holes called “spiracles.”

A female butterfly looks for a male butterfly to mate with by giving off signals called “cues” or a scent. The butterflies mate. The male butterfly dies a few hours later and the female flies off to find a place to lay her eggs. Females lay their eggs on plants that will provide food for their young. Some drop their eggs while flying or lay them near a plant. Some may lay several dozen eggs in a group or clusters of up to a hundred eggs. The eggs are attached to the plant with a sticky substance deposited by the female. The eggs may hatch in a few days while others may take months. Eggs laid in the fall may not hatch until spring.

Out of the egg emerges a caterpillar or larva. The caterpillar loves to eat and begins with its own eggshell. Then it begins to eat the closest food that it can find and usually feeds on green plants. A caterpillar may eat many times its weight in food daily.

Caterpillars are usually solid green or brown. Some have patterns which are brightly colored. Some caterpillars have smooth skin while others have bristly hairs, bumps, fleshy knobs or eyespots. These features help to protect caterpillars from being seen by enemies or so frightening in appearance that enemies avoid them.

A caterpillar's body is made up of 14 segments. The first segment is the head that has chewing mouthparts and two short, thick antennae. There are also six small eyes on each side of the head. Short jointed legs with a sharp claw at each tip are found on some of the segments. Below the caterpillar's mouth is a body part called a "spinneret." It is used to release a sticky silken thread that supports the caterpillar wherever it goes. The caterpillar breathes through tiny holes called "spiracles" along the sides of its body.

As the caterpillar grows its outer skin or exoskeleton does not. When its skin gets too tight, it splits lengthwise along its back and the caterpillar crawls out. Its new skin is soft and the caterpillar stretches it to provide growing room. The caterpillar will be still for a few hours as its new skin hardens. Caterpillars will molt or shed their skin four or five times.

Once the caterpillar is fully grown it begins its pupa stage. Only a few butterflies spin silken cocoons around themselves. A butterfly caterpillar looks for a protected location on a high twig or leaf and deposits a sticky liquid from its spinneret. The liquid hardens into a silk like pad. Its exoskeleton begins to split near the head, and the pupa comes out. As the exoskeleton falls from its tail, the pupa thrusts its "cremaster," a many clawed structure at the end of the abdomen into the pad. If the pupa does not grasp the pad quickly, it may fall to the ground and die. Most pupae hang downward supported by the cremaster hooked into the silken pad.

At first, the pupa is soft but a hard shell begins to form immediately. Some pupae have unusual shapes and colorful patterns. Some have a golden shine so scientists call the pupa a "chrysalis." Many changes take place inside the shell. The larva is gradually changing into a butterfly. This stage may be a few days or more than a year. Once the adult butterfly is fully formed, its body gives off a fluid that loosens it from the pupa shell. Its thorax swells and cracks the shell. The head and thorax emerge first. Next out comes the legs and then the rest of the body is pulled free. The exoskeleton is soft and the butterfly's wings are wet and crumpled. The butterfly uses its muscles to pump air and blood through its body and wings. Its exoskeleton hardens, its legs and other body parts become firm. The wings flatten and expand and in an hour, the butterfly is ready to fly off.



Insect Research 2
All About Butterflies



Read the information called “All About Butterflies.”

Research to find the answers to the following activities.

1. In point form list ten characteristics of butterflies.

2. On the chart below, list each body part of a butterfly and its function(s).

Body Part	Function

Insect Information

All About Beetles



The beetle is the most common of all insects. They live everywhere in the world except in the oceans. There are about 300,000 kinds of beetles.

Beetles have the same body parts as other insects such as antennae, three pairs of legs and a tough external skeleton (exoskeleton). Their bodies are divided into three main parts – head, thorax, and abdomen. However there is one difference. Adult beetles have a pair of special front wings called “elytra.” These wings form a leathery covering that protects the beetle’s body. This shell-like skeleton makes them look like armored tanks.

Beetles also vary in shape, color, and size. Click beetles and fireflies are long and slender while ladybugs are round. Most beetles are brown, black or dark red in color. Some are brightly colored like the ladybug, spotted cucumber beetle and the Peruvian tortoise beetle. Beetles also vary in size. The feather-winged beetle is the smallest and measures less than 1/50 th of an inch (0.5 millimeters) long while the largest beetle, which is the Goliath Beetle of Africa, is 5 inches (13 centimeters) long.

Most beetles are solitary insects which means they live alone and have no family life. Their young must fend for themselves. Beetles have many enemies and are prey for birds, reptiles, and other insects. For protection, beetles hide, fly away or produce bad-smelling chemicals that discourage attackers. Some beetles can bite in defense.

Beetles are considered pests because they feed on farm crops, trees or stored foods. Some like the lady bug are helpful by eating insect pests that destroy crops. Other beetles are important because they eat dead plants and animals.

The beetle passes through four stages of development. They are egg, larva, pupa, and adult. The beetle changes greatly in appearance and structure during each stage. These stages of development are called “metamorphosis.”

The female lays oval eggs in drab colors. She may lay a few or several thousand eggs at one time. Beetles place their eggs on the surface of their food or inside cracks or holes. It may take a week to a month for them to hatch.

The larvae of a beetle are called grubs. Most are wormlike in appearance. As the grub grows it molts three to seven or more times depending on the beetle. The pupa looks like the adult beetle but is softer and a different color. Most beetles spend the pupal stage underground. This stage may take from a few days to an entire winter. The adult beetle does not live long and must find a mate quickly.

Beetles belong to the insect order Coleoptera which is the largest order of insects. Some of the major beetle families are weevils, leaf beetles, ground beetles, rove beetles, click beetles, predacious diving beetles, ladybugs, and fireflies.

The largest family of beetles are the weevils. Most are brown or gray in color. They cause serious damage to crops. Leaf beetles can fly and their larvae and the adults eat leaves and damage crops. Ground beetles have long legs and long antennae. They hide during the day and search for food at night. Ground beetles prey on crop eating insect pests. Rove beetles look very much like earwigs. They prey on other animals or eat dead and decaying materials.

Scarabs are beetles that feed on dung (solid body wastes of animals) and lay their eggs in it. They also feed on crop plants. Click beetles are long slender beetles that jump or make a clicking sound if disturbed. Their larvae eat roots and seeds of crop plants. Predacious diving beetles live in fresh water. They prey on tadpoles, snails, and small fish. The adult beetles swim by moving their hind legs together like oars. Ladybugs are also called ladybirds and lady beetles. The adults have round bodies and are red, orange, and yellow with black spots. Both the adults and larvae eat insects that attack trees, shrubs, and fruit and vegetable crops. In the fall, ladybugs gather in large numbers to hibernate under leaves, stones or debris. Fireflies are also called lightning bugs. They produce a cool chemical light called bioluminescence. They produce this light during mating and to attract a mate.



predacious diving beetle



ladybug



firefly



leaf beetle



weevil



ground beetle

Insect Research 3
All About Beetles



Read the information called “All About Beetles.”

Research to find out the answers to the following activities.

1. To which order of insects do beetles belong.

2. Why are beetles’ eating habits harmful?

3. How are beetles helpful insects?

4. Describe the life cycle of a beetle.

5. List the names of different types of beetles found in the world.

6. Match the name of the insect to each clue.

- a) long, slender insect that jumps and clicks
- b) have round orange bodies with black spots
- c) light up during mating
- d) feed on animal dung
- e) eat tadpoles, snails, and some small fish
- f) look like ear wigs
- g) hide during the day and come out at night

Insect Information

All About Moths



Moths belong to the insect order Lepidoptera. They live throughout the world except the ocean. Moths are found in steamy, hot jungles and on the ice caps of the Arctic. Moths vary greatly in size and the largest ones are found in Australia and South America. Moths and butterflies are related. Both species have two pairs of wings – a large pair of front wings and a pair of smaller wings.

The moth's body has three main parts. They are the head, the thorax, and the abdomen. The head holds the moth's eyes, antennae, and mouth parts. These structures are the moth's most important sense organs. The moth has two large compound eyes on each side of its head. These eyes are made of many lenses which help the insect to spot movements and to see its surroundings. The antennae stick out from between a moth's eyes. They are used by the moth mainly for smelling. Its mouth parts are used for feeding. They suck up food such as flower nectar and the juice of fruits through a long hollow tongue called a "proboscis." The tongue or proboscis coils under the head when not in use.

The middle section of a moth's body is called the thorax. The legs and the wings are attached to it. Adult moths have three pairs of legs. Each leg has five parts or segments. The segments are connected by joints. Taste organs are found at the tips of the legs. Two membranes form each of the moth's wings. Hollow tubes called veins run through the membranes and support the wings. Tiny scales that cover the membrane give the wings their colors and patterns.

The abdomen contains the reproductive and digestive organs. Tiny holes called "spiracles" are found on the sides of the abdomen and lead to the insect's respiratory system. Oxygen enters the moth's body through the spiracles.

Every moth goes through four stages of development. They are the egg, larva, pupa and adult. This process of development is called a complete metamorphosis. Female moths lay their eggs singly or in groups on plants in the summer or fall. The larva or caterpillar eats its way out of the egg shell and crawls out. It is made up of 14 segments including the head. Three pairs of legs are located near the front of the body and five other pairs called "prolegs" are located further back. Some moth caterpillars may be extremely colorful and some are fierce-looking with spines or bristles. Moth caterpillars feed mainly on leaves and other plant parts. Moth caterpillars like to feed on clothing and other materials made out of wool.

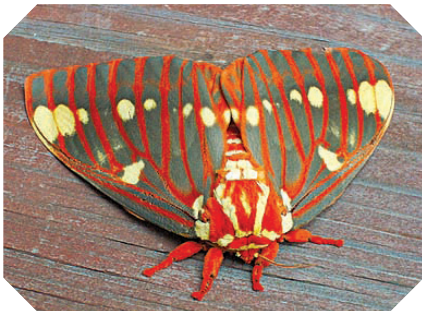
A "spinneret" sticks out below the mouth of a caterpillar. The caterpillar sends out a continuous stream of liquid silk through its spinneret. The silk thread hardens quickly to form a thin thread that helps the caterpillar to crawl about safely. In a moth or so, the caterpillar becomes full size. During this period of time it will shed its skin several times as it grows. This process is called "molting." The pupa is formed during the caterpillar's final

molt. This is an inactive stage when dramatic changes take place. The caterpillar may spin a cocoon around itself which is fastened to a tree limb or solid object. While inside the cocoon, the insect forms a protective shell made of a material called “chitin.” Some moths do not spin cocoons instead they burrow into the ground or hide under loose bark before forming the protective shell.

In the shell or cocoon, the caterpillar changes into an adult moth in a few days or in several months. Once the moth breaks out of its shell, it will pump up its wings and fly off looking for food or a mate. Some adult moths may live for only a few days while others may live for several months.

Moths have many enemies such as wasps, spiders, birds, and bats. In order to defend themselves against such predators, moths fly mainly at night. Many moths are colored the same as their surroundings while others have markings that frighten away enemies. Some caterpillars are bad tasting or poisonous.

Moths help to pollinate flowers while they feed at night. One specie is used to produce a material called silk. Moths can cause harm to crops and forests and like to feed on products made out of wool.



Royal walnut moth



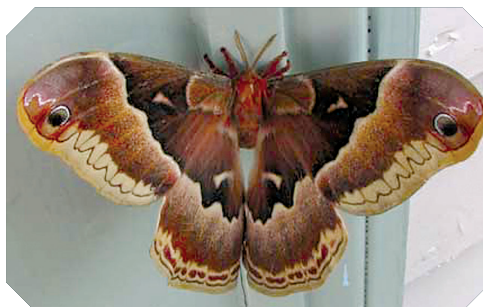
Polyphemus moth



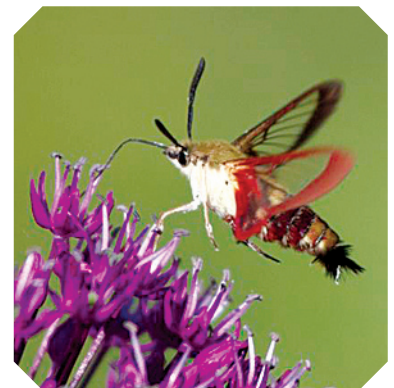
Luna moth



Cecropia moth



Promethea moth



**Hummingbird
clearwing moth**

Insect Research 4
All About Moths



Read the information called “All About Moths.”

Research to locate answers for the following activities.

1. List 10 facts about moths in point form.

2. To what order of insects do moths belong?

3. List the ways that moths are different from butterflies.

4. List ways that moths are similar to butterflies.

Insect Information

All About Grasshoppers



Grasshoppers are found everywhere in the world except near the North and South poles. There are two main types of grasshoppers – short-horned with short antennae or feelers and long-horned with long antennae. Grasshoppers belong to the insect order Orthoptera.

Short-horned grasshoppers feed on plants and mainly live in fields and meadows. They have been known to destroy entire crops of alfalfa, cotton, and corn. Long-horned grasshoppers also eat plants and some will eat the remains of animals.

Grasshoppers have many enemies such as beetles, birds, lizards, mice, snakes, and spiders. Spiders and wasps capture and paralyze grasshoppers and feed them to their young. Flies will lay their eggs in or near grasshopper eggs. Some flies lay their eggs on a grasshopper's body and the newborn flies eat the grasshopper.

Grasshoppers protect themselves from their enemies by jumping up and flying away, by biting them with their strong jaws or by hiding. Grasshoppers' color often blends with their surroundings and are not seen unless they move. Green grasshoppers live among green leaves and plants. Brown grasshoppers live near the ground and those that live near a beach are sand-colored. If a grasshopper is picked up and handled it will "spit" a brown liquid that many people call "tobacco juice." This liquid protects the grasshopper from attacks by other insects.

A grasshopper's body is divided into three sections - head, thorax, and abdomen. Its body is covered with a stiff covering called an "exoskeleton." On the grasshopper's head are two long antennae that curve upward from its head. They help the grasshopper smell things. The mouth is made of two lips and jaws that move from side to side. On each side of the mouth and the lower lip are thin, finger like parts called "palpi." They help the grasshopper to taste things. Two large compound eyes are found on each side of the grasshopper's head. It also has three small single eyes located near the antennae.

The grasshopper's legs and wings are attached to its thorax. A grasshopper has six legs and two pairs of wings. Some grasshoppers have short useless wings while others have no wings at all. The front wings are narrow and tough. They cover and protect the large, thin hind wings which are used for flying. When not in use the hind wings fold up like fans under the front wings. A grasshopper uses all six legs when it walks and its front legs for holding food when it eats. The powerful muscles in its hind legs propel the insect forward in a leap or shoots it into the air to fly.

The grasshopper's abdomen pumps air in and out of ten pairs of spiracles along its body by expanding and contracting. Female grasshoppers have a strong short part called an ovipositor or egg placer at the rear of the abdomen. Through it eggs are passed when they are laid.

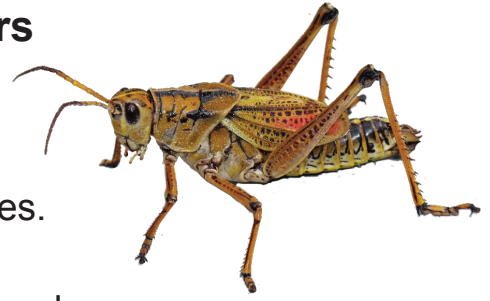
A female grasshopper lays from 2 to as many as 120 eggs at a time. Using her ovipositor, the female grasshopper digs holes in the ground in which she deposits her eggs encased in a sticky material. This mass of eggs is called a "pod." More sticky material is sprayed over them by the female which hardens into a waterproof covering. Eggs are usually laid in late summer and autumn. The eggs hatch the next spring. Young grasshoppers look very much like adults except they don't have wings. The young grasshopper molts five or six times and grows a new exoskeleton each time. After the last molt, the young grasshopper has wings.



All About Grasshoppers

Read the information called “All About Grasshoppers.”

Research to locate the answers to the following activities.



1. In point form list six facts that you learned about grasshoppers.

2. Why are grasshoppers harmful insects?

3. Describe how a female grasshopper lays her eggs.

4. How do grasshoppers protect themselves from their enemies?

5. List the names of the grasshopper's enemies.

Insect information
All About Crickets



Crickets are related to grasshoppers and are also jumping insects. They belong to the insect order Orthoptera. Although they are similar in many ways there are several differences. Crickets deposit their eggs using a needlelike ovipositor while the grasshopper has a strong short one that is used for digging holes to deposit the eggs. The wings of most crickets lie flat over each other on top of their backs. Grasshoppers' hind wings fold up like fans under the front wings. Some crickets have tiny wings or are wingless. Crickets have slender antennae that are longer than their bodies.

Crickets are often heard on a warm summer's night making their music. It is mainly the male crickets that sing. Each type of cricket has a different song. The song is usually made up of trills and chirps and is produced by the cricket rubbing its two front wings together. Crickets are able to hear sounds with organs in their front legs. This music is produced to help male and female crickets find each other.

Crickets like to live in pastures, meadows, and along the edges of roads. Sometimes crickets will go into houses. Crickets mainly eat plants and the dead bodies of other crickets.

The best known crickets are the house cricket and the field cricket. These insects are black or brown in color and are about 1 inch (2.5 cm) long. They live mainly on trees and shrubs and feed on small insects called aphids. Male tree crickets sing a high-pitched song that goes "treet-treet-treet" in a group or chorus.

Tiny ant-loving crickets do not have wings and are as wide as they are long in shape. They like to live in the nests of ants and eat their young.



Insect Research 6
All About Crickets



Read the information called “All About Crickets.”

Research to find the answers for the following activities.

1. To which insect order do crickets belong?

2. What other insect also belongs to the same order?

3. How are crickets different from grasshoppers?

4. List the names of the different types of crickets.

5. Describe how a cricket “sings.”

6. Why do crickets sing or make a chirping noise?
