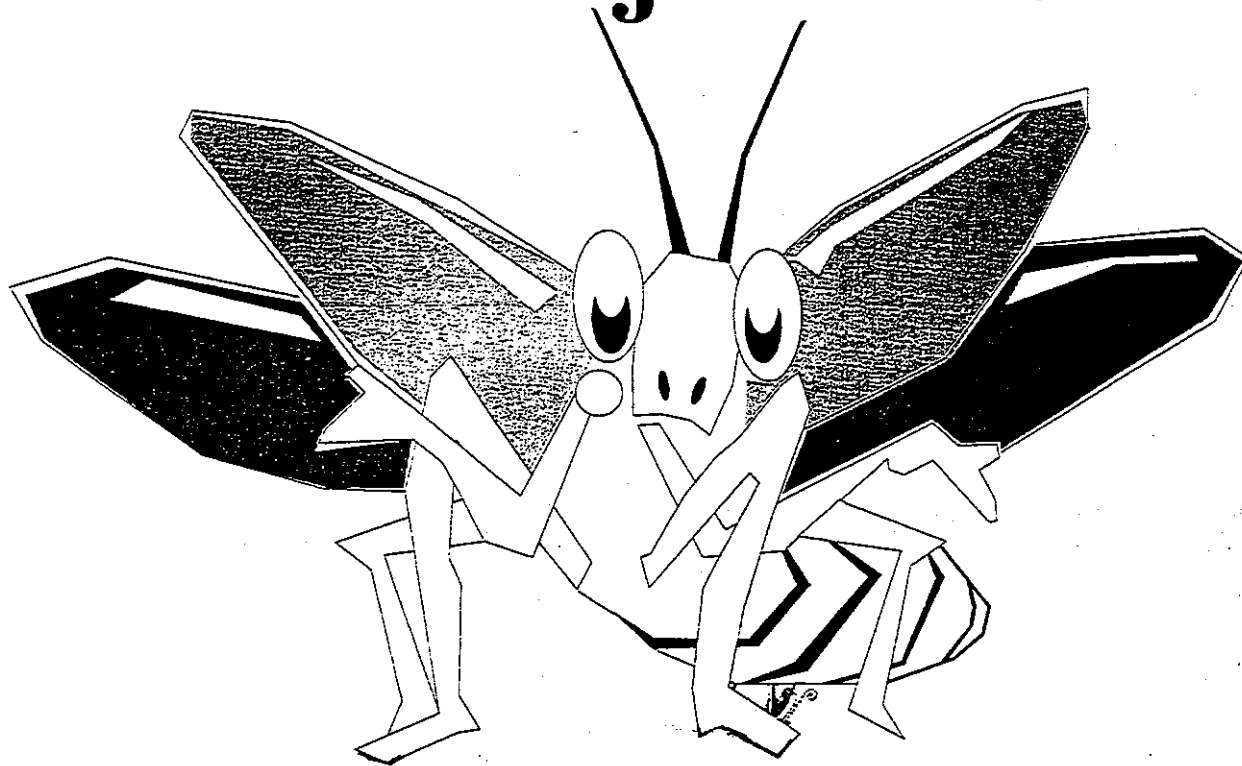


Bug Out

Mini-Project Book



NAME _____

AGE _____

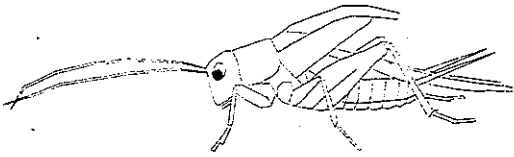
CLUB _____

Step II



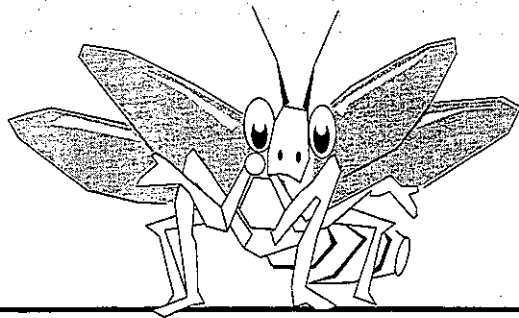
K-3RD GRADE PROGRAM

North Carolina Cooperative Extension
North Carolina A&T State University
North Carolina State University



In this Mini Project you will learn:

- How insects grow and change
- Where insects live



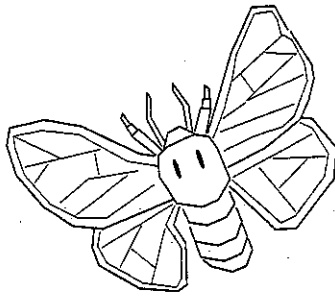
A Note for Parents or Guardians

This series of experiential learning activities about insects is designed for children to complete on an individual basis, with assistance from a parent or guardian. In addition to learning about insects, children will develop competencies in such life skills as:

- **social interactions**
- **decision-making**
- **health and physical fitness**
- **self-understanding**
- **learning to learn**

Please refer to the *Bug Out Activity Guide* for additional activities, which are designed to be used by groups of children to supplement the information and activities in this workbook.

Fun Things To Do



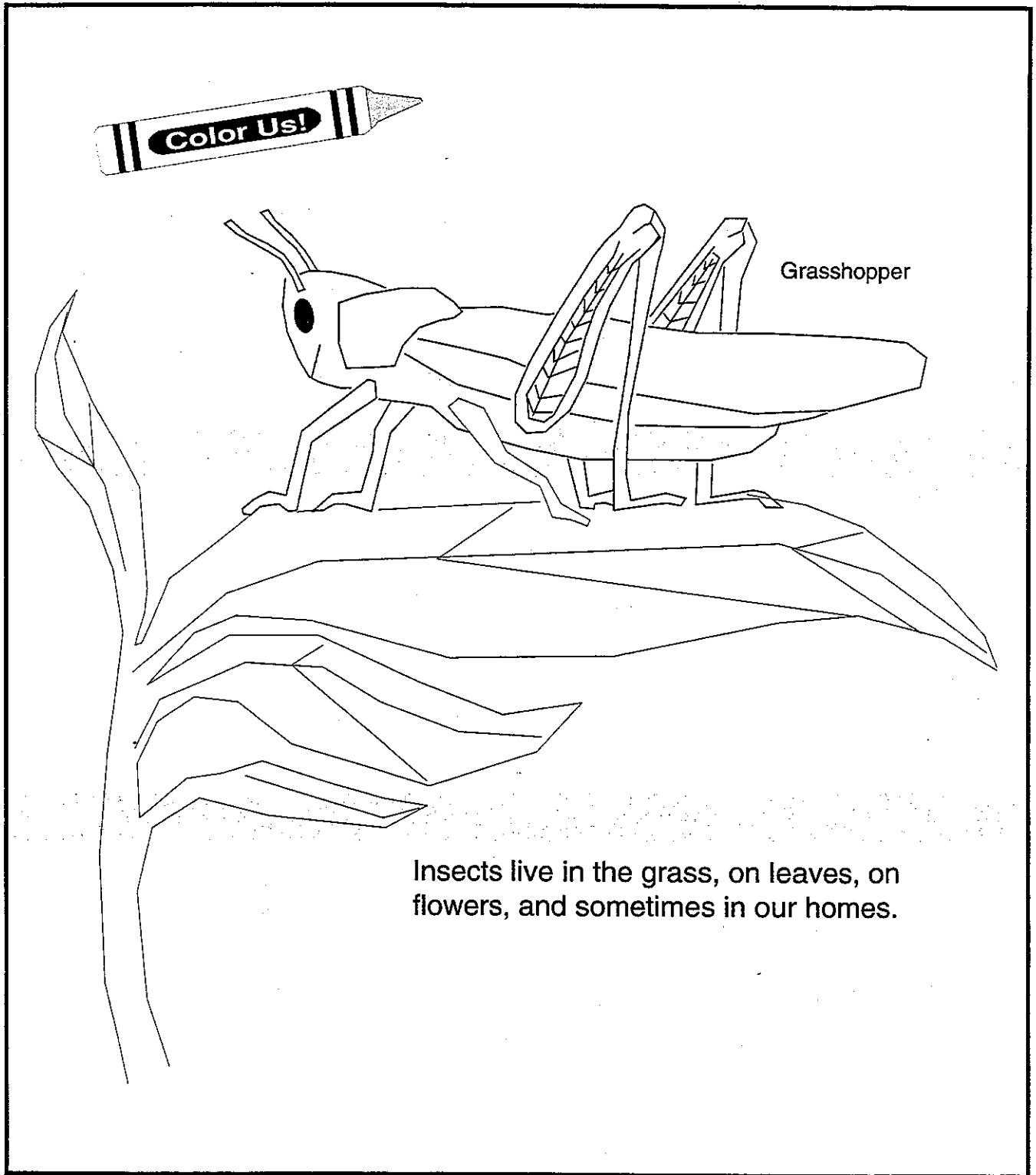
Directions:

These are the things you and your child can do in this *Bug Out Project Book*. Discuss each activity with your child and make a check by the ones you decide to do together.

- Color insects
- Learn how insects grow and change
- Solve an insect maze
- Find hidden pictures
- Hunt for insects outside
- Create a funny story about insects
- Connect insects dot-to-dot
- Read a book about insects with mom or dad
- Learn where insects live
- Decode a secret word
- Watch a caterpillar in a jar and draw it
- Do an insect word search
- Unscramble words to solve a riddle
- Find which insect is the same as another
- Watch a grasshopper and write a story about it
- Look inside a rotten log

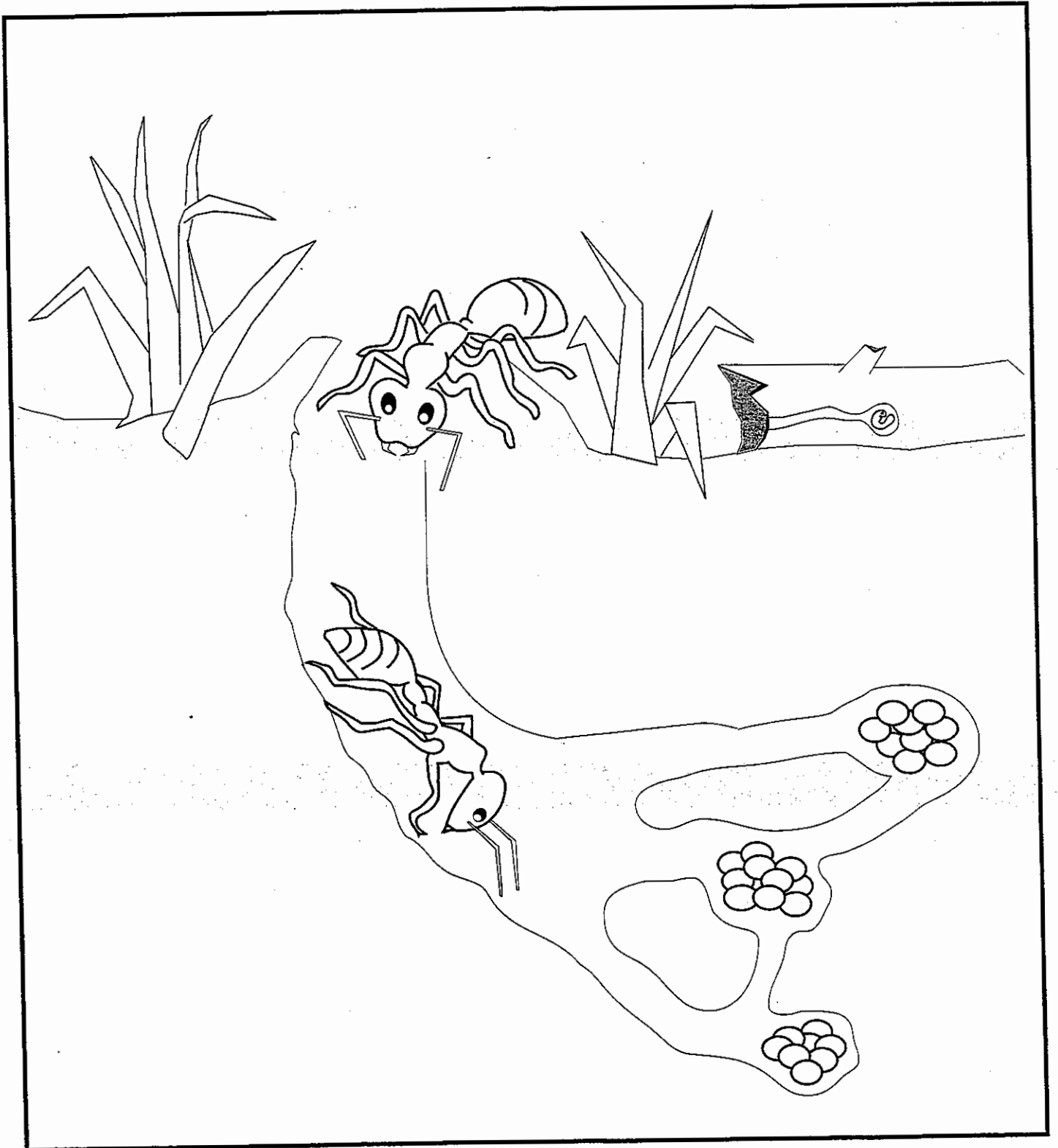
Where insects live

Insects live in many places around the world.
You can find insects almost anyplace.



Insects live in the grass, on leaves, on
flowers, and sometimes in our homes.

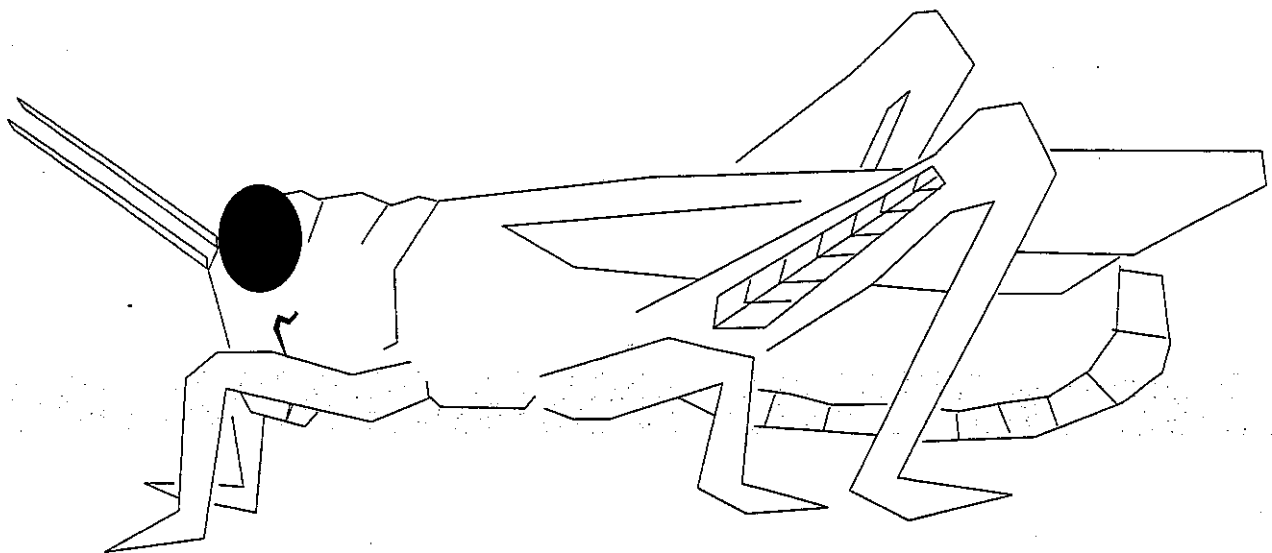
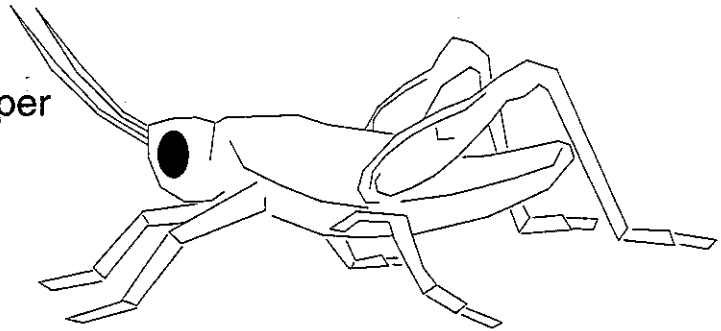
You may find insects under the ground, or in wood. Insects live almost everywhere.



How insects grow

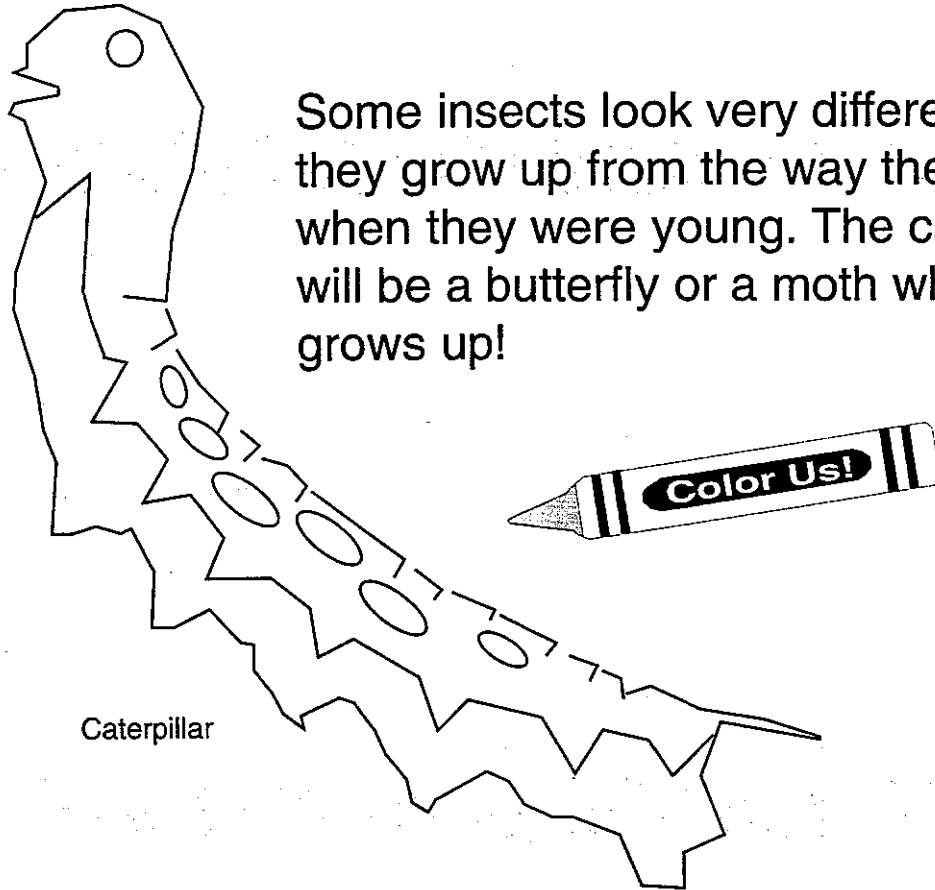
Some insects have babies that look like adults, only smaller. The baby grasshopper looks a lot like the adult grasshopper, but the baby does not have any wings.

baby grasshopper



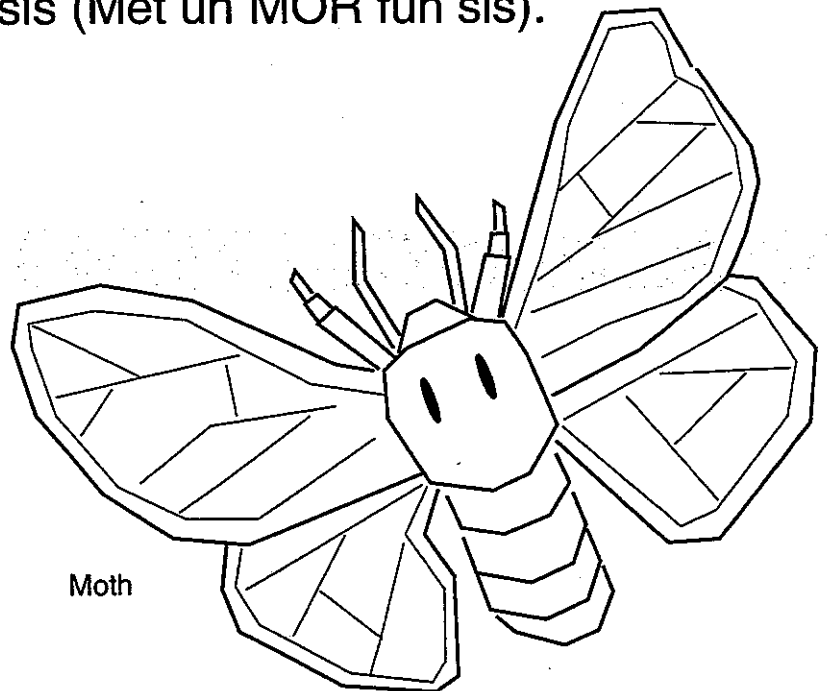
adult grasshopper

Some insects look very different when they grow up from the way they looked when they were young. The caterpillar will be a butterfly or a moth when it grows up!



Caterpillar

Insects go through stages as they grow up, and this is called metamorphosis (Met uh MOR fuh sis).

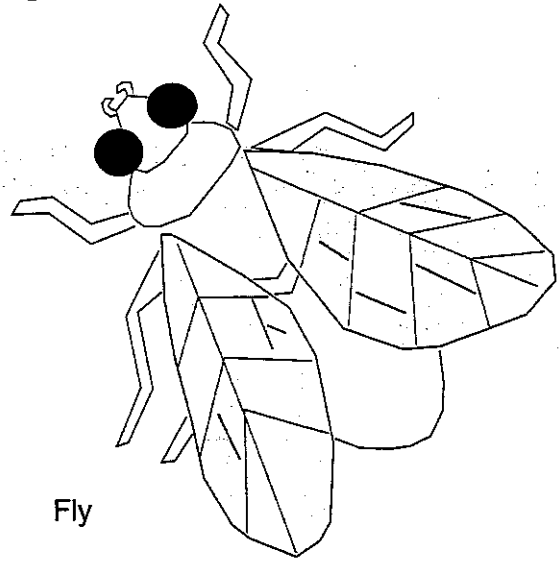


Moth

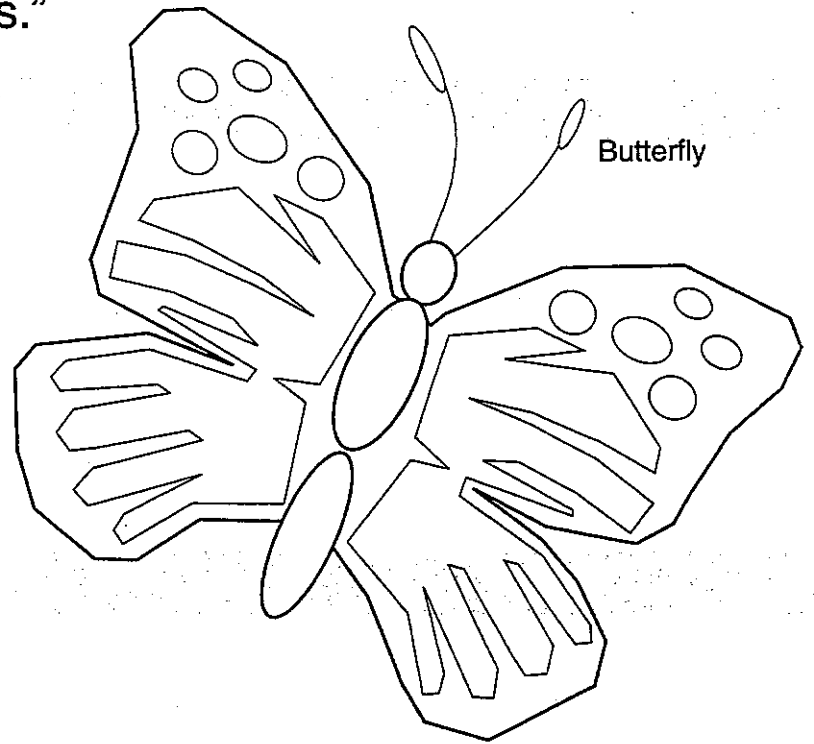
Insects grow up in two different ways

Complete Metamorphosis

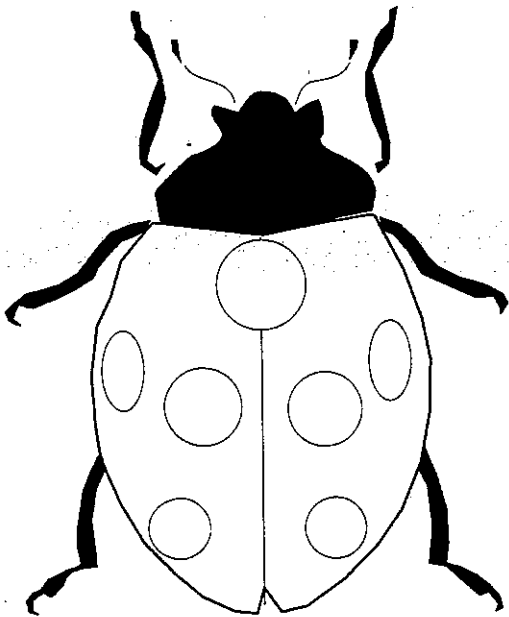
Most insects go through many changes of body shape before they grow up. This is their metamorphosis. Flies, ladybird beetles and butterflies are three insects that grow up through "complete metamorphosis."



Fly

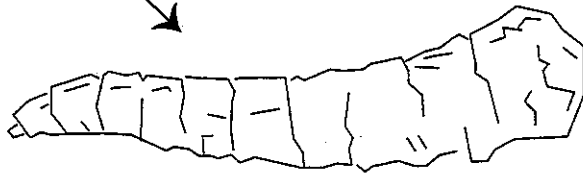
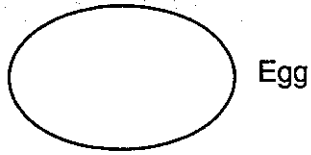


Butterfly

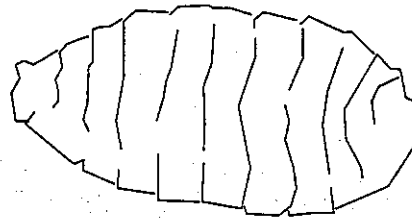


Ladybird beetle

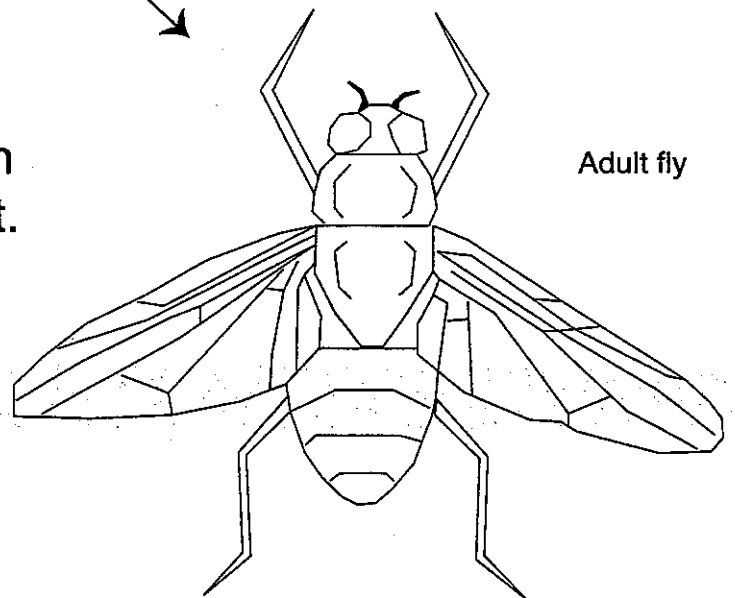
Larva (LAR vuh) is the name given to an insect in the stage after it breaks out of its egg. A fly larva has no legs.



A fly larva, which is called a maggot



A fly pupa



Adult fly

The larva will form a pupa (PEW pa) when it is done eating. In time, it sheds its skin and the adult insect crawls out.

When an insect goes through the egg, larva, pupa and adult stages, it is called complete metamorphosis.

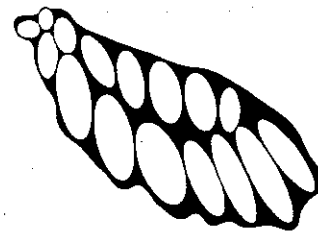
Simple Metamorphosis

Some insects, such as a grasshopper, do not go through larva and pupa stages as they grow up. Instead, they go through “simple metamorphosis.” Like complete metamorphosis, simple metamorphosis begins with insects hatching from eggs. The next stage in simple metamorphosis is the nymph (nimf) stage.

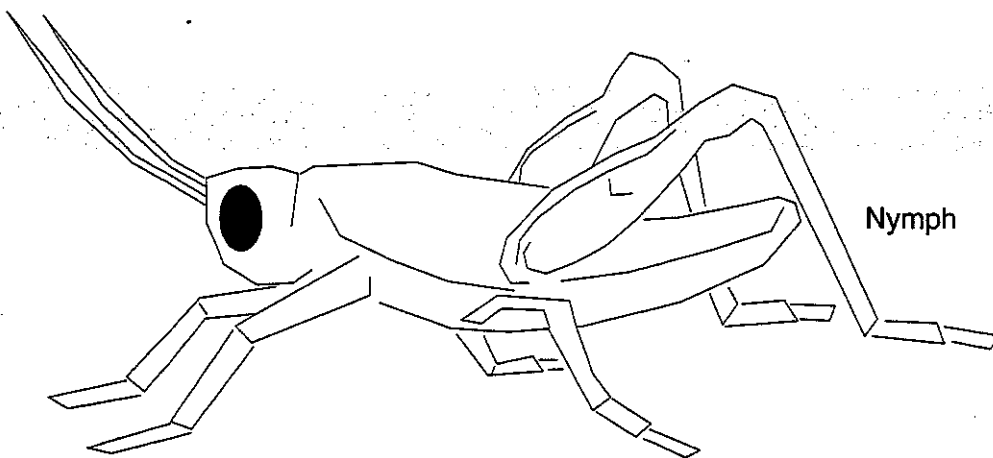
Here's how a grasshopper grows up:

When the adult insect lays eggs, an insect life begins.

A young insect hatches from the egg. As it starts to grow bigger, it sheds its skin. When an insect sheds its skin, it is called “molting”

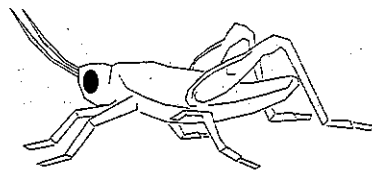


Egg mass

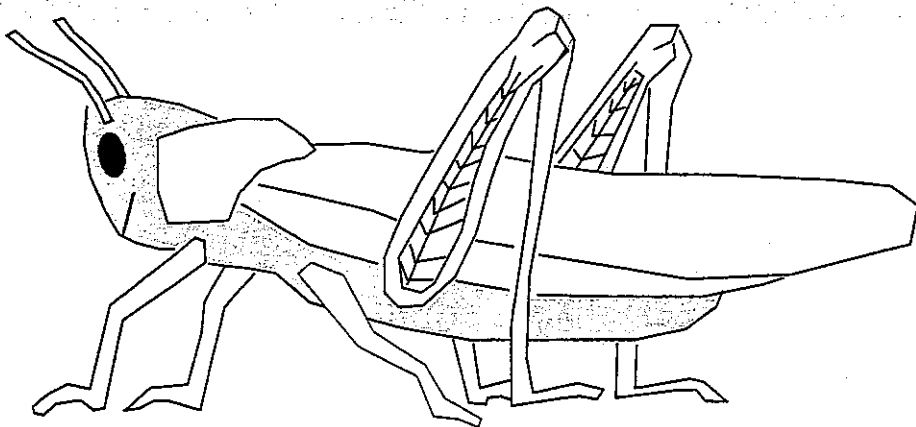
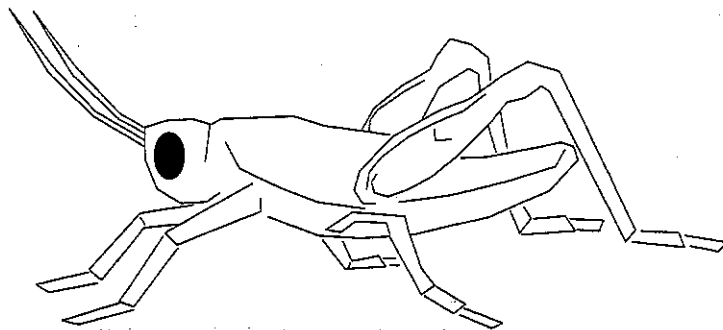
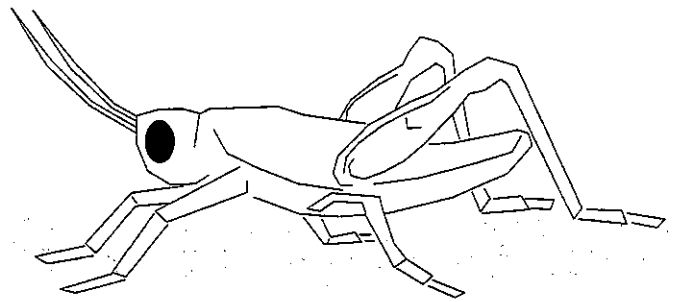
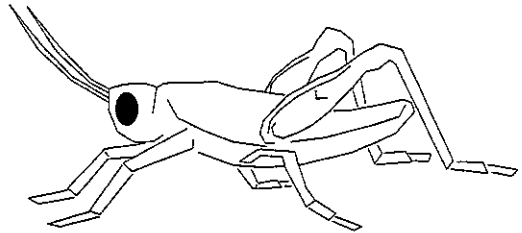


Nymph

The baby insect may molt several times, as it grows bigger and bigger.



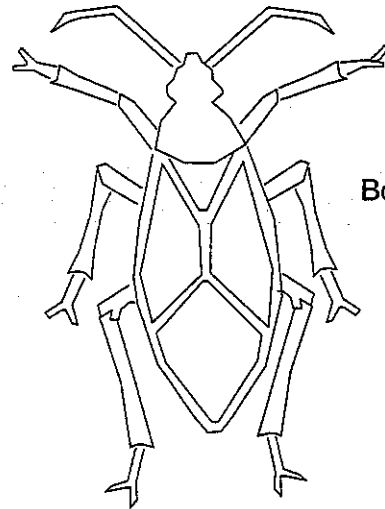
Grasshopper nymph



Adult grasshopper

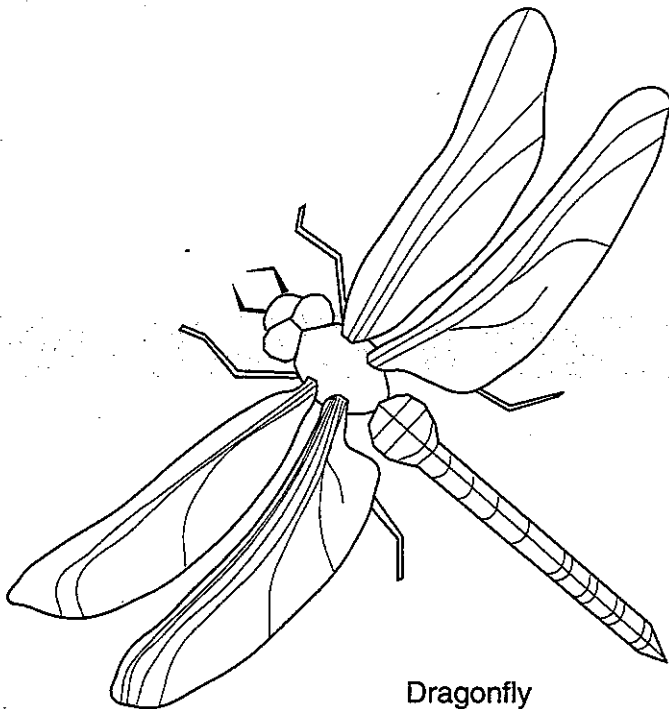
When the insect is grown up, it is called an adult. Adult insects usually have wings, so they can fly. Young insects cannot fly.

Dragonflies, boxelder bugs, and leafhoppers are three kinds of insects that go through simple metamorphosis.

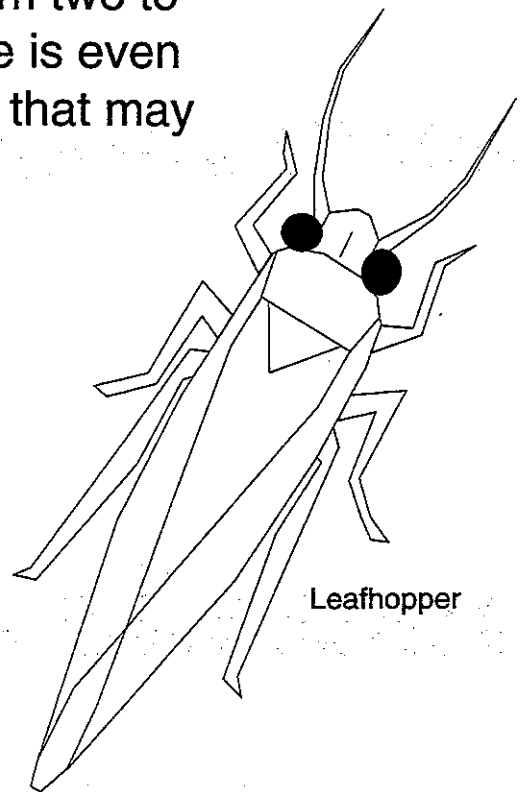


Boxelder bug

Some insects grow up faster than others. It takes some insects only two weeks to grow up. For other insects, it may take from two to six months to grow into adults. There is even a type of insect, called wood borers, that may need twenty years to grow up.

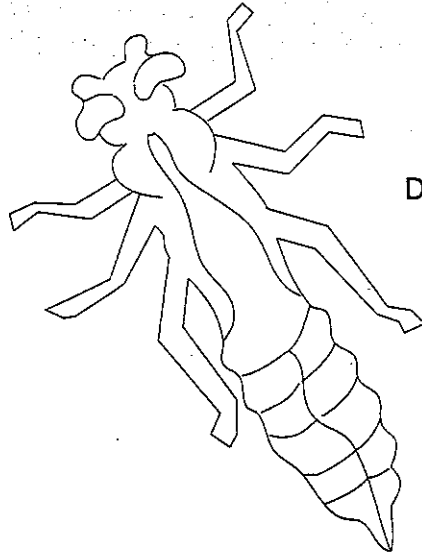


Dragonfly



Leafhopper

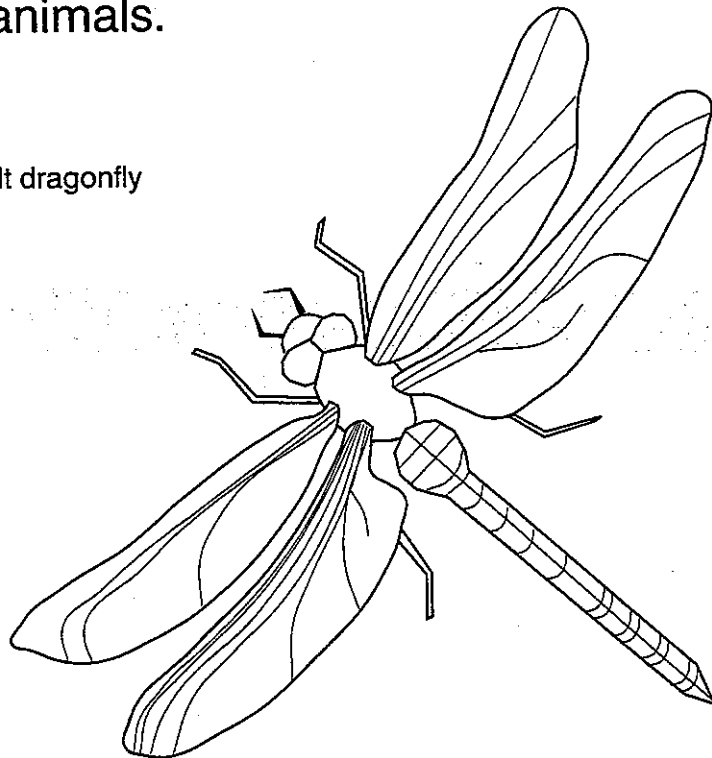
The nymph usually looks like the adult insect, but is smaller. It does not have wings. Nymphs are protected by a hard covering on the outside of their small bodies.



Dragonfly nymph

The dragonfly nymph, however, does not look much like the adult dragonfly. The nymph hatches from eggs that were laid in water. Adult dragonflies live near water, but they never live in water. Both young and adult dragonflies feed on insects and other smaller animals.

Adult dragonfly



Unscramble

Unscramble the "Bug" words below. Then use the circled letters to form the answer to the riddle in the box.

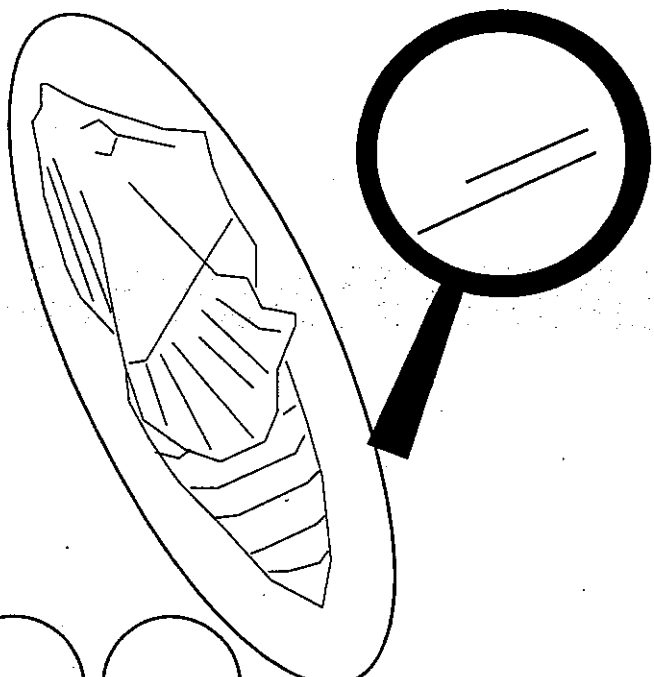
TAN	○ —	—	○ —	
DEHA	—	—	—	○ —
LSGE	○ —	—	—	—
PAPU	—	○ —	—	—

Write your circled letters here. _____

Now arrange the letters in the circles to spell a word which will solve the riddle.

Riddle:

What the pupa saw in the mirror when it left its cocoon...



Answer:

An ○
—

○
—

○
—

○
—

○
—



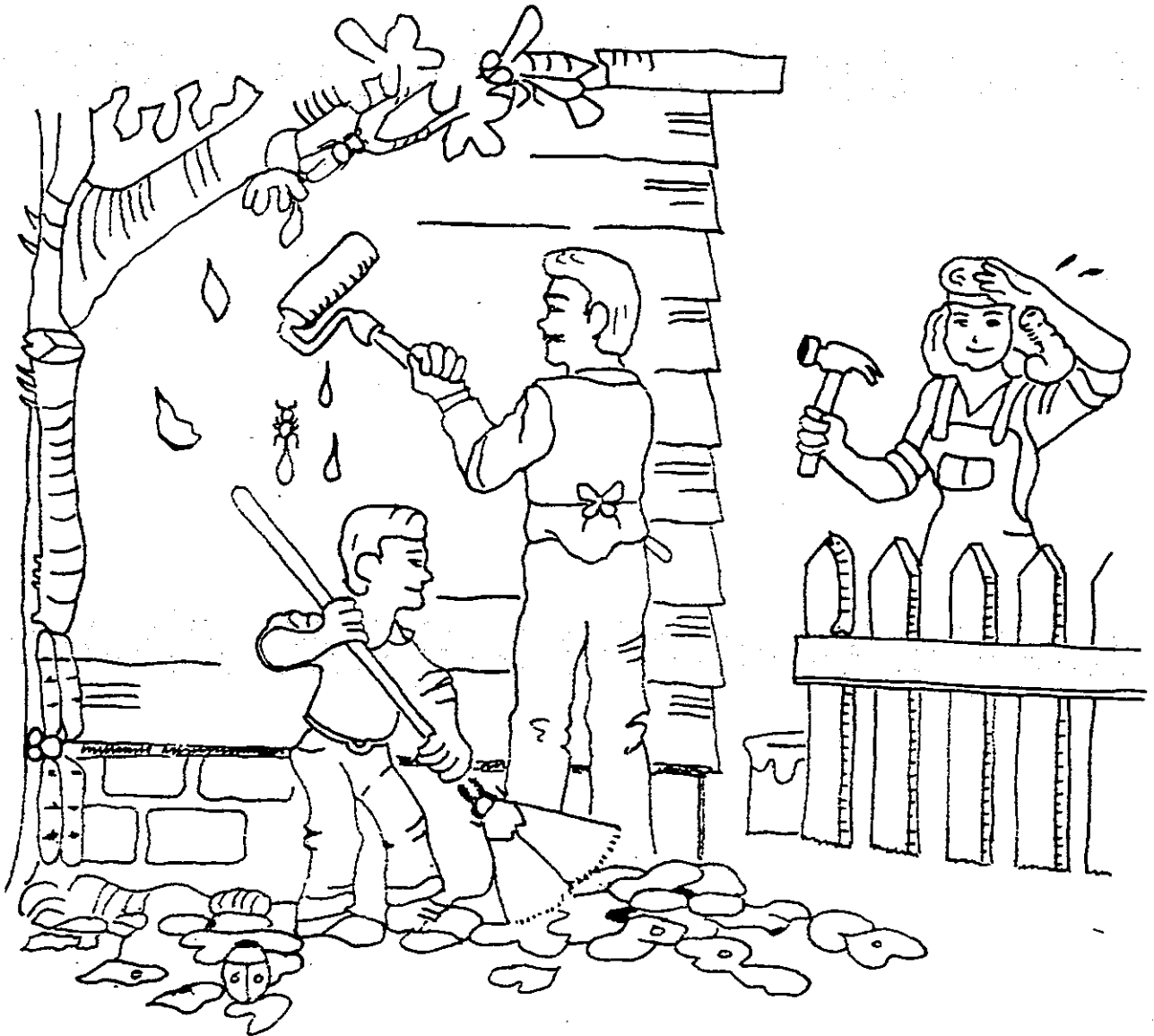
Bug Search

Circle the words:

- WASP
- ANT
- BEETLE
- CATERPILLAR
- LARVA
- EGG
- ADULT
- COCOON
- FLY
- PUPA
- GRASSHOPPER

O	L	W	A	S	P	L	A	C	F	O	D
C	C	A	M	T	E	C	B	H	L	T	T
R	A	S	R	N	T	O	E	B	Y	K	S
S	T	W	I	V	L	C	A	G	R	R	B
O	E	F	N	G	A	O	T	P	G	W	E
G	R	A	S	S	H	O	P	P	E	R	E
S	P	R	I	O	A	N	I	M	W	J	T
V	I	L	D	J	P	Y	K	S	S	A	L
F	L	O	C	N	P	U	F	A	T	D	E
B	L	U	I	D	D	A	P	A	E	U	C
T	A	P	P	E	R	N	L	A	D	L	Y
C	R	U	N	S	F	T	B	J	K	T	K

Hidden Insects

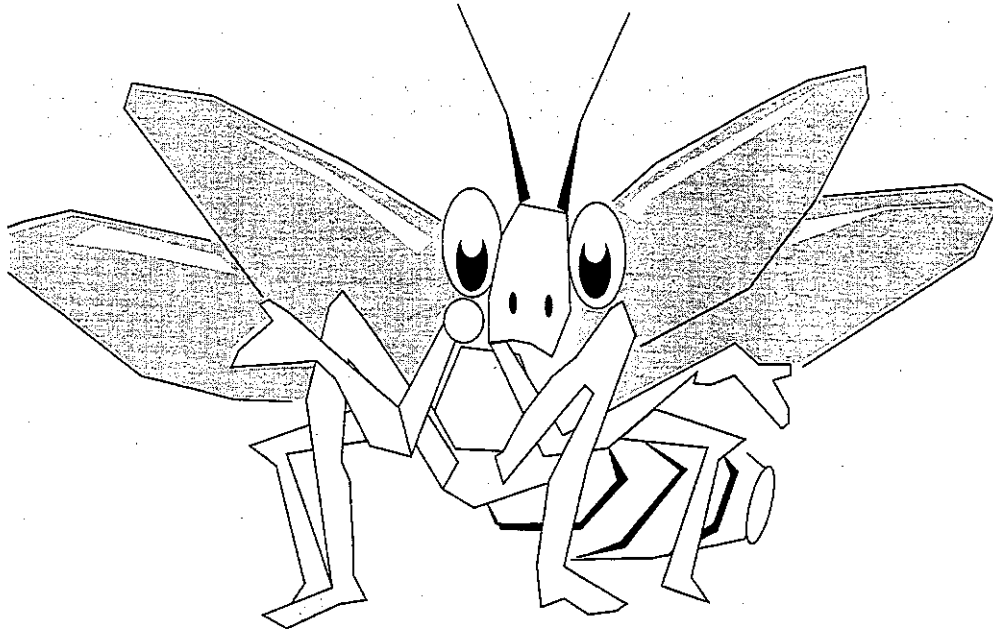


Can you find them?

horse fly
caterpillar
dragonfly
beetle grub
moth

bee
ant
lady beetle
butterfly
fly larva (maggot)

Secret Word



Circle every third letter to find the secret word which tells how insects grow and change.

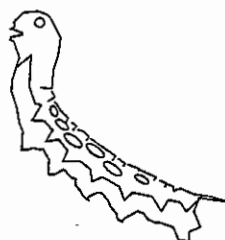
EV **M** SMEQETGAAXPMOTOJNRVBPZAHQWORSSFDIYGS

M _____

Funny Story

Fill in the blanks below. Then insert the words into the story below and read it aloud to your parent.

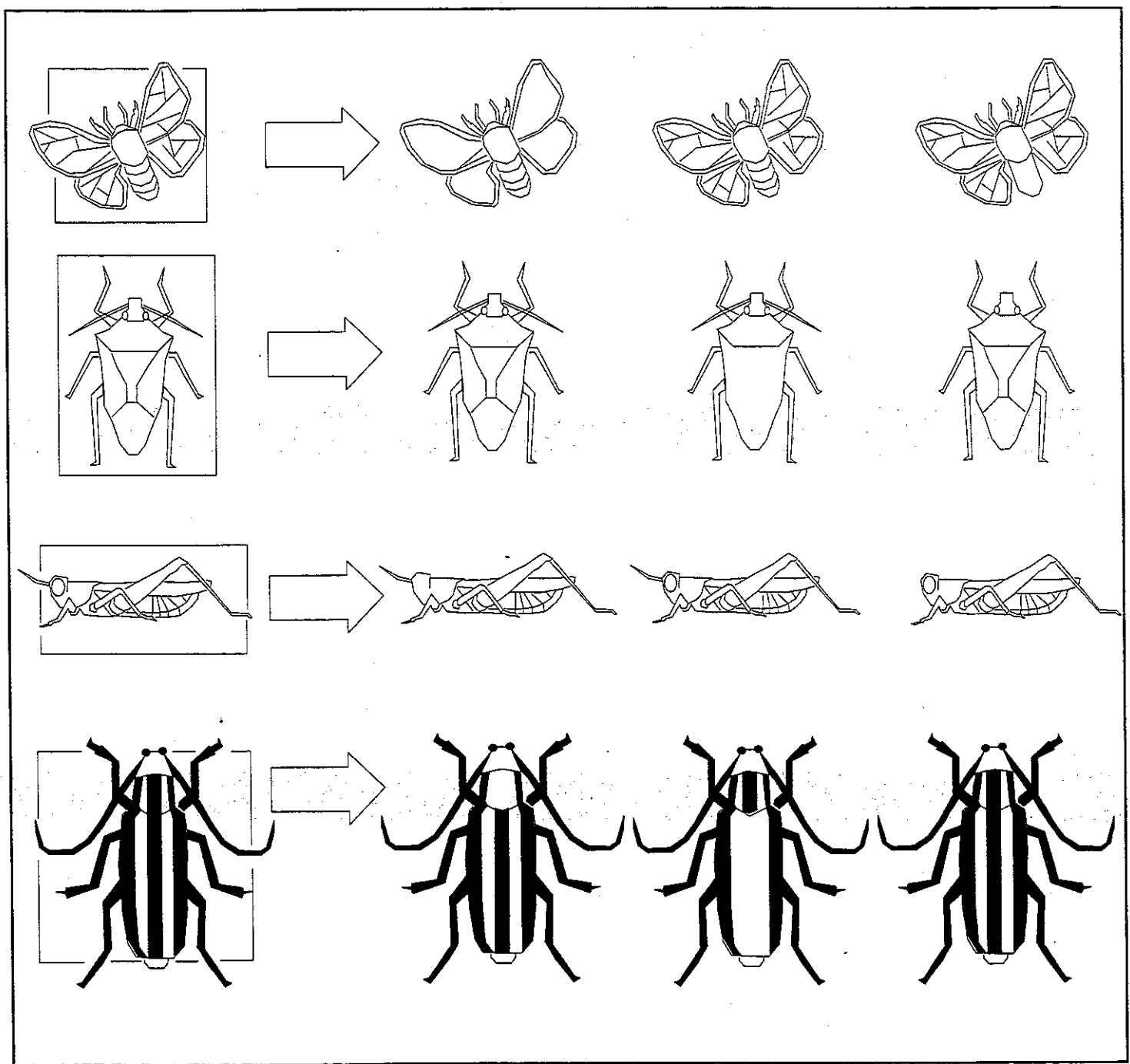
1. caterpillar (form of insect)
2. _____ (name of a person)
3. _____ (color)
4. _____ (color)
5. _____ (your favorite food)
6. _____ (a way of moving your body)
7. _____ (type of container)
8. _____ (color)
9. _____ (color)
10. _____ (something flat)
11. _____ (name of a street)



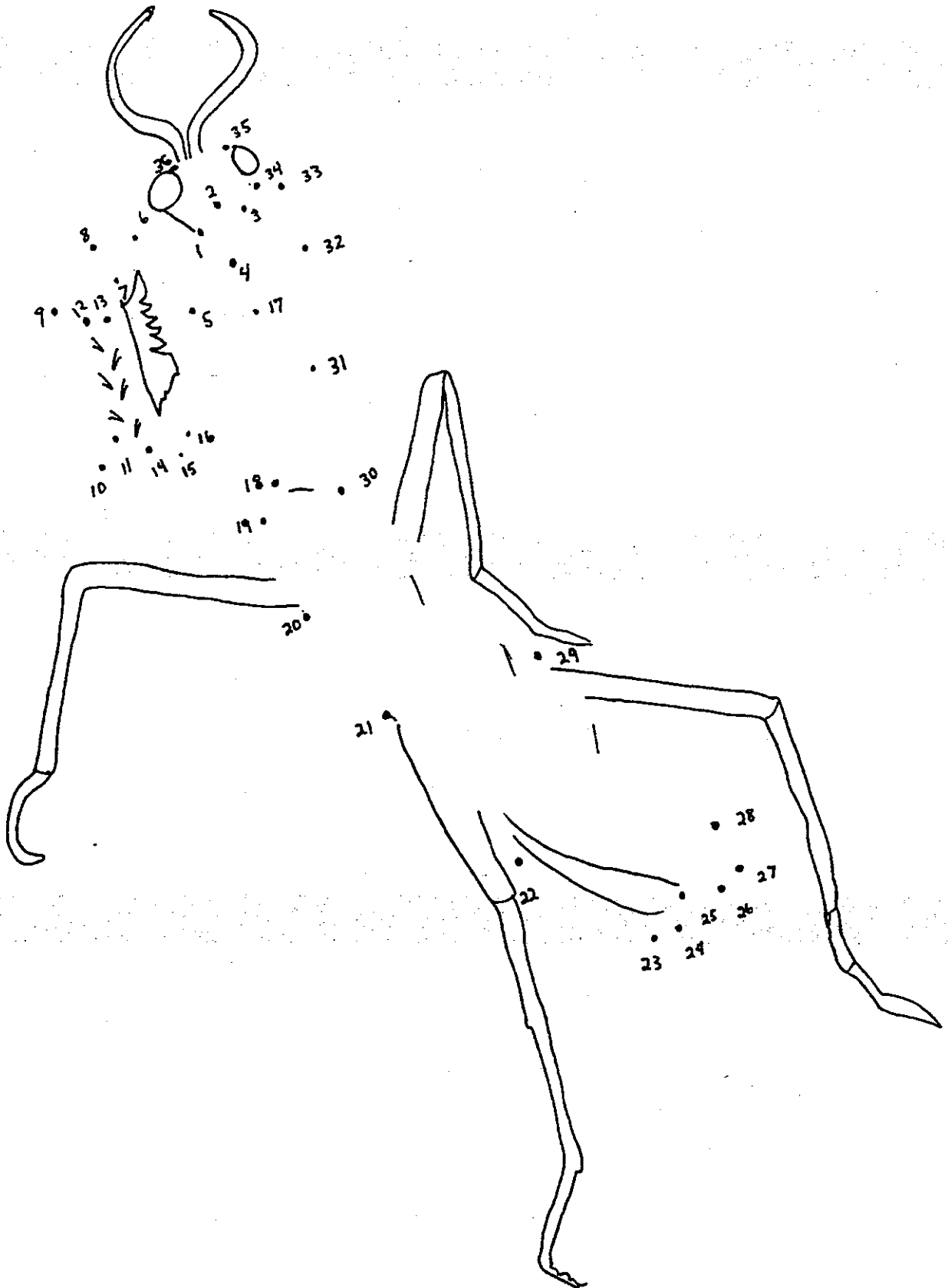
The Crazy Caterpillar

Once upon a time there was a (1) caterpillar named (2) _____ who had (3) _____ and (4) _____ stripes. One day he was crawling over his favorite food, (5) _____ when he became very tired and decided to take a nap. He wiggled and (6) _____ until he was comfortable and fell asleep. Finally, when he woke up he was trapped in something like a (7) _____. He pushed and pushed until he was able to break out. Suddenly he noticed he was now (8) _____ with (9) _____ spots. There were two large (10) _____ attached to his back. As he began to walk he tripped and started to fall, but he never hit the ground. Instead, he began to fly. He didn't stop flying until he reached (11) _____ Street where he found a nice backyard where he could live.

Circle the one which is the same



Connect the dots



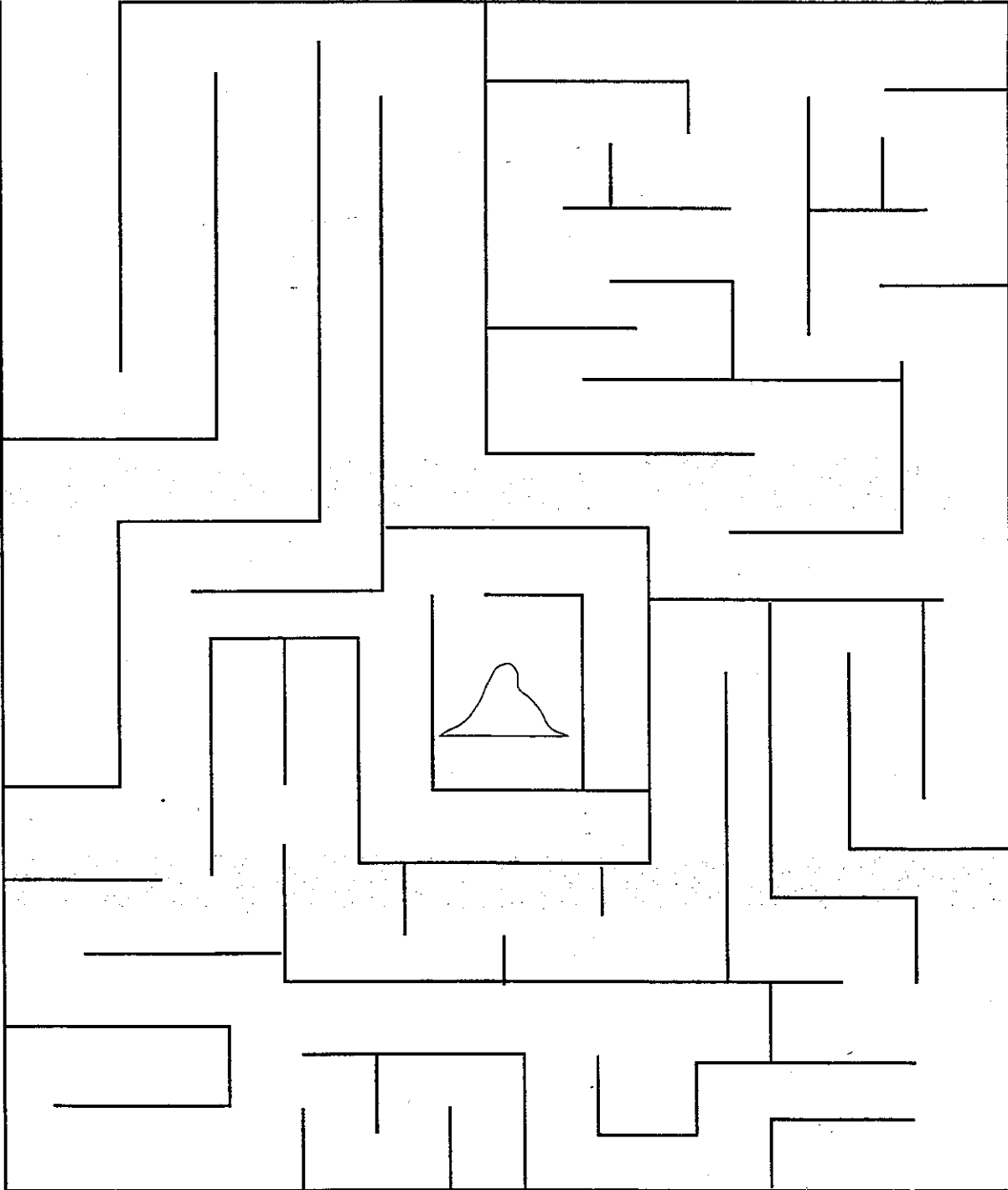
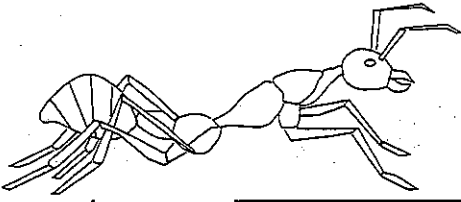
Grasshopper Story

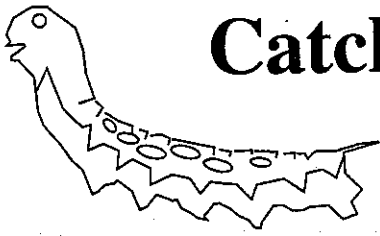


Grasshoppers are fun to watch and catch. See if you can find a grasshopper. Watch the grasshopper for several minutes. Do you see how it moves? What does it eat? Write a story about a grasshopper and share it with your family and club members.

Handwriting practice lines consisting of solid top and bottom lines with a dashed midline. There are ten sets of these lines provided for writing a story.

Help the ant find her nest





Catch a Caterpillar

Hunt for an insect larva, such as a caterpillar. Look on garden plants and leaves. Place it in a jar after you catch it. **Keep it out of the sun.**

To supply it with food, put leaves like those you found it in the jar too. You may have to give it fresh leaves often. **Have your parents help you punch holes in the lid for air.**

Wait, and watch to see if the caterpillar turns into a pupa.

Draw the caterpillar.

Draw the pupa when you first see it?

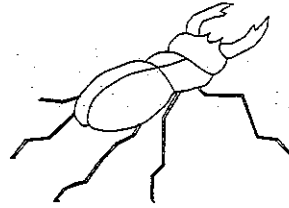
How many days passed until you saw the pupa? ____ days

Guess: How many days will it take before the pupa becomes a moth or butterfly? ____ days.

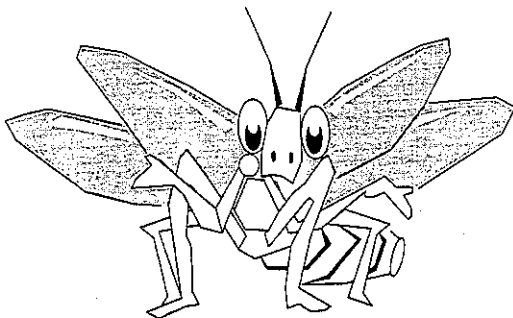
How close was your guess? ____ days.

Look at a rotten log

- Peel off the bark
- Roll the log over and look underneath
- Break the soft wood apart with a screwdriver or the claw of a hammer.
- Did you find termites?
- Did you find beetle larvae (grubs)?
- Did you find adult beetles?
- What other insects did you find? _____



Is a log a good place for an insect to live?
Why or why not? Is it anything like your house?
What would happen if insects never
helped break down logs?



Note for Parents or Guardians

Take your child for a walk in the park or wooded area. Look for rotting logs on the ground. Bring a large screwdriver, tire iron, or claw hammer to help break apart the log. Examine the log for insects and try to identify what you find.

Parent/Child Fun Things To Do

Find adult insects in your yard or garden. Would their young be larvae or nymphs? Would they eat the same things as the adult?

Check out library books on insects such as *Insects* by Herbert S. Zim and Clarence Cottam. Read your child a story about insects. Your librarian or bookstore manager can help you.

Oftentimes, children are frightened of insects. You can help your child overcome his fear by building an insect zoo. Make cages for the insect with boxes, tape and screen. Place an insect in each cage, and label it. Give it the proper food and water.

Collect several acorns and nuts from the ground in the fall. Cut them open carefully. Do you find larvae inside? If so, they are young beetles. Count the number of acorns that have larvae inside.

Start a miniature "cricket farm" with crickets from a bait shop. Give them crushed dog food and water. Give them a small box of moist sand in which to lay eggs. Keep them in a warm place. Watch the young crickets grow.

With your child, explore ways to learn about insects. Ask a 4-H entomology project club member to come to your meeting. Talk with your 4-H leader about other 4-H learning opportunities concerning insects. Visit a natural history or science museum and look for the insect display.

Fun Things I Did

Directions: These are the things you and your child could have done in this bug and project book. Discuss each activity with your child and make a check by the ones that you did together.

Colored insects

Learned how insects grow and change

Solved an insect maze

Found hidden pictures

Hunted for insects outside

Created a funny story about insects

Connected insects dot-to-dot

Read a book about insects with mom or dad

Learned where insects live

Decoded a secret word

Watched a caterpillar in a jar and drew it

Did an insect word search

Unscrambled words to solve a riddle

Found which insect was the same as another

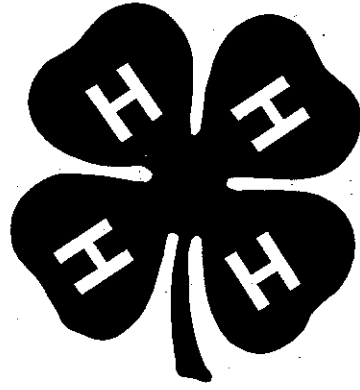
Watched a grasshopper and wrote a story about it

Looked inside a rotten log

Found which insect was the same as another

4-Her _____

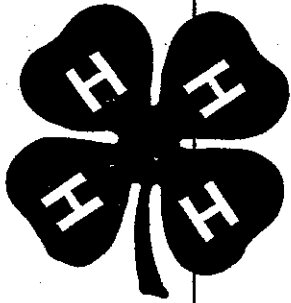
Parent/Guardian _____



4-H Motto:

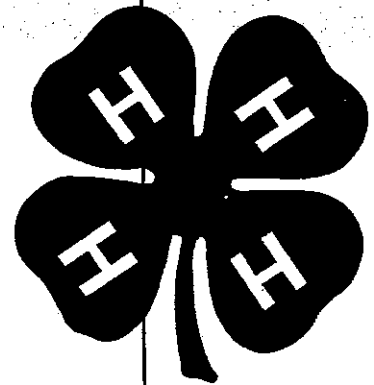
To make the
Best Better
To make the
Best Better





The 4-H Pledge:

I pledge
my HEAD
to clearer thinking,
my HEART
to greater loyalty,
my HANDS
to larger service, and
my HEALTH
to better living,
for my club,
my community,
my country,
and my world.

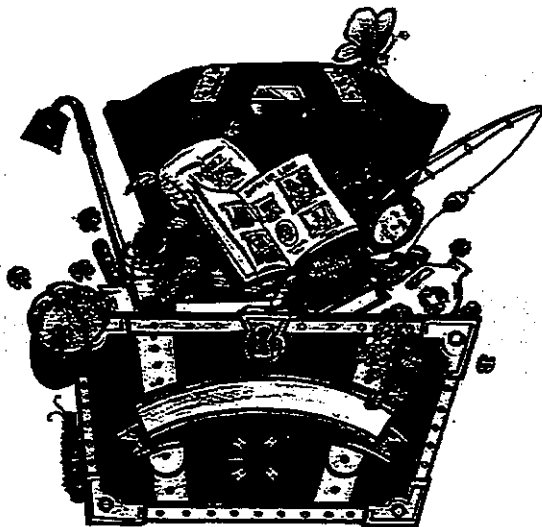


North Carolina Cooperative Extension Program

North Carolina Agricultural and Technical State University at Greensboro, North Carolina State University at Raleigh and the U.S. Department of Agriculture cooperating, Greensboro, N.C., D. D. Godfrey, Administrator. Distributed in furtherance of the Food and Agriculture Act, September 29, 1977, PL 95-113, Sec. 1444, as amended. An Equal Opportunity Employer.

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Bug Out



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5000 copies of this public document were printed at a cost of \$2390.00 or 0.478 per copy.