



Activity: Build a Bug

Grade Level: 3rd-5th grade

Time required: 20 minutes for preparation; 1 hour for activity



Subjects covered: Life sciences, Adaptations, and Insects

Skills covered: Observation, Experimentation, Critical Thinking, Note-taking

Common Core and NGSS Standards:

- LS3.A: Inheritance of traits. Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and the environment. (3-LS3-2)
- LS3.B: Variation of traits. The environment also affects the traits that an organism develops. (3-LS3-2)
- LS4.C: Adaptation. For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)

Objective: Students will learn the characteristics of insects, as well as some examples of insect adaptations

Materials:

- "Parts of an Insect" worksheet
- "Build a Bug" activity sheet
- Habitat cards
- Food Source cards
- Crayons/pencil or crayons/paint
- Optional pictures of existing insects

Background:

Insects are classified as arthropods. **Arthropods** include insects, spiders, scorpions, millipedes, centipedes, crabs and lobsters. Arthropods have an exoskeleton (a hard skeleton that surrounds their body); segmented body plans; and jointed body parts (legs, antennae, and mouthparts). Insects have three body segments: the head, thorax, and abdomen. They have compound eyes and antennae on their heads. On the thorax they have three pairs of legs and usually two pairs of wings; however some insects have only one pair of wings or even none. Flies, for example, have just one pair of wings. Ants do not usually have any wings, with the exception of the queen). The small size and hard exoskeleton of insects allow them to live in habitats where other animals cannot. The body plan of insects has been adapted for the specific environment in which each species lives and also for its specific lifestyle.



Preparation:

Print one "Build a Bug" activity sheet and one "Parts of an Insect" sheet for each student or group. This activity can be done individually or in small groups, so arrange the classroom space as needed beforehand. Discuss the parts of an insect with students and confirm that they can distinguish insects from other arthropods, such as spiders, centipedes, and millipedes. Discuss different adaptations that insects use to survive in their environments.

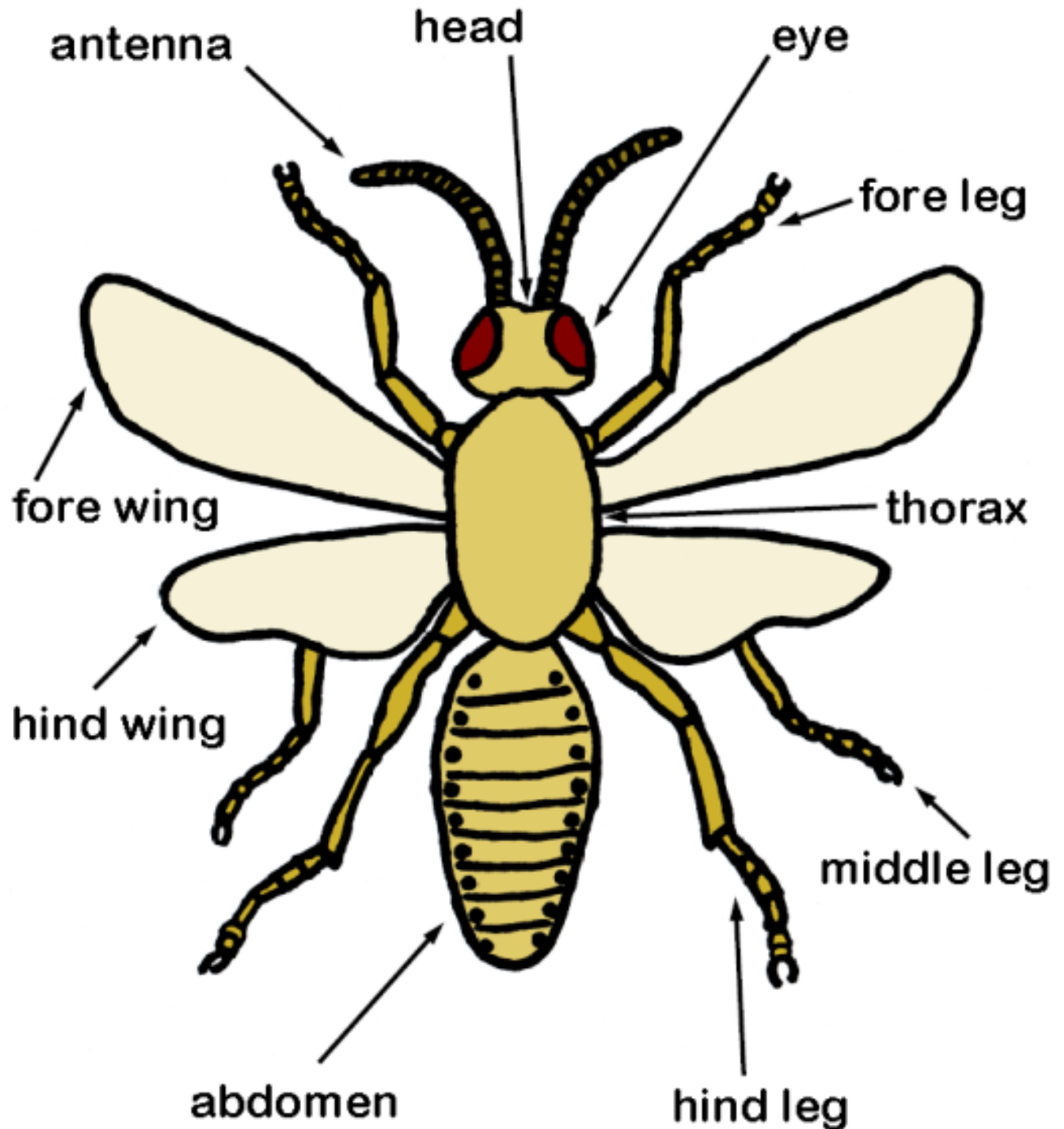
**Activity:**

Give each student or group one "Parts of the Insect Sheet," one "Build a Bug" Activity Sheet, one Habitat Card, and one Food Source Card. Each student or group should invent an insect adapted to live in the habitat and eat the food source that was on his or her cards. Students should fill out the questions on the "Build a Bug" Activity Sheet and then draw their insect on the sheet, labeling all the essential parts of an insect. The insect should be based in reality (so no jet packs or flame-throwers). Give the students 30-40 minutes to invent their insect. Ask students to share some of the adaptations that they invented. Compare the insects that the students created, especially looking at different ways students had their insect adapt to the same food source or habitat.

Extensions:

- Increase the number of habitats (e.g., mountains) or food sources (e.g., parasite) in the activity.
- Let students make a 3D version of their insect with available art supplies.
- Have students make a food web of all their insects.
- Write stories with their insect as the main character.
- Show students examples of real insects that are found in the habitats used in the activity.

Parts of an Insect



Build a Bug – Activity Sheet

Name: _____ Date: _____



1) Insect Habitat:

2) Insect Food Source:

3) How the insect finds its food:

4) How the insect eats its food:

5) How the insect gets around:

6) What eats the insect:

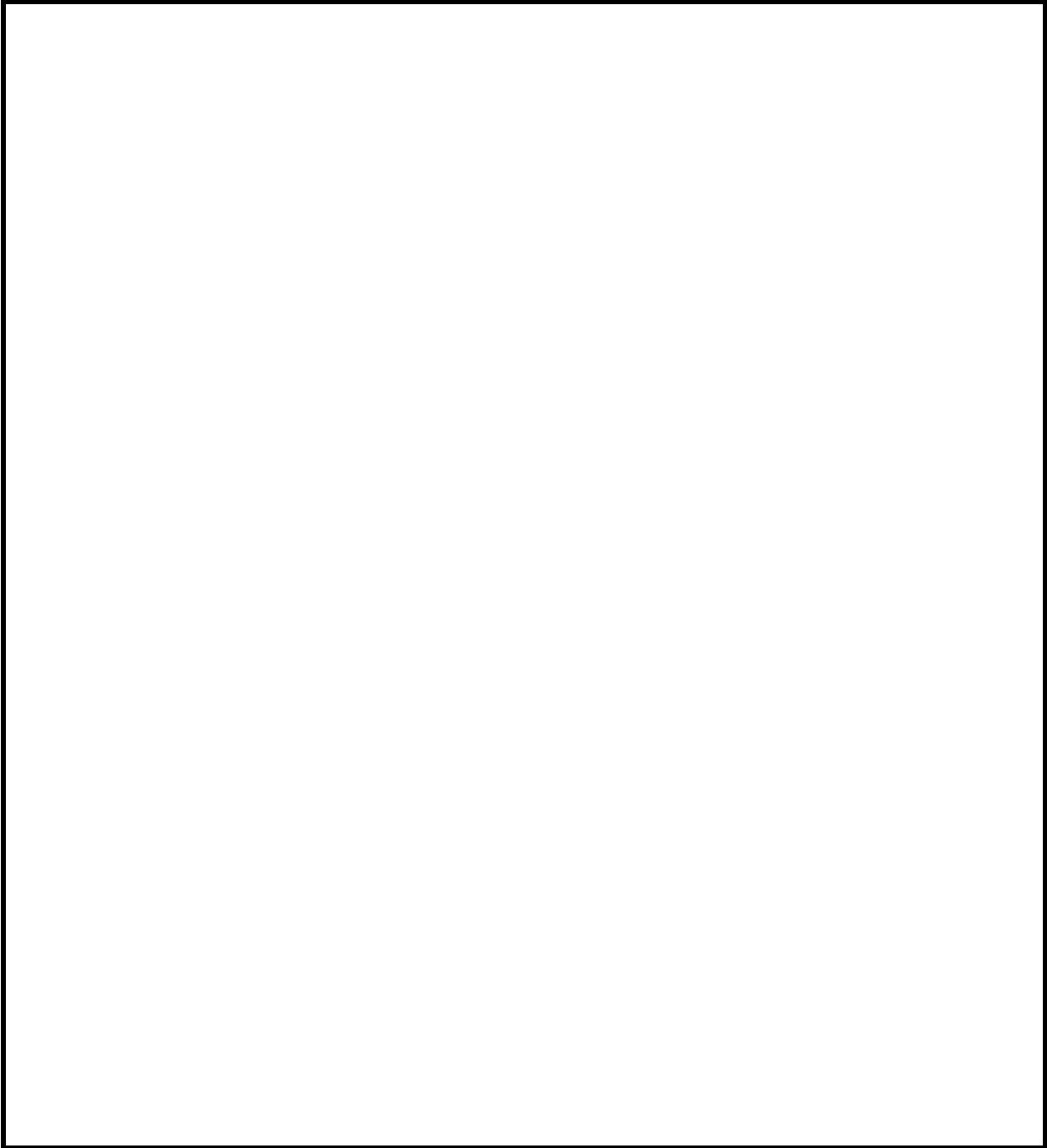
7) How the insect escapes its predators:

Build a Bug – Activity Sheet

Name: _____

Draw your insect below! Don't forget to label all its body parts.

Name of insect: _____



Habitat Cards



Underground

Soil, rotting plants and animals, other insects



Forest

Leaf litter, shade, rotting plants and animals, trees, other insects



Desert

Flowers, rotting plants and animals, other insects, very hot and dry!



Cold/Snowy

Rotting plants and animals, other insects, very cold!



Arctic

Ice, rotting plants and animals, other insects, need to breathe!



Meadow/Grassland

Grass, plants and flowers, lots of sun, open space, other insects

Food Source Cards



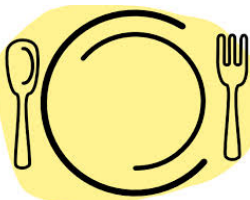
Predators

Eat other insects



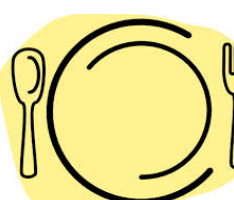
Plant-Feeders

Eat plants



Flower-Feeders

Eat nectar and pollen from flowers



Scavengers

Eat rotting plants and animals