

TEACHER LED ACTIVITIES

FOOD CHAIN GAME

BACKGROUND:

The transfer of food from its source, plants, to one or more organisms is called a food chain. This transfer takes place when one organism eats another. The food chain in this game consists of four links: plants – grasshoppers – frogs – hawks. Popcorn kernels represents the plants/seeds and the students play the parts of the grasshoppers (plant eaters), frogs (which eat grasshoppers), and hawks (which eat frogs). During each round, the “animals” must get enough to eat and avoid being eaten.

A population is a group of organisms of one kind that lives in the same area. In the *Food Chain Game* the populations are so small that the survival of two grasshoppers, two frogs, and one hawk (which can fly to find a mate) represents a “balanced” food chain.

CHALLENGE: Stay alive by getting enough to eat and avoiding being “eaten.”

MATERIALS:

- Armbands (blue, yellow and red)
- Plastic bag (represents “stomach”)
- Popcorn Kernels

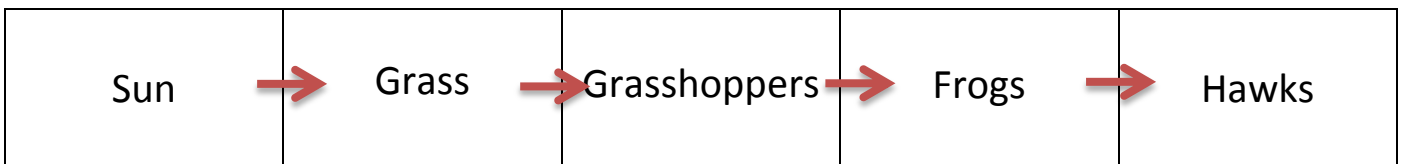
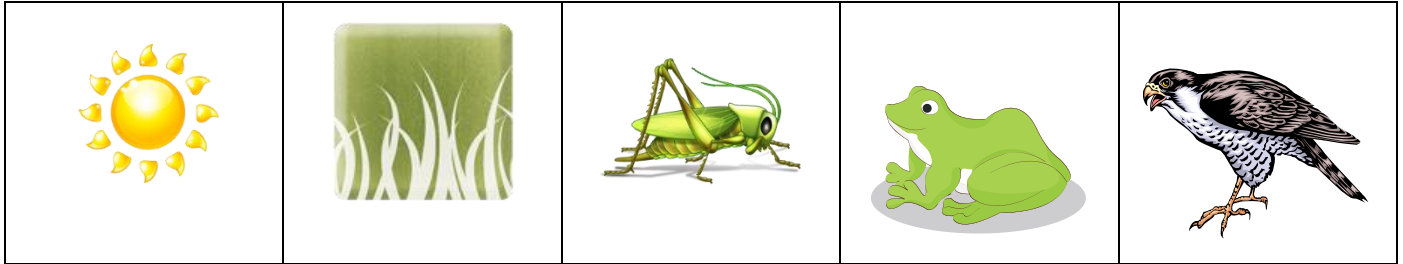
PROCEDURE:

1. For a class of 25 divide students into 16 grasshopper, 7 frogs, and 2 hawks.
2. Assign each animal a colored armband and have students tie/place on wrists.
3. Spread popcorn Kernels in designated area.
4. Give each grasshopper a plastic bag “stomach”.
5. Blow whistle to start game.
6. Grasshoppers enter game and place kernels in plastic bags.
7. After two minutes allow frogs to enter game. Frogs must tag grasshoppers.
8. When grasshopper is captured it must give bag to frog and exit the playing area.
9. After one minute allow hawks to enter game. Hawks must tag frogs with bags.
10. After frog is captured it must give all its bags to the hawk and then exit the playing area.
11. After one minute blow whistle to end game.
12. For an animal to survive they must have enough food.
 - Grasshoppers need 15 kernels in bag “stomach”
 - Frogs need at least (2) bags acquired from grasshoppers
 - Hawks need at least (3) bags acquired from frogs

Student Name: _____

FOOD CHAIN GAME:

FOOD CHAINS – can show how the sun’s energy passes from one living thing to another. This food chain example shows the flow of energy from the sun to the top predator.



Make a Food Chain using the plants and animals listed above the boxes. Make your food chains in the boxes below. Be sure to start with the main source of energy and end it with the top predator.

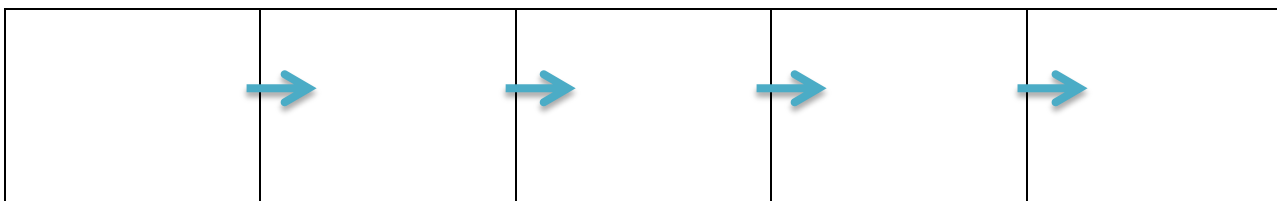
TERRESTRIAL/LAND - A FOOD CHAIN IN A FIELD

- Mouse
- Snake
- Sunflower
- Sun
- Coyote



AQUATIC/WATER - A FOOD CHAIN IN A POND

- Great Blue Heron
- Sunfish
- Sun
- Tadpole
- Algae



TEACHER LED ACTIVITIES

INSECT STUDY

OBJECTIVE:

Students will learn how to collect insects using nets and collection containers. Students will also learn how to use an insect guide to identify the insects.

MATERIALS:

- Insect guides
- Moth and butterfly guides
- Spider guides
- Insect collecting containers
- Collecting nets
- Insect display cases

PROCEDURE:

1. Have students choose a partner. Let the students know that they are going to catch insects.
2. Begin the activity by passing out the insect identification guides and show the students how to use the guide. Point out such things as the introduction pages, the index, maps, etc. (The guides should remain on the tables so they are not lost while collecting.) (4 minutes)
3. Have students answer the questions on the student answer sheet. (4 minutes)
4. Show students the insect display cases. Most of the insects were caught at the OLC. (3 minutes)
5. Demonstrate how to use the nets and how to place the captured insects into the collecting jars. Caution students about handling bees and wasps. (4 minutes)
6. Let the students know the boundaries of where they can go to collect the insects.
7. Pass out the collecting jars and nets. (2 minutes)
8. Go as a group to collect. (10 minutes)
9. Have the students return to the tables to identify their insects and record what they found on the students answer sheet. (7 minutes)
10. Have the students release the insects. (2 minutes)
11. Make sure nets, identification guides, and jars are returned to their proper places.

Student Name: _____



1. Listen to the teacher's instructions on how to use the insect guides, nets and collection containers.
2. Next, wait patiently for your equipment to be handed out and then listen for instructions about where to collect the insects.
3. After an insect has been caught, use the insect identification guides, or the insect display cases to identify the insect.
4. Write the name of the insect and draw a picture of the insect in the spaces provided.
5. Release the insect when you have finished making your drawing.

INSECT STUDY: Answer the questions below.

1. How many legs do insects have? _____
2. How many body regions do insects have? _____
3. Name the body regions? _____
4. Does an insect have an internal or external skeleton? _____

*If you do not catch three different kinds of insects, identify and draw the picture of an insect that someone else caught.

Name of Insect	Draw arrows from the labels below to your insect drawing.	Drawing of Insect
1.	Head Thorax Abdomen Legs Antenna Mouth	
2.	Head Thorax Abdomen Legs Antenna Mouth	
3.	Head Thorax Abdomen Legs Antenna Mouth	

IDENTIFY THE INSECTS

These insects are in the group Orthoptera.

The key characteristics of this group are:

- Chewing mouthparts
- Leathery wings folded and flattened against their backs
- Usually fairly large compared to some other insect groups
- The young and adults look very similar
- Antenna quite prominent
- **(Incomplete Metamorphosis)**

Grasshoppers, Crickets, Katydids



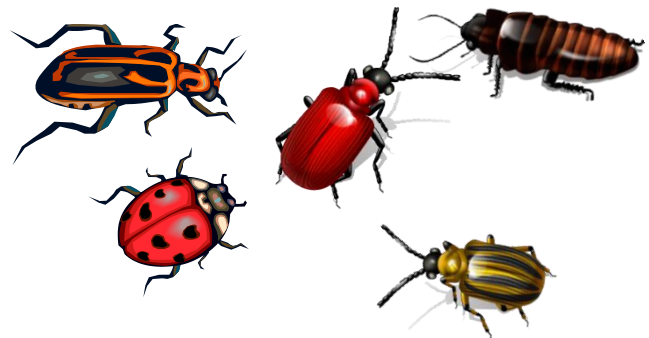
Beetles are in the group Coleoptera.

They are one of the most common living things on earth.

The key characteristics of this group are:

- A hard shell-like covering over their folded wings
- Chewing mouthparts
- Range in size from tiny to large
- Antennae are short and have a variety of forms
- Life cycle consists of larva that look very different from the adults
- **(Complete Metamorphosis)**

Beetles



Bees and wasps belong to the group Hymenoptera.

The key characteristics of this group are:

- Two pairs of transparent wings; the hind wings are smaller than the forewings.
- The middle of their body often has a constricted appearance.
- Chewing and sucking mouthparts
- Females often have a stinger
- Often live in colonies, but not all types do.
- Grub-like larvae
- **(Complete Metamorphosis)**

Bees and Wasps



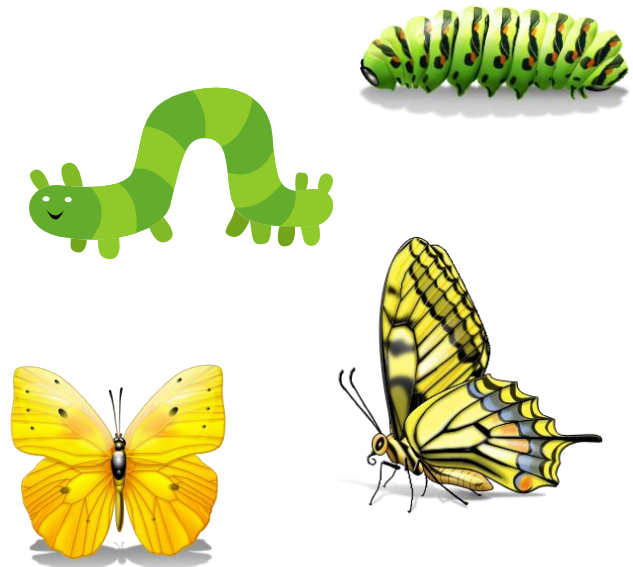
IDENTIFY THE INSECTS

These insects belong to the group Lepidoptera.

The key characteristics of this group are:

- Adults have two prominent pairs of scaly wings. Larvae are wingless.
- Larvae have chewing mouthparts. Most adults have sucking mouthparts, although some adults have no mouthparts at all, they only live long enough in this stage to mate before they die.
- Butterflies have antennae with knobs on the end; moths have feathery antennae.
- Most larvae form a chrysalis or cocoon for the pupa stage before tuning into an adult.
- **(Complete Metamorphosis)**

Butterfly



Ants are also in the insect group Hymenoptera.

They have many of the same characteristics of this group that are mentioned in slide number three above, (chewing mouthparts, constricted waist, living in colonies.)

However, most ants are wingless, only the queen of the ant colony and reproducing males have wings; the rest of the colony is made up of infertile, wingless females.

Ant

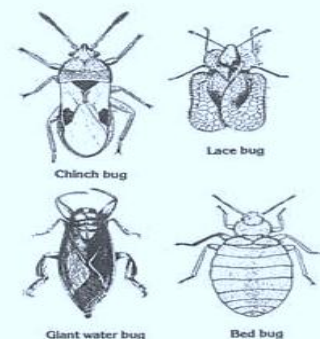


These insects are in the group Hemiptera.

The key characteristics of this group are:

- Folded wings that form an "X" pattern on their backs.
- This sometimes appears as a small triangle just behind the midsection (thorax).
- Piercing and sucking mouthparts.
- Young look similar to the adults

Note: They are sometimes called true bugs but there is nothing more "true" about them than any other bug.



True Bugs