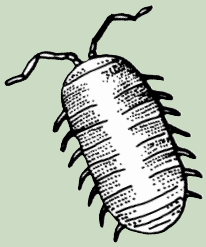
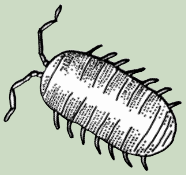
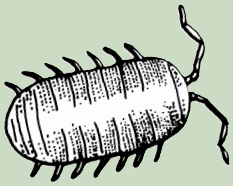
Student Instructions for Adding Isopods to the Terrarium

1. Use a spoon to scoop two isopods into your clear plastic cup.
2. Return to your seat and observe your isopods closely with the hand lens. Record your observations. Include information on size, color, movement, and body parts. Illustrate and label your observations.
3. Place your isopods gently in the terrarium and watch what they do for two or three minutes. Record your observations.







Student Instructions for Adding Crickets to the Terrarium

1. Capture two crickets. There are lots of different ways to do it. Be sure you are very gentle.
   - If they are cold and slow-moving, you may be able to scoop them up easily with your cup and spoon.
   - Shake one or two off the egg carton, twig, or paper towel in the holding container into your cup.
   - Clamp your upside-down cup over the cricket, slip an index card underneath the cup, and turn the cup over with the cricket inside.
2. Cover the cup with the index card and return to your seat to observe the cricket with the hand lens. Record your observations. Include information on size, color, movement, and body parts. Illustrate and label your observations.
3. Gently place your crickets in the terrarium and watch what they do for two or three minutes. Record your observations.

4. Make certain that the cut-off base of your terrarium, which will be used for the terrarium lid, has three or four holes in it. If it does not, ask your teacher to make these holes with a knife.
5. Cover the terrarium with this lid to keep the crickets from hopping out.

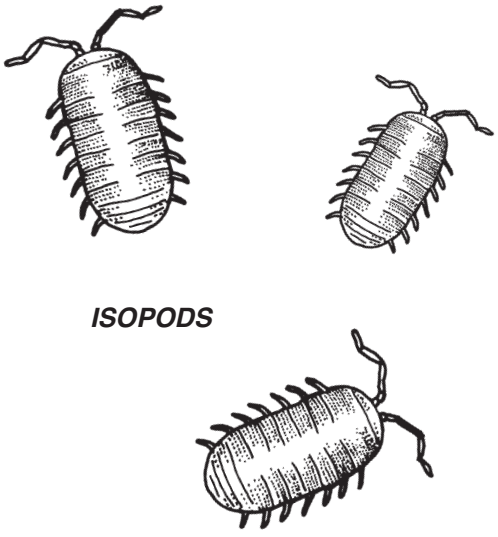
Reading Selection

Isopods: More Like a Lobster!

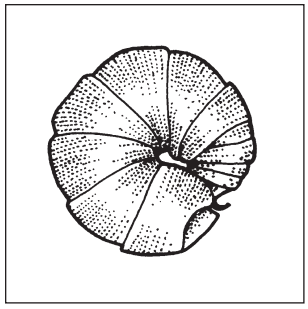
Scientists call them isopods, which means "equal legs." But you probably know them by some other names, like wood louse, pill bug, sow bug, or roly-poly. Isopods are not insects. In fact, they are close relatives of lobsters, crabs, and shrimp. Like those sea creatures, most isopods live in water. There are a few land-living, or **terrestrial,** kinds of isopods, though. Yours belong to this group.

Look at your isopod with a hand lens. You will see a flat oval body covered by smooth, hard plates. It seems to be covered in a suit of armor. That stiff suit of armor is actually a skeleton. But unlike our skeleton, it's worn on the outside and is called an **exoskeleton.** At the head end is a pair of antennae and two tiny eyes.

Now, count the pairs of legs. If your isopod has six pairs of legs, it is very young and has not experienced its first **molt.** What is a molt? The isopod's exoskeleton is good protection, but it cannot grow. So in order to grow, the isopod must shed its old exoskeleton, or "molt." After the molt, it will have seven pairs of legs.



ISOPODS



Pill bugs curl up into a ball to protect themselves.

Half a Molt Is Better than None

It's odd: the isopod sheds only half of its exoskeleton at a time. Usually the front half goes first. Check your isopod's color. Is the color all dark gray or black? Then the isopod has been wearing this exoskeleton for some time. Is the color light gray, or maybe even half light and half dark? Then the isopod has just experienced a molt. Or, it is in mid-molt.

The isopod breathes through specialized organs similar to fish gills. So, like its water-living, or **aquatic,** relatives, the isopod needs moisture at all times. (Keep this in mind whenever you schedule a rain shower for your terrarium. Wet the isopods' corner, too.)

The isopod has many predators, mostly birds, lizards, and spiders. (That is why some isopods, the pill bugs, curl up into a ball to protect themselves.) But isopods are more than just food for other animals. Isopods are **scavengers.** They eat dead and decaying plant matter. What animal in your aquarium also does this job?

Be on the lookout for baby isopods. If you are lucky enough to have a pregnant female, she may be bulging with up to 200 eggs in her brood pouch! How many legs will each baby have? How do you imagine they will look?

Reading Selection

Crickets: A Closer Look

You probably recognize the cheerful chirping of crickets at night. But have you ever looked at a cricket up close? Crickets are insects. An insect's body is divided into three main parts: the head, the midsection (or **thorax**), and the abdomen. Look at your own crickets to identify these parts.

You have a **house cricket** in your terrarium. Attached to the house cricket's head are the eyes, the chewing mouth parts, and the antennae. (Use your hand lens to get a closeup look.) The antennae are almost as long as the cricket's whole body. They tell the insect about the feel, taste, smell, humidity, and temperature of the world outside.

Attached to the cricket's thorax you will find four wings. These will give you clues about your cricket's age. A very young cricket, or **nymph,** has no wings at all. A larger adolescent (teenage) cricket has very short wings. And the largest crickets, the adults, have full-grown wings.

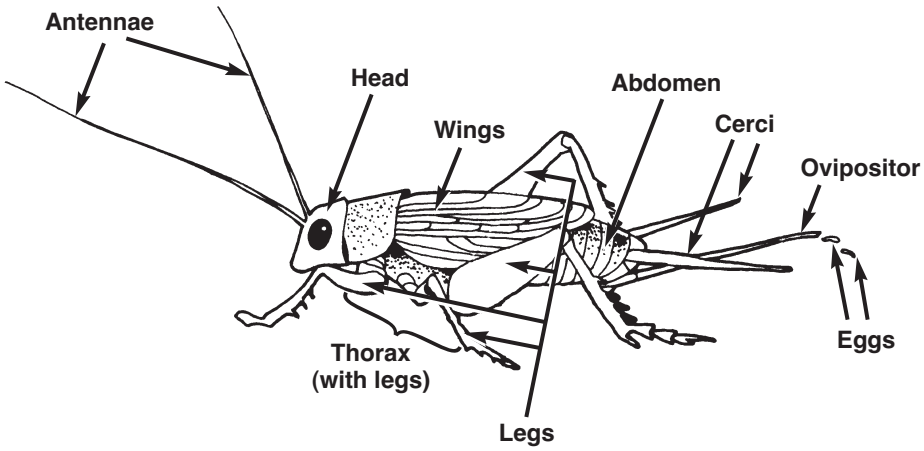
Although the house cricket's wings are weak, they do have a purpose: chirping. But only the adult males can chirp. The sound comes from scraping one wing against another. Why do you think male crickets chirp?

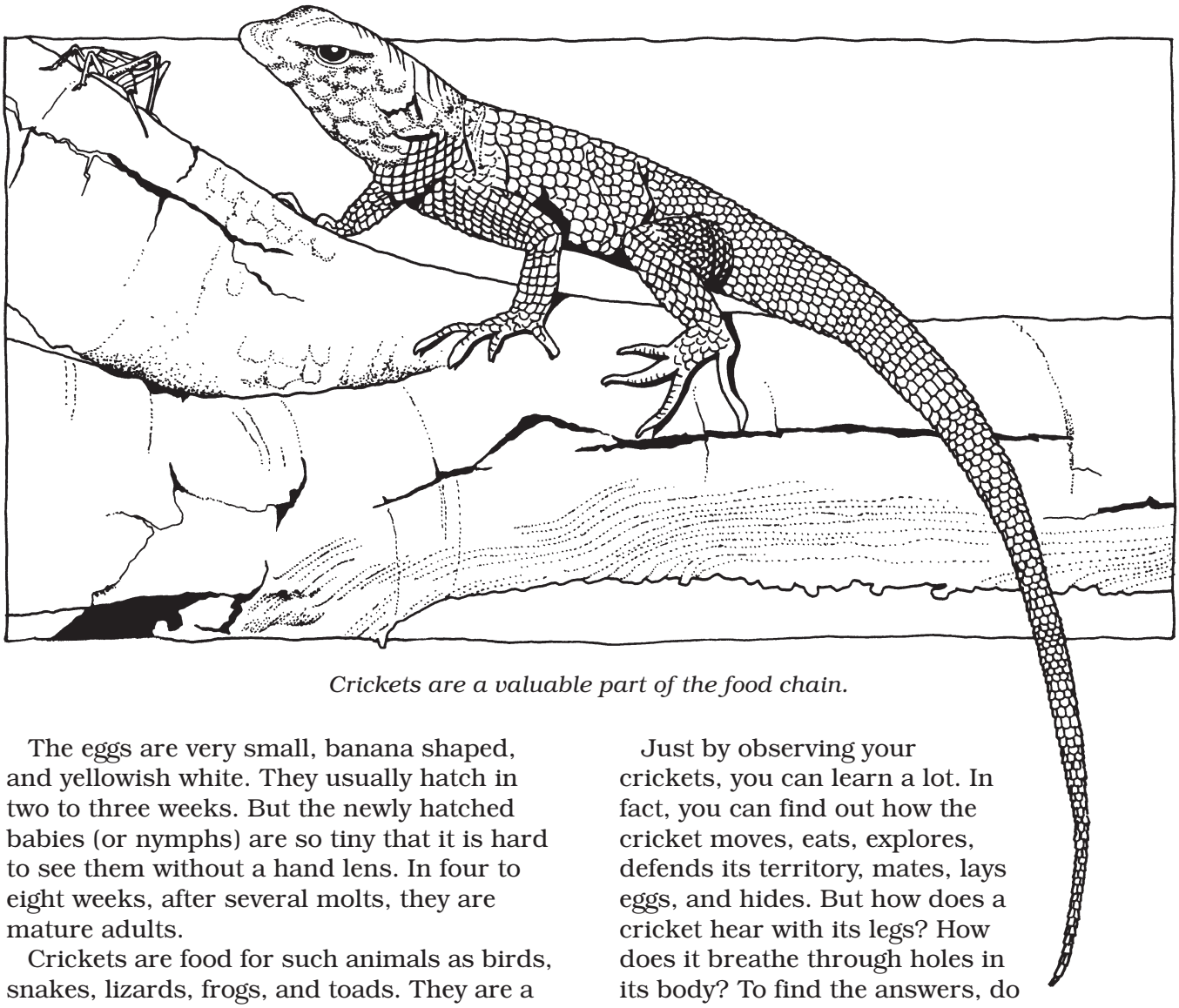
Mighty Jumpers

Also attached to the thorax are the cricket's mighty legs. Count them. Notice that each pair is different. Which are the most powerful? Crickets can jump about 60 cm (2 ft). Let's compare that with how far a person could jump if he or she had the cricket's strength. A 180-cm (6-foot) tall person who had the same ability as a cricket would be able to jump 4,320 cm (144 ft)!

On the back section, or **abdomen,** look for more clues to your cricket's identity. Both males and females have two spines called **cerci** projecting out of the rear of the abdomen. Crickets use these to sense vibrations in the air and ground. But only the adult female has a third projection: a longer, dark, needlelike projection, or **ovipositor.** She uses it to place her eggs in the ground.

FEMALE CRICKET





Crickets are a valuable part of the food chain.

The eggs are very small, banana shaped, and yellowish white. They usually hatch in two to three weeks. But the newly hatched babies (or nymphs) are so tiny that it is hard to see them without a hand lens. In four to eight weeks, after several molts, they are mature adults.

Crickets are food for such animals as birds, snakes, lizards, frogs, and toads. They are a valuable part of the food chain. But they also eat plants and can do a lot of damage to them. In some places, farmers consider them pests.

Just by observing your crickets, you can learn a lot. In fact, you can find out how the cricket moves, eats, explores, defends its territory, mates, lays eggs, and hides. But how does a cricket hear with its legs? How does it breathe through holes in its body? To find the answers, do some research in the library or contact an expert in insects, an **entomologist.**

Record Sheet 6-A

Name: _____

Date: _____

Adding Crickets and Isopods

1. In the space below, draw one of your isopods. Label all the parts you can.

2. Now draw one of your crickets. Label all the parts you can.

Record Sheet 6-A Name: _____

Adding Crickets and Isopods *(continued)*

3. Compare the cricket to the isopod. Fill in the table below to organize your observations.

Animal Observations Table

	Isopod	Cricket
Size		
Color		
Legs		
Wings		
Other Parts		
Motion		
What It Did		