



Welcome to Insect Intuition! In this class packet you'll learn about the insects that can be found on Nantucket and what separates these creatures from other animals! Activities will include nature exploration, creative art, and songs. If you pick up this packet in-person at the LLNF at 110 Eel Point Rd, then all materials will be provided in the packet. Pick-up is non-contact and adheres to all COVID-19 guidelines. **Everything in the bag is yours to keep, please do not return anything to the pick-up box.** Hand sanitizer is also available in the pick-up box.

You can also download this packet from our website and follow along with the instructions, even if you are not on Nantucket, but you'll need to provide your own materials.

Activities included:

- Insect ID Guide and Search
- Invent an Insect
- Parts of an Insect Song



Insect ID Guide and Search

Materials:

- ID Guide
- Insect Vial (or any kind of small container)
- Magnifying glass

Instructions:

This activity will teach you about which animals are insects and which are not! Are bugs and insects the same thing? Are spiders insects? Use this guide to find out! Once you've learned how to identify insects go out in nature and look for them.

What is an Insect?

- All insects have
 - Six legs
 - Exoskeleton
 - A rigid external covering that protects the insect
 - Compound eyes
 - Three body parts (head, thorax, and abdomen)

What is a Bug?

- Technically a 'bug' only refers to insects in the Order *Hemiptera*
 - Examples include cicadas and leafhoppers
- Flies, ants, bees, dragonflies, and butterflies are 'insects' but not 'bugs'

What is an Arthropod?

- A Phylum of invertebrates which includes insects, arachnids, and crustaceans. They have jointed limbs, an exoskeleton, and a cuticle made of chitin. **All insects are arthropods but not all arthropods are insects.**

See photos below for examples of which animals are insects and which are not:



Bee



Ant



Spider



Butterfly



Fly



Lobster



Beetle



Dragonfly



Crab



Daddy Longlegs

Insects



Not Insects



Go out in nature and explore

Now that you know what an insect is, it's time to go out and look for them! The lucky thing is, insects can be found in almost any habitat in any location in the world, so you'll have lots of chances to find them. They can be small however and some have wings to fly away, so it may be hard to observe them. One way to make it easier, is to humanely collect, observe, and release them. What you do is find an insect, gently place it inside your vial or other container, observe it with your eyes and/or a magnifying glass, and then let it go! Sometimes people collect insects in nets, but if you don't have one you can also just find them on the ground or by looking on the leaves and stems of plants.

What insect did I find?

Alright, you've found an insect, collected it in a container, and are observing it. How do you find out what type of insect (fly, bee, etc.) it is? Using identification guides and the clues you observe, you can generally figure it out. For instance, beetles have hard coverings that protect their wings. For more specific information see the identification guide, complete with descriptions and photos on the next page.



BEES AND WASPS

Order: Hymenoptera (excluding ants)

Identification: 2 pairs of wings with hind wings smaller than front wings with few cross veins.

Notes: Beware of flies mimicking bees and wasps in color pattern!

CATERPILLARS

Order: Lepidoptera

Identification: 3 pairs of legs close to the head, 2-5 pairs of stubbier false 'prolegs' toward the rear.

Notes: May be fat like a hornworm or long and skinny like an inchworm, hairy like a gypsy moth caterpillar, or highly camouflaged to resemble leaves or twigs (or even bird poop!).

APHIDS & PSYLLIDS

Order: Hemiptera

Suborder: Sternorrhynca

Identification: Green, yellow or whitish in color, usu. <5 mm and often <2 mm.

Notes: Aphids are common garden pests sucking plant juices from leaves and stems!

FLIES

Order: Diptera

Identification: Only one pair of wings! Wings are membranous with conspicuous veins.

Notes: Shape and color highly variable; look out for bee and wasp mimics!

DADDY LONGLEGS

Order: Opiliones

Identification: 8 long legs; The head (cephalothorax) and abdomen appear to be part of a single round "body".

Notes: Also called "harvestmen".

LEAFHOPPERS, PLANTHOPPERS, CICADAS

Order: Hemiptera

Suborder: Auchenorrhynca

Identification: Usu. a wide head relative to the body. Hoppers have wings folded tentlike over the back and are good...hoppers. Cicadas have large membranous wings.

BUTTERFLIES & MOTHS

Order: Lepidoptera

Identification: Four large wings covered by scales. Antennae tend to be club-shaped in butterflies and feathery in moths.

Notes: The adult form of our caterpillar friends!

SPIDERS

Order: Araneae

Identification: 8 legs; The abdomen is distinct from the rest of the body.

Notes: Spiders are great hunters and many species do not build a web, like jumping spiders.

TRUE BUGS

Order: Hemiptera

Suborder: Heteroptera

Identification: Semi-transparent wings overlap so as to make a triangle or 'X' shape on the back. Often obvious pointy 'shoulders'.

Notes: Don't say 'bug' unless you mean it!

BEETLES

Order: Coleoptera

Identification: One pair of membranous wings that are only visible in flight covered by a pair of hardened wings that cover the abdomen.

Notes: Look for the straight line down the back of the abdomen!

GRASSHOPPERS, CRICKETS, KATYDIDS

Order: Orthoptera

Identification: Jumping hind legs; Hind wings, when open, spread like fans.

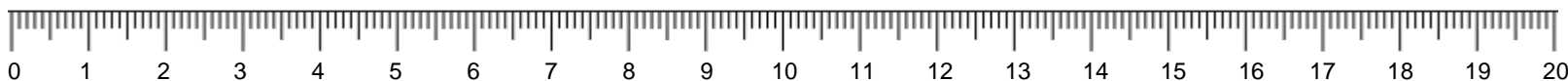
Notes: Antennae can be short or long!

ANTS

Order: Hymenoptera

Family: Formicidae

Identification: Elbowed antennae and a narrow waist.



1 cm = 10 mm

Caterpillars Count! ARTHROPOD GUIDE

BEES AND WASPS



2 pairs of wings,
narrow waist!

CATERPILLARS

Some have good camouflage! Keep an eye out!



APHIDS & PSYLLIDS

most < 5 mm, and often < 2 mm



FLIES

Only 1 pair of wings!



DADDY LONGLEGS

The head & abdomen appear to be part of a single round "body"; 8 long legs!



LEAFHOPPERS, PLANTHOPPERS, CICADAS



BUTTERFLIES & MOTHS

The adult forms of our caterpillar friends!



SPIDERS

8 legs; abdomen distinct from rest of body



TRUE BUGS

Look for the 'X' on the back formed by overlapping wings!



BEETLES

Look for the straight line where the wing casings meet!

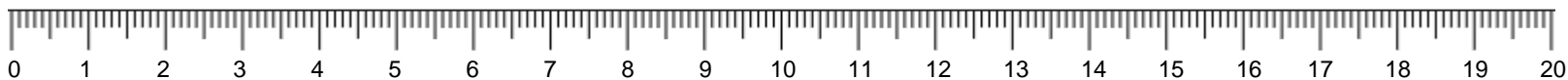
Ladybird beetle larva



GRASSHOPPERS, CRICKETS, KATYDIDS



ANTS



1 cm = 10 mm

Parts of an Insect Song

Lyrics and Body Motions:

(To tune of Head, Shoulders, Knees, and Toes)

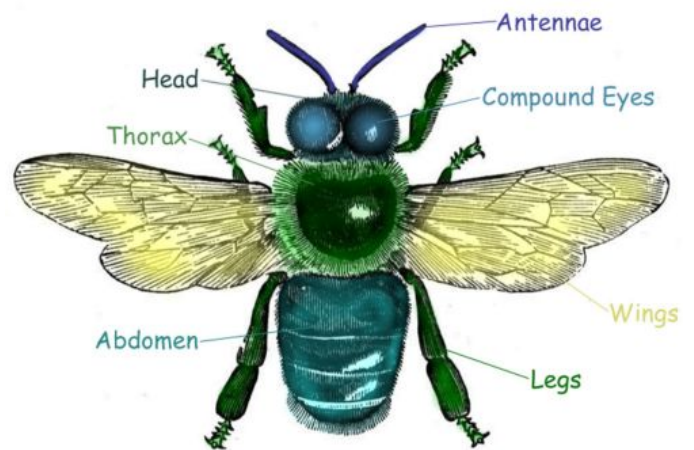
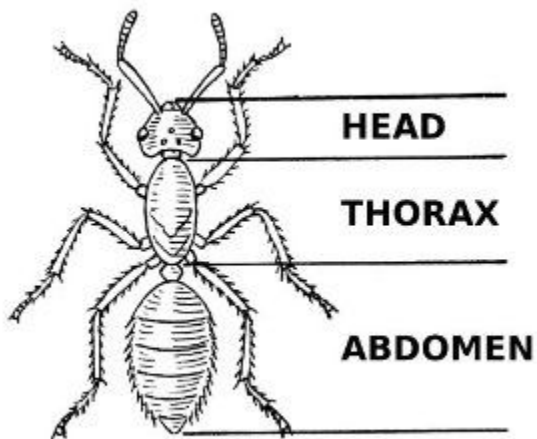
Head *(touch head)*, thorax *(touch chest)*, abdomen *(touch stomach)*

Head *(touch head)*, thorax *(touch chest)*, abdomen *(touch stomach)*

Six legs *(touch legs)*, antennae *(make antennae by holding your fingers on your head)*, exoskeleton *(shake whole body)*

Head *(touch head)*, thorax *(touch chest)*, abdomen *(touch stomach)*

(Repeat! x3)




Invent an Insect

Materials:


- Invent an Insect worksheet
- Colored pencils or other drawing implement

Instructions:

Now that you've learned what an insect is, how to find them, and which ones can be observed on Nantucket, it's time to invent your own insect. Using the following worksheet, come up with a name for your creature, its habitat, and its predators and prey. Then draw it! Let your imagination run wild!

Invent an Insect  ENTOMOLOGY

Draw your insect below. Be sure to label its body parts.



Name of my insect: Fireworks Fly

Habitat: Beach

Special adaptations: Launches fireworks to distract predators

Invent an Insect



ENTOMOLOGY

My Name: _____ Date: _____

1) My insect's habitat: _____

2) My insect's food source: _____

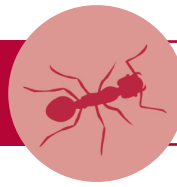
3) How it finds and eats its food: _____

4) How my insect moves: _____

5) What eats my insect: _____

6) How my insect escapes predators: _____





Draw your insect below. Be sure to label its body parts.

Name of my insect: _____

Habitat: _____

Special adaptations: _____