

Florida 4-H Bug Club Guide

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Included in this guide are suggested activities, handouts, and reference sheets to support the Florida 4-H Bug Club Website, http://entnemdept.ufl.edu/bug_club/. Florida science access points are also included at the end.

The Florida Bug Club is a website dedicated to helping school aged group leaders expose their students to the world of Entomology! Whether you are a teacher looking for an activity to help students understand basic science concepts, a parent looking to fill the weekend with some fun and educational material, or a group leader looking for something new, you can find fun and educational ideas on our website. Here is a quick outline with what you can expect.

Home Page

On the home page, you will find a general welcome message as well as a list of upcoming events in the middle column. On the right hand side, you will find resources for both 4-H and UF/IFAS. These resources are listed under a main heading and you can either click on the main heading or the individual resource that you would like to browse. Likewise, the left column is also made up of links to resources. In this column, resources have been gathered to support and facilitate learning through insects in the classroom.

There is a “search” ability at the top of the page on the right and you will find our contact information under the “Contact Us” link on the left.

You can return to this Home page anytime as you are browsing the website by simply clicking the “home” link which is located at the upper left.

Field Guide

Here you will find information that will show you common insects around Florida, the best places to look for insects, and how you can identify the ones you have already collected. If you want to learn even more, the Field Guide also has links to dozens of other great insect related web sites. For even more collecting and identification help, refer to the “Using Live Insects in the Elementary Classroom Information Sheets” link under the “Teacher and Parents” and “Insect Curricula” headings.

Bug Identification Key

This is an interactive key designed to help you identify the insects that you have caught. You will be looking at external characteristics and comparing your insect to the description and drawings provided. This key will identify the insect to order. There is a brief lesson on external morphology that is helpful for review before you begin the key.

Good for: Individual exploration or as a group with a projector or smart board. Also, you will find a link to a paper key if you would like one.

Key Terms: Key, Order, Wings, Legs, Abdomen, Thorax, Head

Before you Begin: It may be helpful to have students “create” an insect of their own, either through labeling a diagram, drawing on paper, modeling with clay, or sculpting with other supplies, to familiarize them with the insect’s morphology. Note the wing and leg placement. It may also be helpful to provide examples of different wing and leg types as they can be very diverse. See Handout 1-1 and 1-2.

Florida Insect Family Keys

While identifying insects to Order is important and helpful, if you are interested in really understanding more about the insect’s life history, you will find this link helpful. This link enables you to determine the insect’s family name and, in some families, there are even keys that will help you determine the species name. These keys are more complex and require a better understanding of insect anatomy. Also, these keys follow the more traditional format and are not interactive. These are suggested for more advanced students and hobbyists. This link is not connected to the Bug Club Website, so to return to the Bug Club Website, you may either hit the back button of your browser or you can open this link in a new tab/window.

Good for: Individual exploration for more advanced students.

Key Terms: May be found under the link “glossary of entomological terms” and would be more useful as a reference than a list to memorize.

Before you Begin: You should be very familiar with the insect orders and insect external morphology.

Common Florida Insects

If you are familiar with the insect orders, a quick way to identify something that you commonly find is to look under this link. You will find photos of common insects here and these insect photos and names are linked to the corresponding “featured creature” webpage. On the “featured creature” webpage, you will be able to learn the insect’s scientific name, its life history, and other interesting facts. These pages usually contain a list of references as well so that students can look up useful scientific journal articles associated with the insects. This activity would be appropriate for learners who have mastered the “Bug Identification Key” but who are not quite comfortable with the “Florida Insect Families Key” webpage.

This site can also be used as a way to explore and research commonly seen insects, not just ID insects that a student catches. It could be a very helpful starting point for students interested in beginning a research project on a common insect.

Good for: Individual exploration for research or identification or group exploration with a projector/smart board.

Key Terms: Order Names would be very helpful here. Also, referring to a dictionary for difficult terms within the text of the “featured creature” articles may be necessary.

Before you Begin: Students should be comfortable with the Insect orders and understand the behaviors associated with the orders. This will give them some guidance when trying to decide where they would like to begin their search.

Insect Locator Map

This link will show you many different places to search for insects. If you are having difficulty getting started or finding insects, this is a great resource. When you open the link you will see pictures of locations that are good sources of insects. If you click on the photo, you will get an interactive page where you can look at specific areas within that location that you are likely to find insects. These more detailed views will offer a specific place to look for insects (twigs, leaves, etc.) as well as present some examples of insects that are commonly found in this area. The insect names are interactive and will take you to the order page when you click on them. There are some photos on the order page, but they are not necessarily the insect that you can find in this area, just an insect within this order. If you are interested in finding the specific insect mentioned, you may want to search for a picture independently on the internet. It is very easy to navigate back to the previous pages from the specific location view, simply choose how far back you would like to go by clicking the step on the top left of the page. However, if you navigate to the order page, you must use your back button on your browser to return to the locations page.

Good for: Individual exploration for research or preparation for collecting or group exploration with a projector/smart board.

Key Terms: Knowledge of Order names would be helpful here, but not necessary.

Before you Begin: You may want to include an activity with this if students are exploring on their own or in small groups without individual guidance. A suggested activity sheet can be found in Handout 1-3. It may also be useful keep the Order Reference Sheet available for this activity.

Field Guide Books

Field guides are extremely helpful when creating an insect collection but also numerous and diverse. This link provides description of field books grouped by age range to assist parents/teachers when selecting the perfect book for your group!

Collecting 101

Here you will learn all of the basics on how to collect and how to properly curate your collected insects. You will be able to view videos that were prepared for the college course on these subjects. If you do not have collecting equipment, there are many helpful links that explain how to make the equipment used on this page. If you are interested in purchasing your supplies instead of making them, you can find

links to insect supply companies under the left column heading “Bug Bytes” at the link “Entomological Supplies”. Please refer to the “Bug Bytes” page for more details.

Teachers and Parents

On this page, you will find links to information and activities that will support the leader of instructional activities.

Insect Curricula

Here you will find curricula for insect related lessons. These curricula generally contain background info, lesson plans, and activities.

- **Butterfly and Moth Teacher’s Guide**
 - A curriculum devoted to many aspects of butterflies and moths. It includes background information, lesson plans and activities.
 - Entomologists and teachers are working together to create this web site and curriculum using insects to teach about science. Identify bugs you find by searching the insect database (guided and direct methods available).
- **Exploring Urban Integrated Pest Management**
 - This resource provides the opportunity for K-6 educators in formal and informal settings to use IPM as the real-world theme in which to engage in scientific and interdisciplinary learning. Includes background info, lesson plans, and activities.
- **IPM for Teachers Curriculum**
 - To access the IPM education website on the Penn State website, select the “IPM Education and Training” link from the right column in the “Spotlight” box. The annual IPM for Teachers summer course is taught at Penn State University Park campus to help teachers learn IPM principles and how to incorporate IPM into their school curriculum. This website includes the course packet with many IPM lesson plans to use in the classroom.
- **Neato Mosquito**
 - This curriculum guide is designed to teach 4th grade students about mosquito biology and the prevention of La Crosse encephalitis. It includes Background info, lesson plans, and activities.
- **PestWorld for Kids**
 - Exploring pest ecology for elementary-age students. This website includes Pest guides, games, science fair ideas, and lesson plans! A great resource for teachers. Standards are also included here.
- **Using Live Insects in Elementary Classrooms**
 - The University of Arizona Center for Insect Science and Education Outreach presents information sheets on various insects. Each insect’s information sheet includes a section on identifying features, natural history, impacts on the ecosystem and tips on collecting.
- **What’s the Buzz on Bees?**

- This education program produced by Florida Department of Agriculture and Consumer Science are designed to help you teach students in grades K-5 many interesting facts about honey bees.
- Youth Entomology Resources
 - This University of Kentucky Entomology web site is designed for teachers, 4-H'ers, young people and anyone else who would like to pursue an interest in entomology. "Katerpillars," Kentucky's online source for insect fun and information, includes Mystery Bugs, an online insect game. At the "Kentucky Bug Connection," students can find entomology facts in the Critter Case Files. Visit the 4-H entomology resource section for entomology curriculum.

4-H Entomology Resources

- **University of Florida and National Publications**
 - These are older activity books publications produced by the University of Florida and current activity books produced by 4-H nationally.
- The ABC's of Entomology
 - The curriculum is designed to provide hands-on activities that stress the positive and unique aspects of insects, so that participants' understanding and appreciation increases. *The ABC's of Entomology* seeks to provide youth with a basic knowledge and understanding of insects and their natural history, to increase awareness and appreciation of insects and the complex roles they have in nature, to stimulate critical and creative thinking, to provide experiences for youth to learn and apply scientific principles, and to provide opportunities for youth to develop valuable life skills. Available in CD format with print ready files.
- Project Butterfly Wings
 - WINGS, Winning Investigative Network for Great Science, is a partnership between 4-H youth and professional scientists. Participating 4-H youth are "citizen scientists" who collect data on butterflies to help professional scientists determine 1) the presence or absence of specific butterfly species, 2) the abundance of butterfly species by state and county throughout the country. The information helps butterfly scientists better understand and conserve butterfly populations.
- University of Kentucky 4-H Entomology Publications
- Michigan 4-H Entomology Publications
- Insectanza of Excitement Lesson Plans, Minnesota Cooperative 4-H Curriculum
- Antivities
 - "Antivities" are available to kids through this site. The activities can easily be modified to be used with your own students!

Downloadable Games and Resources

These sites provide downloadable games and activities that students can play to help understand insects along with general information about integrated pest management (IPM).

UF/IFAS Entomology Publications

The University of Florida, Institute of Food and Agricultural Sciences produces a variety of posters, ID Decks, curricula, and books that would be useful for identification of organisms or planning lessons. Here you will find a sample of what is available for insects.

Books

There are many fine resources on the Internet and in libraries to introduce children to insects. Some of the books can also be used to produce lesson plans and activities for children to complete in class to learn about different topics.

Sources of Insects

Insects can be used in the classroom to teach an assortment of biological concepts including metamorphosis, anatomy and impact on the ecosystem. Local pet stores and bait shops commonly sell crickets and mealworms. Other companies sell a variety of insects and box sets, as well as other supplies.

Insect Zoos and Butterfly Houses in Florida

Florida is full of insect zoos and butterfly houses that may be simple as an open-air butterfly garden or as extravagant as a huge enclosed permanent exhibit. Many places have guided tours for groups of students. This page is divided by region.

General Insect Information: These web sites provide general information insects, life cycles, metamorphosis, etc.

Information on Specific Insects

Interactive Websites for Kids

Entomology Events

Entomology Events are activities that involve competition or interaction with other 4-H Bug Club members. This page gives you links to information on tours of the Entomology Department at the University of Florida, Outreach programs (where we come to your club or school), Entomology events at 4-H Congress, and our annual Collection Contest.

Just for Fun

Interactive Bug Sites: Under this link, you will find a plethora of links to different internet resources, from fire ants to butterflies. These links vary in type from essay contests to games. This is a great resource for teachers and parents to browse to find supplementary material as well as a wonderful place for children to explore.

Activities: This link is full of fun activities! These activities are separated by knowledge level and range from seatwork to motion centered activities.

Beginning Activities: learn the basics about insects

Bug Diversity: Learn the body parts of bugs, this section includes diagrams, vocabulary, and a test

Mouth Types: Interactive activity that involves hands-on learning. Students emulate insect mouthparts in this fun activity!

Bug Eyes: Create your own bug eyes through this hands-on activity.

Intermediate Activities: learn more about all the neat things insects do

Sights and Sounds: See how insects are used to market products and create your own “insect marketed” product!

Useful Colors: A hands-on activity demonstrating how insects use color as camouflage.

Termite Trails: See how Termites use cues. Hands-on activity that involves interacting with the insects and seeing principles at work

Mouth Types: Interactive activity that involves hands-on learning. Students emulate insect mouthparts in this fun activity!

Advanced Activities: Test your knowledge of how insects live their lives

A Meal for Worms: This hands-on activity allows students to see the direct effect of nutrition on reproduction and growth.

Pitfall Traps: This activity will give students the opportunity to test different trapping methods and handle the insects that they trap.

Bug Bytes

Learn about Insects: These web sites are a great way to learn a few things about the world of insects. This link can be helpful for students researching a variety of topics on bugs

Learn more about your favorite insect: These are insect specific web sites and are a great way to do some specific research, expand on your knowledge, or find useful information for collecting and identifying certain insects!

Photos: These links provide photos of many insects. These could be useful in the classroom to show diversity, to aid in identification, or just to motivate independent learning.

Entomological Supplies: Links are provided to sources where supplies and teaching materials can be purchased.

Societies, Clubs, and Organizations: This link offers a list of links to many clubs and organizations that are have an entomology focus. This could be a great resource when looking for guest speakers or field trip ideas!

4-H Resources

Under this heading on the right column of the website, you will find links to the many resources that 4-H has for Entomology. These resources range from hands-on activities, to insect collection and essay competitions, to curriculum to general information.

UF/IFAS Bug Resources

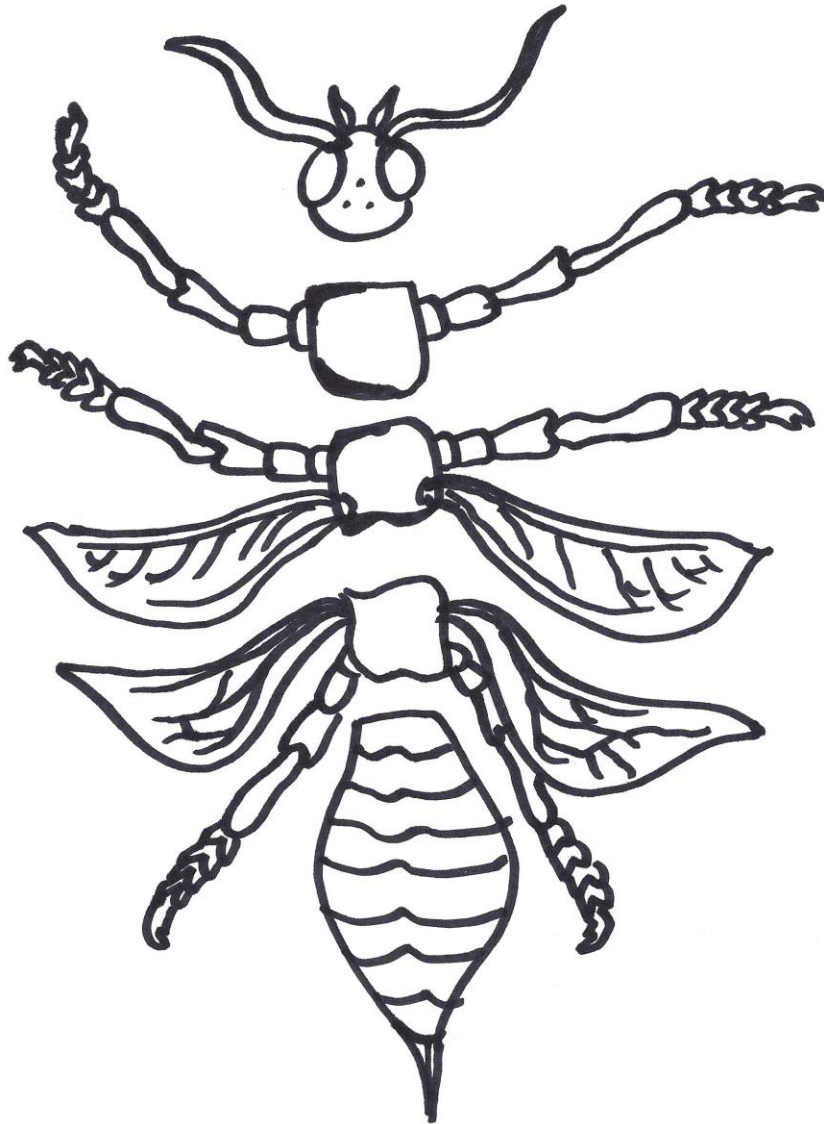
The Entomology Department at the University of Florida is a great resource for parents and teachers. The department has an extensive outreach program that does classroom visits as well as departmental tours. The Entomology Department neighbors the Natural Area Teaching Lab which is a great resource for natural learning and exploration.

UF/IFAS Publications

For further information on a variety of Entomological topics that are engaging and current, these links provide teachers and students with in-depth knowledge and can be supplemental material for advanced students.

Handout 1-1

Label as many of the insect's body parts as you can.



An insect has three main body segments: Head, Thorax, and Abdomen. On which body segment do you find the legs and wings?

Handout 1-2

Match the leg picture with the term that describes it. Write the letter of the corresponding term next to the matching picture.

- A. **Cursorial:** Used for walking/ running, commonly seen on Cockroaches. Usually with “prickly” spines, they are long and thin.
- B. **Natatorial:** fore or hind legs adapted for swimming; characterized by elongated setae (hairs).
- C. **Fossorial:** Fore legs and tibiae specialized for digging; common in ground-dwelling insects; look like “pop-eye” legs.
- D. **Saltatorial:** Hind legs adapted for jumping; characterized by longer than usual femur and tibia and more muscular femur, usually found on Grasshoppers.
- E. **Raptorial:** Fore legs modified for grasping. These are often associated with Preying Mantids. They look like they would be good at grabbing things!



Handout 1-3

Use the Insect Locator Map to answer the following questions! Be sure to review your order names or have a reference sheet handy! Try to be as specific as possible when answering questions.

1. List two more specific locations that you may find insects around the house.
2. In what one location might you find earwigs and cockroaches?
3. What type of weeds usually have Thrips?
4. Plan your collecting trip to the Natural Area. Decide on at least two areas that you will look for insects and list at least five insects that you will be looking for and make yourself a drawing of each insect so that you can refer to it when you are in the field.
5. Stone flies are difficult to find. Where will you look for them and how will you identify them? To what order does this insect belong? Would you keep this type of insect as a pet? Why or why not.

Access Points

Below you will find Florida Science Access Points that can easily be covered through the information and materials provided on the Bug Club Website.

[SC.K.N.1.Su.1: Collect a designated item with a partner.](#)

[SC.K.N.1.Pa.1: Share objects with a partner.](#)

[SC.K.N.1.In.2: Identify information about objects and actions in the natural world through observation.](#)

[SC.K.N.1.Su.2: Identify information about objects in the natural world through observation.](#)

[SC.K.N.1.Pa.2: Recognize common objects in the natural world through observation.](#)

[SC.K.N.1.In.3: Observe, explore, and create a visual representation of real objects.](#)

[SC.K.N.1.Su.3: Observe, explore, and match pictures to real objects.](#)

[SC.K.L.14.In.3: Identify differences in characteristics of plants and animals.](#)

[SC.K.L.14.Su.3: Match identical animals and plants.](#)

[SC.1.N.1.In.1: Request information about the environment.](#)

[SC.1.N.1.Su.1: Ask questions about common objects in the environment.](#)

[SC.1.N.1.Pa.1: Recognize common objects in the environment.](#)

[SC.1.N.1.In.2: Use careful observation to identify objects based on size, shape, color, or texture.](#)

[SC.1.L.14.Su.1: Use sight and hearing to make observations.](#)

[SC.1.L.16.In.1: Match offspring of specific animals to adult animals.](#)

[SC.1.L.16.Su.1: Recognize that baby plants and animals have parents.](#)

[SC.1.L.17.In.1: Observe and recognize that plants and animals need water and food.](#)

[SC.1.L.17.Su.1: Observe and recognize that plants and animals need water.](#)

[SC.1.N.1.In.1: Request information about the environment.](#)

[SC.1.N.1.In.2: Use careful observation to identify objects based on size, shape, color, or texture.](#)

[SC.1.N.1.In.3: Draw pictures about investigations conducted.](#)

[SC.1.N.1.In.4: Ask a question about a science investigation.](#)

[SC.1.N.1.Pa.1: Recognize common objects in the environment.](#)

[SC.1.N.1.Pa.2: Recognize common objects as the same.](#)

[SC.1.N.1.Su.1: Ask questions about common objects in the environment.](#)

[SC.1.N.1.Su.2: Recognize differences in objects through observation of size, shape, or color](#)

[SC.1.N.1.Su.3: Contribute to group recordings of observations.](#)

[SC.2.L.16.In.1: Observe and recognize the major stages in the life cycles of plants and animals.](#)

[SC.2.L.16.Pa.1: Recognize that offspring can be matched with their parents, such as a human baby with adult humans and a puppy with dogs.](#)

[SC.2.L.16.Su.1: Observe and recognize the sequence of stages in the life cycles of common animals.](#)

[SC.2.L.17.In.1: Identify the basic needs of living things, including water, food, and air.](#)

[SC.2.L.17.In.2: Recognize that many different kinds of living things are found in different habitats.](#)

[SC.2.L.17.Pa.1: Recognize that animals need water.](#)

[SC.2.L.17.Pa.2: Recognize common living things in the immediate environment.](#)

[SC.2.L.17.Su.1: Recognize that living things have basic needs, including water and food.](#)

[SC.2.L.17.Su.2: Recognize that many kinds of living things are found in the environment.](#)

[SC.2.N.1.In.1: Ask questions and make observations about things in the natural world.](#)

[SC.2.N.1.In.2: Identify information about objects based on observation.](#)

[SC.2.N.1.In.3: Recognize that the results of a scientific activity should be the same when repeated](#)

[SC.2.N.1.Su.2: Identify characteristics of objects based on observation.](#)

[SC.2.N.1.Su.3: Recognize that science activities can be repeated.](#)

[SC.2.N.1.Su.4: Recognize that people work in science.](#)

[SC.3.L.15.In.1: Classify animals by a similar physical characteristic, such as fur, feathers, and number of legs.](#)

[SC.3.L.15.In.2: Classify parts of plants into groups based on physical characteristics, such as classifying leaves by shape.](#)

[SC.3.L.15.Pa.1: Match animals that are the same.](#)

[SC.3.L.15.Su.1: Sort common animals by observable characteristics.](#)

[SC.3.L.15.In.1: Classify animals by a similar physical characteristic, such as fur, feathers, and number of legs.](#)

[SC.3.L.15.Su.1: Sort common animals by observable characteristics.](#)

[SC.3.L.15.Pa.1: Match animals that are the same.](#)

[SC.4.L.16.In.2: Identify behaviors that animals have naturally \(inherit\) and behaviors that animals learn.](#)

[SC.4.L.16.In.3: Identify similarities in the major stages in the life cycles of common Florida plants and animals.](#)

[SC.4.L.16.Su.2: Recognize behaviors of common animals.](#)

[SC.4.L.16.Su.2: Recognize behaviors of common animals.](#)

[SC.4.L.16.Su.3: Recognize the major stages in life cycles of common plants and animals.](#)

[SC.4.L.17.In.1: Identify seasonal changes in Florida plants and animals.](#)

[SC.4.L.17.In.2: Recognize that animals cannot make their own food and they must eat plants or other animals to survive.](#)

[SC.4.L.17.Pa.2: Recognize that animals eat food.](#)

[SC.4.L.17.Su.2: Recognize that animals \(consumers\) eat plants or other animals for their food.](#)

[SC.4.N.1.In.1: Ask a question about the natural world and use selected reference material to find information, observe, explore, and identify findings.](#)

[SC.4.L.16.In.2: Identify behaviors that animals have naturally \(inherit\) and behaviors that animals learn.](#)

[SC.4.L.16.Su.2: Recognize behaviors of common animals.](#)

[SC.4.L.16.Su.2: Recognize behaviors of common animals.](#)

[SC.4.L.16.In.3: Identify similarities in the major stages in the life cycles of common Florida plants and animals.](#)

[SC.4.L.16.Su.3: Recognize the major stages in life cycles of common plants and animals.](#)

[SC.4.L.16.Pa.3: Match offspring of animals with parents.](#)

[SC.4.L.17.In.1: Identify seasonal changes in Florida plants and animals.](#)

[SC.4.L.17.In.2: Recognize that animals cannot make their own food and they must eat plants or other animals to survive.](#)

[SC.4.L.17.Su.2: Recognize that animals \(consumers\) eat plants or other animals for their food.](#)

[SC.4.L.17.Pa.2: Recognize that animals eat food.](#)

[SC.5.N.1.In.1: Ask a question about the natural world, use selected reference materials to find information, work with others to carry out a simple experiment, and share results.](#)

[SC.5.L.14.In.2: Identify functions of plant and animal structures; for example, plant stem transports food to leaves, and heart pumps blood to parts of the body.](#)

[SC.5.L.14.Su.2: Recognize the functions of the major parts of plants and animals.](#)

[SC.5.L.15.In.1: Identify ways that plants and animals can be affected by changes in their habitats, such as lack of food or water, disease, or reduced space.](#)

[SC.5.L.15.Su.1: Recognize ways that plants and animals can be affected by changes in their habitats, such as lack of food or water.](#)

[SC.5.L.17.In.1: Identify features of common plants and animals that enable them to survive in different habitats \(environments\).](#)

[SC.5.L.17.Pa.1: Match common living things with their habitats.](#)

[SC.5.L.17.Su.1: Recognize that many different kinds of living things are found in different habitats.](#)

[SC.5.N.1.In.1: Ask a question about the natural world, use selected reference materials to find information, work with others to carry out a simple experiment, and share results.](#)

[SC.5.N.1.Pa.1: Explore, observe, and select an object or picture to respond to a question about the natural world.](#)

[SC.5.N.1.Pa.2: Recognize that people use observation and actions to get answers to questions about the natural world.](#)

[SC.5.N.1.Su.1: Ask questions about the natural world, use selected materials to find information, observe, and identify answers to the question.](#)

[SC.5.N.2.In.1: Identify that science knowledge is based on observations and evidence.](#)

[SC.5.N.2.Su.1: Recognize that science knowledge is based on careful observations.](#)

[SC.6.L.14.Su.3: Recognize that animals, including humans, use energy from food.](#)

[SC.6.L.15.In.1: Classify animals into major groups, such as insects, fish, reptiles, mammals, and birds.](#)

[SC.6.L.15.Pa.1: Match animals based on a given shared characteristic.](#)

[SC.6.L.15.Su.1: Sort common animals by their physical characteristics.](#)

[SC.6.N.2.Pa.1: Recognize objects and pictures related to science.](#)

[SC.6.L.14.Su.3: Recognize that animals, including humans, use energy from food.](#)

[SC.6.L.14.Pa.2: Identify basic needs of plants and animals.](#)

[SC.6.L.15.In.1: Classify animals into major groups, such as insects, fish, reptiles, mammals, and birds.](#)

[SC.6.L.15.Su.1: Sort common animals by their physical characteristics.](#)

[SC.6.L.15.Pa.1: Match animals based on a given shared characteristic.](#)

[SC.7.N.1.Pa.1: Recognize a problem related to the seventh grade curriculum, observe and explore objects and activities, and recognize a solution.](#)

[SC.7.N.1.In.2: Recognize the relationship between the end product \(dependent variable\) and in the input \(independent variable\) in an experiment.](#)

[SC.7.N.1.Su.2: Recognize what is tested in a simple experiment \(dependent variable\).](#)

[SC.7.N.1.Pa.2: Recognize observable changes in a simple experiment, such as plant growth.](#)

[SC.7.N.1.In.3: Identify questions that can be answered by scientific investigation, such as can a plant grow without sunlight?](#)

[SC.7.N.1.Su.3: Recognize a question that can be answered by scientific investigation, such as can a plant grow without sunlight?](#)

[SC.7.L.17.In.1: Identify that in a simple food chain, energy transfers from the Sun to plants \(producers\), to animals \(consumers\), and to organisms that cause decay \(decomposers\).](#)

[SC.7.L.17.In.2: Describe how organisms interact with other organisms in an ecosystem to help each other \(mutualism\), to obtain food \(predation\), and to benefit at the expense of the other \(parasitism\).](#)

[SC.7.L.17.In.3: Recognize that living things compete with each other to get the things they need to live in their local environment.](#)

[SC.7.L.17.Pa.3: Recognize what happens when animals don't get food and water.](#)

[SC.7.L.17.Su.1: Identify different types of consumers in a food chain, including animals that eat plants, animals that eat other animals, and animals that eat plants and animals.](#)

SC.7.L.17.Su.2: Recognize how living things affect each other in their habitat (ecosystem).

SC.7.L.17.Su.3: Identify how a lack of food, water, or shelter affects plants and animals in their habitats.

SC.7.N.1.In.1: Identify a problem from the seventh grade curriculum, use reference materials to gather information, carry out an experiment, collect and record data, and report results.

SC.7.L.17.In.2: Describe how organisms interact with other organisms in an ecosystem to help each other (mutualism), to obtain food (predation), and to benefit at the expense of the other (parasitism).

SC.7.L.17.Su.2: Recognize how living things affect each other in their habitat (ecosystem).

SC.7.L.17.Pa.2: Recognize a mutual relationship between people and other living things.

SC.7.L.17.In.3: Recognize that living things compete with each other to get the things they need to live in their local environment.

SC.8.L.18.Pa.2: Recognize that food provides energy.

SC.8.N.1.Pa.2: Recognize science as a way to solve problems about the natural world.