Insects Everywhere!

1A

Note: Introducing the Read-Aloud may have activity options that exceed the time allocated for this part of the lesson. To remain within the time periods allocated for this portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Introducing the Read-Aloud — *10 minutes*

Domain Introduction — *5 minutes*

Ask students the following:

- What is the smallest animal you have ever seen?
- Do you know of any small animals that have six legs?

Tell students that for the next several days, they will be learning about small, six-legged animals called insects. Tell students that insects are the largest group of animals on the earth and that there are many different types of insects. Tell them that they will learn about some of the many different types of insects, what characterizes an animal as an insect, the life cycle of insects, and how insects may be helpful and/or harmful.

What Do We Already Know? — *10 minutes*

Show image 1A-1: Insect collage

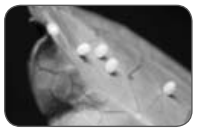
- Point to the collage and tell students that all of the insects pictured in this domain are shown bigger than life size so the students can see them better.
- Ask students if they recognize any of the insects pictured in this image. Have students come up to the image and point to each insect as they name it. As students correctly name each insect, write the name next to the corresponding picture on the Know-Wonder-Learn Chart.

- Tell students that you will be filling out the chart with information they already know (K) and questions stating what they wonder (W) about each insect. As they learn about each insect, you will write facts they learn in the L column.
- Ask students to share one fact they already know about any of the insects pictured. Record correct responses on the chart.
- Ask students what they would like to learn or wonder about each of these insects. Write two or three valid questions on the chart.
- Save this chart for future lessons. Record facts that the students learn as each insect is presented throughout this domain.

Vocabulary Preview

5 *minutes*

Host



Show image 1A-6: Insect eggs on leaf

1. In today's read-aloud, you will hear about how a plant can be a *host* for an insect.
2. Say the word *host* with me three times.
3. A host is a plant or animal that feeds another living thing. A host can also be a home for another living thing.
4. The milkweed plant is a host for the monarch butterfly eggs. When the eggs hatch, the caterpillars will eat the leaves of the plant.
5. I will describe some places insects can be found. If what I say describes a host, raise your hand or stand up. If what I say does not describe a host, keep your hands on your lap or stay seated. Remember, a host is a *living* plant or animal.

- a cicada living in the branch of a live oak tree
  (a live oak tree is a host)
- stink bugs that are in a shed
  (a shed is not a host)
- a grasshopper that eats the leaves and stems of an alfalfa plant
  (an alfalfa plant is a host)

- ants crawling on the sidewalk
  (the sidewalk is not a host)
- an insect's eggs on the leaf of a plant
  (the leaf is a host)

Social/Solitary

1. In today's read-aloud, you will hear that some insects are *social* and some are *solitary*.
2. Say the word *social* with me three times.
   Say the word *solitary* with me three times.
3. Social means living together in communities where everyone has a job and helps each other.
   Solitary means living alone or in pairs.
4. The social honeybees worked all through the night to take care of the queen bee.
   A tiger is a solitary hunter because it finds food for only itself and its cubs.
5. I will describe several situations. If what I describe is an example of being social, say, "That is being social." If what I describe is an example of being solitary, say, "That is being solitary."

- a person who lives alone, miles away from others
- people in a neighborhood having a cookout (or potluck) together
- fish that swim together in a school or a big group
- a bear hibernating by itself in a cave
- hundreds of bats hanging in a cave together

Purpose for Listening

Tell students they are going to be introduced to a variety of insects with homes all over the planet. Tell them that today's read-aloud is called "Insects Everywhere!" because insects live in nearly every habitat on Earth. Ask them to listen carefully to find out the only places on Earth where insects cannot survive.

Presenting the Read-Aloud **15** *minutes*

Insects Everywhere!

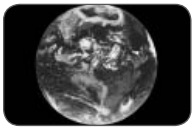
Show image 1A-2: Common housefly

Hello, boys and girls. I've been invited to join you today to talk about a very important subject—me. Who knows what type of animal I am? Right. I'm a fly. I'll bet most of you have seen lots and lots of flies, haven't you? I'm told that you find us flies rather annoying, so I'm guessing that you've swatted at one of my billions of cousins at least once in your life!

Show image 1A-3: Different types of flies

I'm wondering just how much you really know about us. For example, did you know that I could walk straight up a wall? I'll bet you can't do that, can you? I have thousands of tiny hairs on my feet that act like suckers. [1] I am a housefly, the most common type, but there are many other fly species on Earth. A species is a group of plants or animals that are alike in important ways. Horseflies, robber flies, fruit flies, gnats, and mosquitoes have many different species that all belong to the same group.

1 These hairs attach to the wall, acting like suction cups, allowing the fly to climb vertical surfaces. [Demonstrate with your hand the difference between vertical and horizontal. You may wish to show how a suction cup works.]



Show image 1A-4: Planet Earth

Scientists group animals into different categories. What different kinds of animals can you name? Yes—fish, snakes, frogs, birds, and insects are just a few of the animal groups you know. Flies, like me, belong to the largest group of animals on Earth. Who knows which group is the largest? **Insects**! [2] Insects are small animals with six legs and three main body parts. We flies are insects, and we share the planet with millions of other insects in many different **habitats.**

Habitats are the natural homes of plants and animals. Can you name a few? [3] Great—deserts, forests, mountains, grasslands, and tundra are some you may know about. During the next few lessons, some of my fellow insect friends are going to teach you lots of interesting facts about insects that live in different kinds of habitats.

2 For every ten animal species in the world, about eight of them are insects! And scientists continue to discover more. [Create a pie chart showing 80% *Insects* and 20% *Other Animals.*]

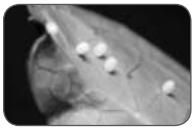
3 [Students who participated in the Core Knowledge Language Arts program in Grade 1, have learned about habitats in the *Animals and Habitats* domain. Ask them to name some habitats. Or, prompt students by asking, "What is the natural home for a lion?" (grasslands) Tell students that natural homes are called *habitats*. Ask, "Is a zoo a habitat for a lion?" (no)

We insects live all over the globe—everywhere except the oceans. Insects can even live in some very cold or very hot areas of the earth!

Show image 1A-5: Alfalfa field in bloom

We'll start today by looking at meadow grasslands. Look out over this field of alfalfa.[4] Do you see any animals in the picture? It just looks like an ordinary grassy field without much going on, doesn't it? But, don't be fooled; this field is full and teeming with life! If you sat down in the middle of this meadow and closed your eyes, you would likely hear birds singing, but you might be completely unaware of the often silent, hidden world of insects all around you.

4 Alfalfa is a plant with small purple flowers that is grown as food for cattle and horses. People also eat alfalfa sprouts.



Show image 1A-6: Insect eggs on leaf

Many insects depend on plants to live. Many insects eat plants and some lay their eggs on plants. The plant on which an insect lays its eggs, and which provides food for its young, acts as **host** and is called a host plant.[5] Each host plant attracts different types of insects. Many insects would die without their host plants because they have developed very specific diets needed to live.

5 A host is a plant or animal on which, or in which, another thing lives.

Show image 1A-7: Grasshopper, leafhopper, aphids

Many meadow plants attract grasshoppers. Grasshoppers[6] feed on the leaves and stems of the alfalfa plant. Harder to find is the tiny leafhopper,[7] but this wedge-shaped insect can slow down the plant's growth, turning it brown as it sucks nutrition from its host plant.

Many insects, such as these tiny aphids,[8] can damage entire meadows. Grasshoppers, leafhoppers, and aphids are all pests. Farmers are never happy when they discover them on their plants because they can destroy their crops. But not all insects are pests.

6 [Point to the insect in the top left corner of the image.]

7 [Point to the insect in the bottom left corner of the image.]

8 [Point to the insects on the right side of the image.]

Show image 1A-8: Ladybug, lacewing, ambush bug

Who knows what this insect is called?[9] That's right. It's a ladybug. Did you know that ladybugs are some of the most helpful insects on Earth? They feed on aphids and the eggs of moths and beetles that destroy crops. Lacewings and ambush bugs also eat aphids, so farmers are happy when they see these insects on their plants.

From grasslands, let's move to a forest habitat. Both cone-bearing evergreens and deciduous trees that drop their leaves each year live in this forest.[10]

9 [Point to the insect on the left side of the image.]

10 [Students who participated in the Core Knowledge Language Arts program in Kindergarten may remember that these trees are called conifers and deciduous trees.]

Show image 1A-9: Pine trees and bark beetle

Many, like these pine trees, are hosts to a variety of bark beetles. These tiny insects can kill huge trees! How can that be possible?[11] Bark beetles burrow, or dig, under the tree's bark, creating a series of tunnels in which they lay their eggs. Well, let's think about this . . . what does a tree need to live? By burrowing into the layer of wood beneath the bark, these beetles stop the flow of nutrients, or food and water, throughout the tree and often kill the tree.

11 [Pause for answers.] (food and water)

Show image 1A-10: Swarm of army ants

Lots of insect activity takes place overhead in the forests, but many insects also live on the forest floor. Can you think of any? Ants are one of the most common insects on Earth, and many live in the forest. Unlike many of us **solitary** insects that live on our own, ants are **social** insects that live in colonies, or groups.[12] Let's look at an especially interesting social ant that lives in the rainforest.

12 How are social insects and solitary insects different from one another?

Show image 1A-11: Army ant

This is an army ant. Army ants travel in big raiding parties that cooperate to hunt prey.[13] They resemble, or look like, an army of soldiers as they move across the ground together in a large group. These ants are known for swarming their prey all at once, which

13 Prey are animals that are hunted and eaten by other animals.

means that the swarm can attack a lot of prey at the same time. You'll learn more about ants another day, so let's take a quick peek at one more forest insect.

➧ **Show image 1A-12: Rhinoceros beetle**

This beetle is named for the long, large horn at the front of its head. Does its horn look like that of any other animal that you already know? I'm thinking of a much larger animal. Yes, a rhinoceros! The rhinoceros beetle uses its horn for digging hideouts and finding food along the forest floor. Male rhinoceros beetles use the horn for wrestling with other males in an effort to win over a female beetle. The male that succeeds in throwing the other off a branch gets the female rhinoceros beetle.

➧ **Show image 1A-13: Tundra and crane fly** [14]

What kinds of insects do you think live in the coldest habitats? There are many types of flies on the tundra, this very cold habitat, including houseflies like me.

This Arctic crane fly has amazingly long legs.[15] And, guess what? Adult crane flies have no mouths . . . so they never eat! Here's another fact about them that's not too surprising: they only live for a few days. [16]

14 What habitat is shown in this image?

15 [You may wish to show a picture of a Sandhill Crane or a Siberian Crane, two birds of the Artic that also have very long legs.]

16 Why do you think they live only for a few days?

➧ **Show image 1A-14: Dragonfly hovering above water**

Some insects are aquatic, meaning that they live in or near water. Here's one that you may have seen in rivers, ponds, or streams. This insect is a dragonfly!

A few minutes ago, however, I told you that there is one large water habitat that does not support the life of insects. Do you remember what that habitat is? [17] The ocean!

17 [Pause for students' responses.]

Show image 1A-15: Planet Earth

Let's look at the globe again. Is the earth covered by more land or more water? Right—nearly two-thirds of the earth is covered by water and most of that water is in our oceans. Think about it. Oceans are the world's biggest habitat, yet no insects live there. But insects, found on only one-third of the earth's surface, are still the largest group of animals on Earth!

Show image 1A-16: Insect collage [18]

Flies. Grasshoppers. Ants. Caterpillars. Beetles. These are all insects, yet they look quite different from one another—different shapes, sizes, and colors. So, what makes an insect an insect? You'll find out next time. In the meantime, be thinking about how a fly is like a grasshopper, or a beetle is like an ant. [19]

18 [Point to the insect as you read its name.]

19 Even though they look different, what are some things these insects might have in common with each other?

Discussing the Read-Aloud — *15 minutes*

Comprehension Questions — *10 minutes*

If students have difficulty responding to questions, reread pertinent passages of the read-aloud and/or refer to specific images. If students give one-word answers and/or fail to use read-aloud or domain vocabulary in their responses, acknowledge correct responses by expanding the students' responses using richer and more complex language. Ask students to answer in complete sentences by having them restate the question in their responses.

1. *Literal* What is the largest group of animals on Earth? (insects) Are there many different types of insects or only a few different types of insects? (many)
2. *Literal* In what large water habitat are insects unable to survive? (oceans)
3. *Inferential* Many insects depend upon host plants to stay alive. In what ways do these host plants help the insects? (provide food and a place to lay eggs)
4. *Inferential* If you were a farmer, which would you rather see on your crops: a ladybug or a grasshopper? Why? (a ladybug, because grasshoppers eat and kill some plants)

5. *Inferential* You heard in the read-aloud that flies are solitary, or live on their own. How are ants, which are social insects, different from solitary insects, like a fly? (Social insects live in groups.)

[Please continue to model the *Think Pair Share* process for students, as necessary, and scaffold students in their use of the process.]

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

6. *Evaluative* *Think Pair Share:* Imagine that there was no water on Earth. Do you think insects could still survive? Why or why not? (No, because they depend upon plants to live and plants need water; all living things need water to survive.)
7. After hearing today's read-aloud and questions and answers, do you have any remaining questions? [If time permits, you may wish to allow for individual, group, or class research of the text and/or other resources to answer these questions.]

Word Work: Habitats

5 *minutes*

1. In the read-aloud you heard, "We flies are insects, and we share the planet with millions of other insects in many different *habitats.*"
2. Say the word *habitats* with me.
3. Habitats are the natural homes of plants and animals.
4. Chimpanzees live in rainforests, their natural habitats.
5. Think of some other animals that you have learned about. What are the types of habitats in which those animals live? Use the word *habitats* when you talk about them. [Ask two or three students. If necessary, guide and/or rephrase the students' responses: "_____ live in habitats called . . . "]
6. What's the word we've been talking about? What part of speech is the word *habitats*? (noun) How do you know it is a noun? (It is a thing.)

Use a *Making Choices* activity for follow-up. Directions: I am going to name some habitats. If what I name is a habitat where insects live, say, "That is an insect habitat." If what I describe is not a habitat where insects live, say, "That is not an insect habitat."

1. desert (That is an insect habitat.)
2. rainforest (That is an insect habitat.)
3. tundra (That is an insect habitat.)
4. ocean (That is not an insect habitat.)
5. grassland (That is an insect habitat.)

Note: You may wish to help students distinguish between the natural habitats of animals in the wild and the artificial homes people sometimes provide for animals. For example, rivers and ponds are habitats for fish; aquariums are not habitats because they are not natural homes for fish.

Complete Remainder of Lesson Later in the Day

Insects Everywhere!

1B

Note: Extensions may have activity options that exceed the time allocated for this part of the lesson. To remain within the time periods allocated for this portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Extensions — *20 minutes*

Sayings and Phrases: Eaten Out of House and Home — *5 minutes*

Proverbs are short, traditional sayings that have been passed along orally from generation to generation. These sayings usually express general truths based on experiences and observations of everyday life. Although some proverbs do have literal meanings—that is, they mean exactly what they say—many proverbs have a richer meaning beyond the literal level. It is important to help your students understand the difference between the literal meanings of the words and their implied or figurative meanings.

- Ask the students if they have ever heard anyone say they were "eaten out of house and home." Have students repeat the proverb. Explain that this proverb is another way of saying that someone (or something) has eaten all of the food in your house. Tell students that instead of saying, "When my friends came over, they ate all the food in the house," you could say, "When my friends came over, we were eaten out of house and home."
- Remind students that they heard about a few insects today that live on, and eat, different types of plants and trees. For example, grasshoppers, leafhoppers, and aphids feed off various types of plants and can even eat enough to destroy entire meadows. These insects, which also live on these host plants, can be said to have "eaten [themselves] out of house and home."
- Look for opportunities to use the saying "eaten out of house and home" in your classroom.

Insects Matching Activity (Instructional Master 1B-1) 10 *minutes*

- Distribute a copy of Instructional Master 1B-1 (Insect Matching Activity) to each student. Have students draw a line to match each insect's name with its image.
- Have students discuss the similarities and differences among the insects.

Insects Journal (Instructional Master 1B-2) 20 *minutes*

- Tell students that they are going to create an *Insects Journal* to record the information they will learn about insects. Tell students that they will also write down any questions they may have about insects on the back of the pages in their journal.
- Have students look through the classroom book tub for trade books about insects. Have students choose an insect, draw a picture of that insect, and write one or two sentences about that insect in their journal. Tell students that they should also write down any questions they may have about their insect on the back of the page.
- Have students share their drawings, sentences, and questions with their partner or home-language peers. Encourage them to expand upon their vocabulary using richer and more complex language, including, if possible, any read-aloud vocabulary. [Tell students to keep in mind any unanswered questions to see if they are answered in the following days.]

Take-Home Material

Family Letter

Send home Instructional Masters 1B-3–5.