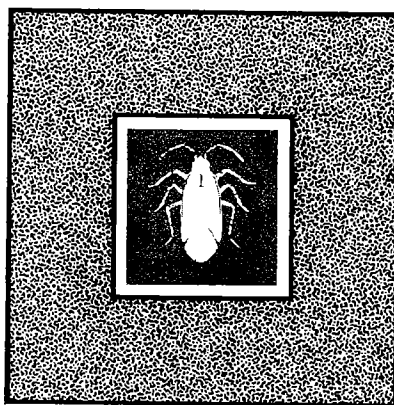


# LEARNING TO DRAW INSECTS



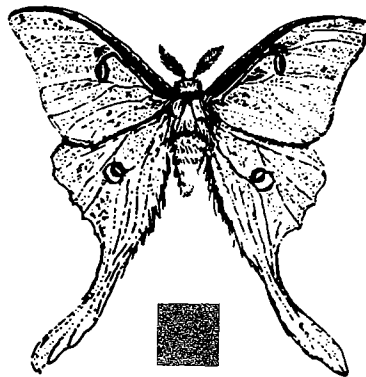
Ron Stephens\*  
P. G. Koehler  
J. C. Northrop

Florida Cooperative Extension Service  
Institute of Food and Agricultural Sciences  
University of Florida, Gainesville  
John T. Woeste, Dean for Extension

*\*Ron Stephens is an Illustrator and Graphic Designer, Editorial Department; P. G. Koehler is an Associate Professor and Extension Entomologist, Entomology Department; J. C. Northrop is an Associate Professor and Extension Youth Specialist, 4-H Department; IFAS, University of Florida, Gainesville, 32611.*

# LEARNING TO DRAW INSECTS

Ron Stephens  
P. G. Koehler  
J. C. Northrop



## INTRODUCTION

Most 4-H'ers can draw a little. Activities in this project can be used to develop skill and accuracy in drawing. Although this project is designed to teach you to draw insects, your skills can be used to draw anything you like.

The purpose of this book is to help you develop your drawing ability. By drawing insects, you may develop your interest and continue with either a career in illustration or in entomology. There is a great demand for people who have been trained in and enjoy scientific illustration.

The aim of scientific drawing is to draw subjects accurately. These drawings are usually done in pencil or ink. For this reason, this project only covers pencil and ink drawings.





# MATERIALS NEEDED



**T**he equipment needed for pencil or ink drawing is simple and cheap. You can purchase everything you need at a department store or art supply store.

**Pencils** — Pencils are rated by degrees of hardness.

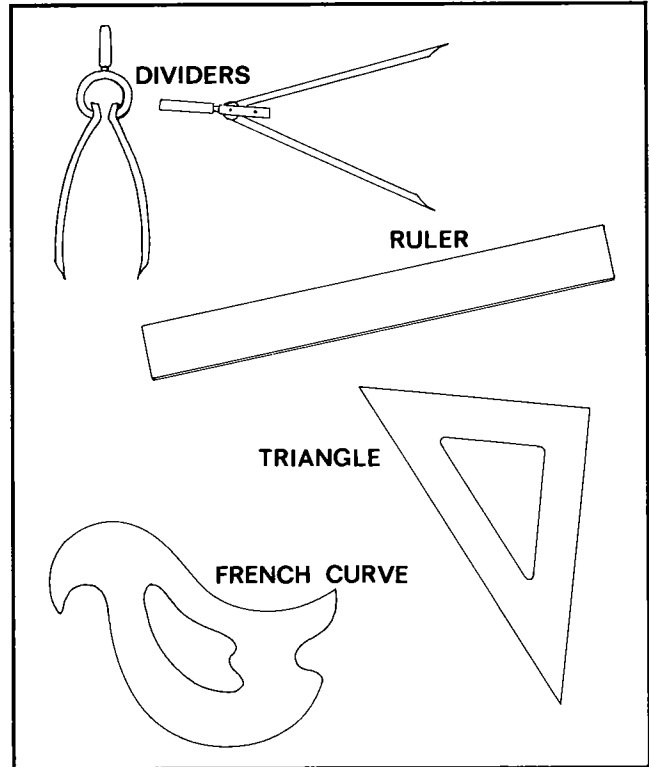
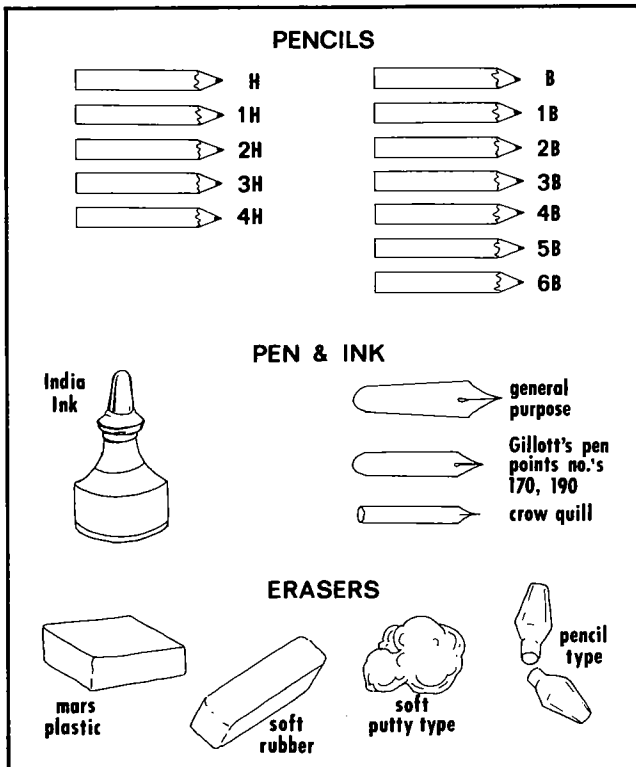
Hard	Medium	Soft
H	HB	B
1H		1B
2H		2B
3H		3B
4H		4B
Very Hard		5B
		6B
		Very Soft

**Pen and Ink** — Pen and ink drawings last longer than pencil drawings. They also give more exact lines to the drawing. For this project you will need:

- India ink (good quality)
- Inkwell pens:
  - General purpose pen points
  - Gillott's pen points 170, 190
  - Hunt's No. 22 (for fine work)
  - Crow quill pens (for fine detail)

For the project, you should purchase the following pencils:

- 2B — light sketching and general use
- 4B — dark shading
- 2H and 3H — exact outlines and fine-line details. Colored pencils may be used for color drawings.





**Erasers** — The following erasers are best for this project:

- Art Gum or Mars Plastic — general purpose for soft lead and cleanup.
- Soft rubber, Pink pearl — general purpose for hard lead.
- Soft putty type — for soft pencil. Can be kneaded into a sharp point to erase fine detail.
- Pencil type — for pencil or ink use. Good for small areas.

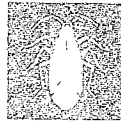
Use of a pen can be difficult for a beginner. Use an eye-dropper to fill the pen with several drops of ink. With some pen points, the thickness of lines can be adjusted by opening and closing the nibs. You can keep from smudging the ink by working from the left to the right side of the paper. Hold the pen at an angle (as you would when you write), especially when using a ruler, to prevent ink from running up under the edge of the ruler. A ruler with a beveled edge is a good tool to prevent ink blots.

**Paper** — Use good quality, smooth bond paper for most drawings in this project. Advanced 4-H'ers may choose to use two-ply, plate-finish Strathmore Board for high-quality work. Strathmore Board is excellent for pencil and ink and can stand a lot of erasing. Avoid using typing paper or cheap bond paper.

**Other Equipment** — The following are not essential for this project, but may be helpful:

- Dividers — Dividers are used to measure the subject and transfer the measurements to paper.
- Rulers — Rulers are used to measure the length of subjects or for increasing measurements to enlarge drawings.
- Right Angle Triangle — Use the triangle to line up with the edge of paper to make horizontal or vertical lines.
- French Curves — Curves are used to make smooth, curved lines.

## BEGINNING THE DRAWING



**F**irst, it is necessary to carefully select a subject for drawing. Try to find larvae or adults of large-sized insects. Grasshoppers, moths, butterflies, beetles, and stinkbugs are good subjects for beginners. To keep from being frustrated, do not try to draw complex or highly colored subjects.

Pose the subject to make it interesting. If alive, larvae can be refrigerated and placed on twigs. Adult insects can be killed and then positioned on modeling clay. Butterflies and moths should be properly spread.

When you are ready to begin drawing, get your subject, equipment and paper together. Approximate

or measure the width and height of the subject. Draw a box to approximate the width and height. Sketch the overall shape inside the box. Decide on and rough in the overall shape of the subject. Ignore details at first. Keep lines light and easy to erase.

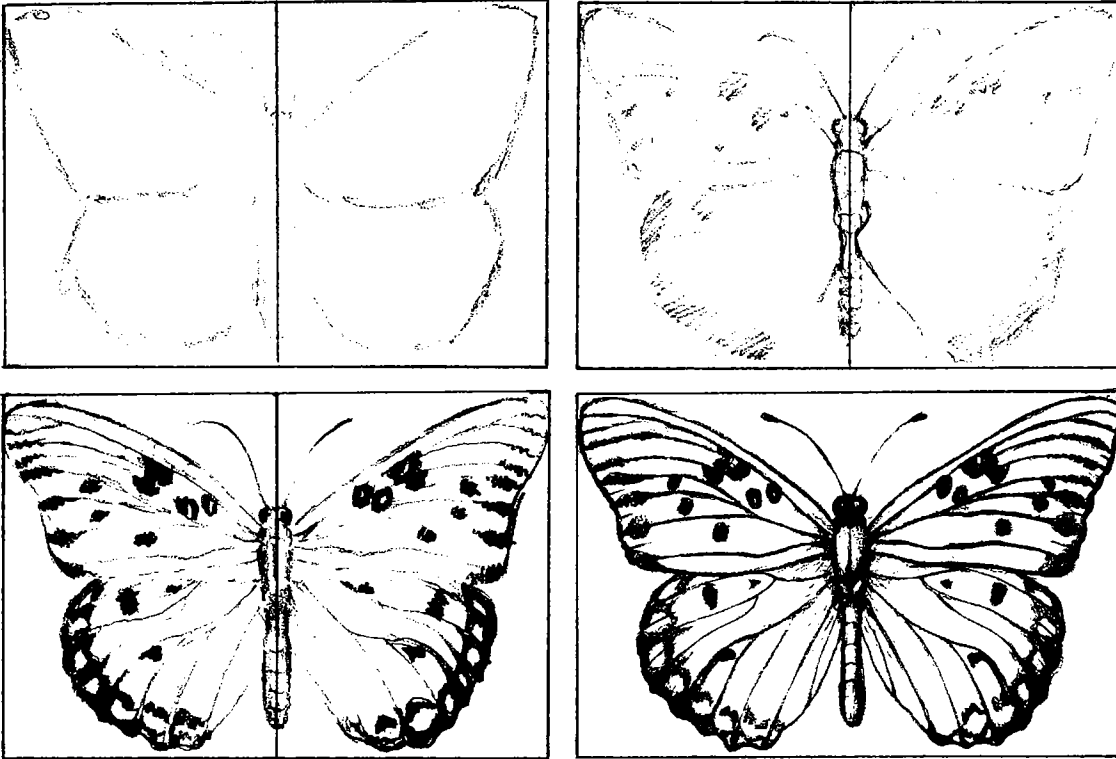
The purpose of determining the overall shape is to start your drawing. Once a shape is on paper, it is easy to judge if it is correct in proportion. Remember, the overall shape can be made to fit any size.

Next, rough in the main details. Every subject is made up of smaller shapes. For each shape, approximate or measure width and height.

Sketch in the main details lightly. Do not rough in secondary details at this time. Adjust the location of



## Example: Pencil



main details within the overall shape until it looks right. The subject should be held close for constant reference.

Next, rough in secondary details the same way you drew the main details. Keep checking proportions and locations of details by constantly looking at the subject.

Small details are left until last. When all the details

are drawn, erase all trial and guide lines. Solidify or darken all outlines and detail lines.

The process of roughing in the details develops coordination between the hand and the eye. By practicing the roughing in process, you can learn and improve your basic skills of good proportion. You will also learn the importance of detailed observation in drawing.

## Shading

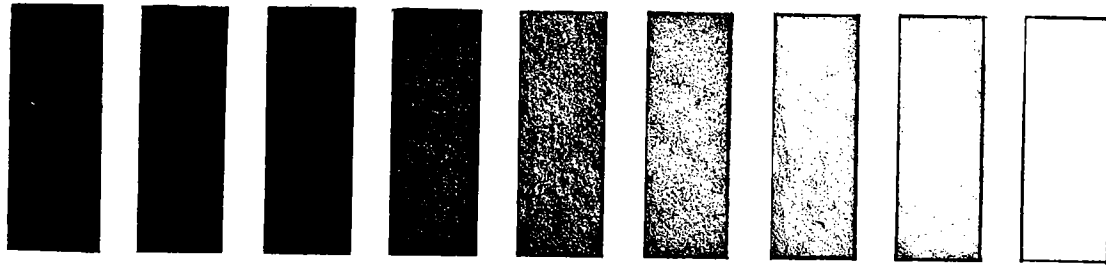


**W**hen you have completed the final line drawing, texture and shape can be added through shading. Shading is seen in terms of *values*. Value refers to the amount of light a surface reflects. The most im-

portant factor in shading is light. Light creates values. These values are affected by:

- Intensity of light — The more intense the light, the lighter the values.





### Value Scale

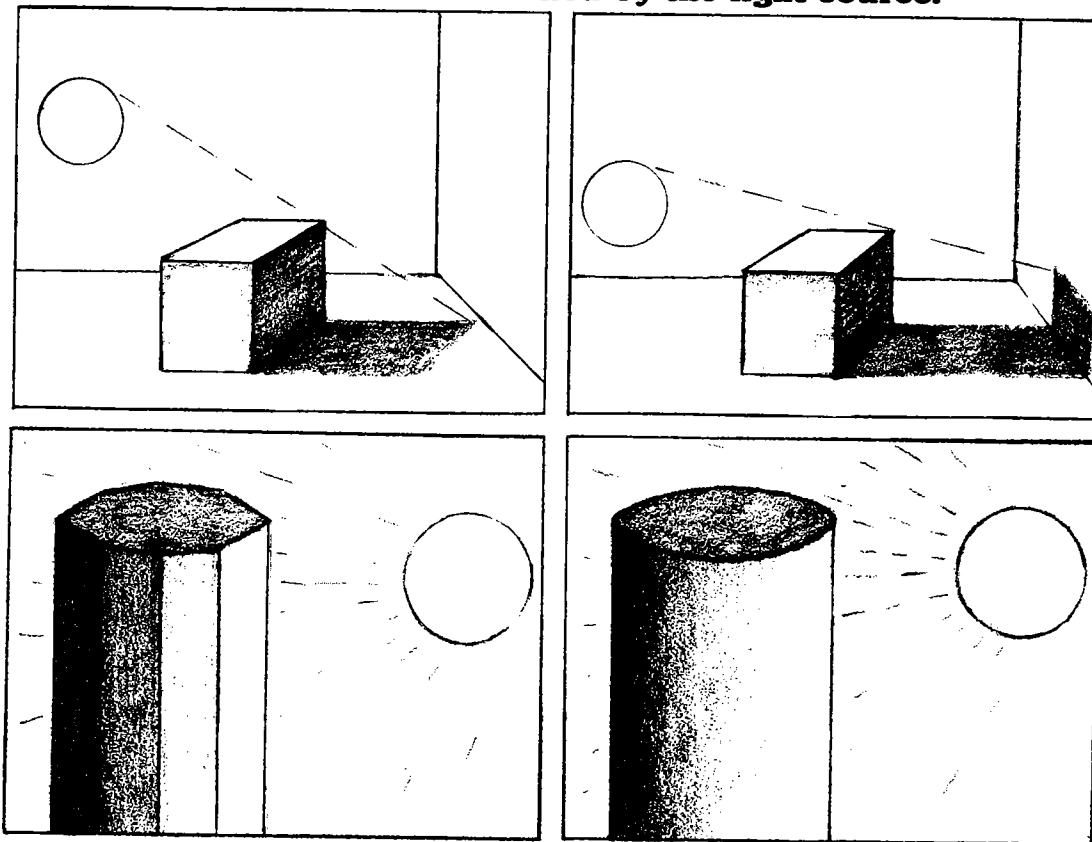
- Source and direction of light — The more direct the light rays are, the lighter the surface appears.
- Shadows — Shadows are created by blocking light rays.

A value scale is a diagram with a series of seven rectangles filled with different shades from light to

dark. Draw a value scale with a white box on the far left and a black box on the far right. The boxes in between are graduated values between white and black.

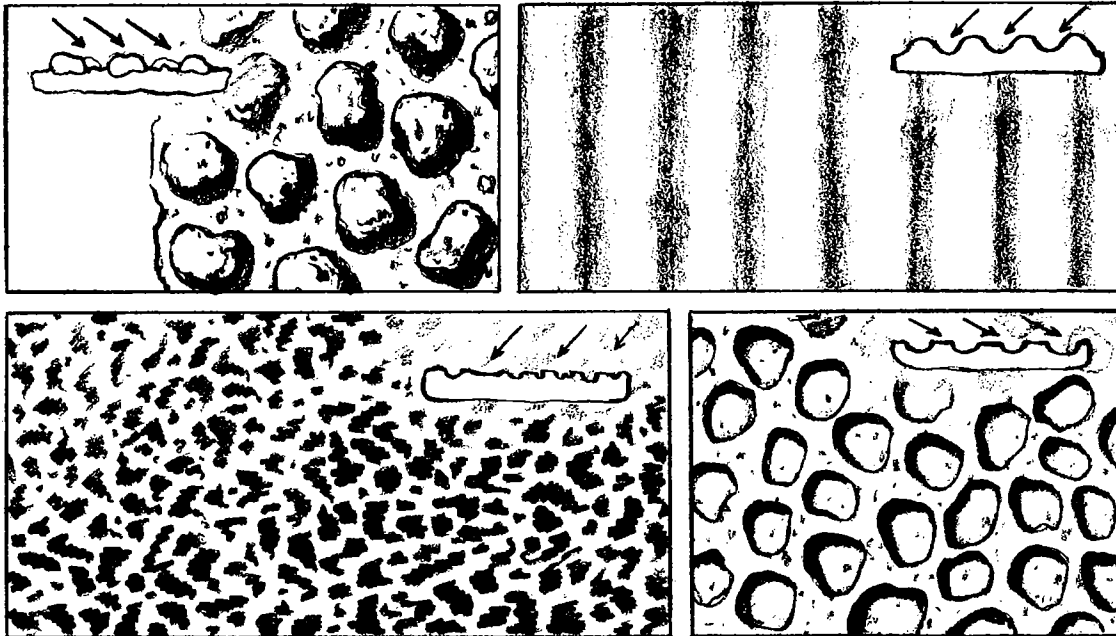
Although subjects have color, the artist must learn to change color into black and white values for drawing. For example, color on a color television shows as shades on black and white television.

### Shadows are determined by the light source.



### Values are determined by light rays.





**Textures are affected by the light source.**

Other factors affecting value are texture and distance. Values are created by the texture of the surface. Differences in smoothness or roughness of a surface create texture. Differences in value are affected by distance. Adding dark tones to a drawing creates depth.

Pencil strokes to use for shading are:

- Broken — use 2 to 4B pencil
- Vertical — use 2 to 4B

- Slanted — use 2 to 4B
- Cross-hatch — use 2 to 4B
- Smooth — use 5B pencil

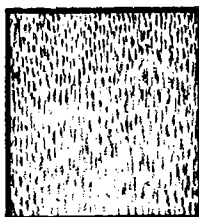
Pen and ink strokes to use for shading are:

- Hatching
- Cross-hatching
- Stippling
- Curved hatching for rounded objects

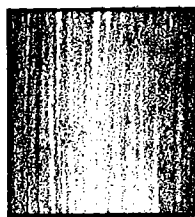
**Pencil shading strokes.**



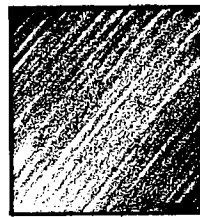
**Smooth**



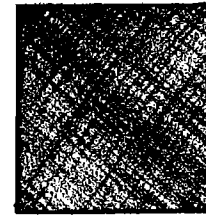
**Broken**



**Vertical**



**Slanted**



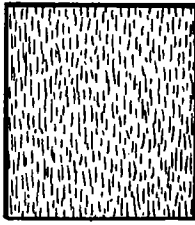
**Cross-hatch**



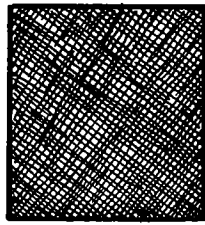




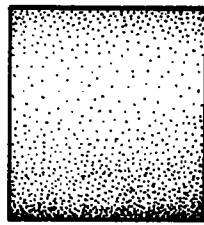
## Pen and ink shading strokes.



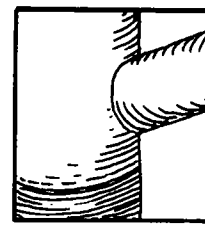
Hatching



Cross-hatching

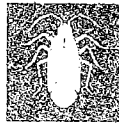


Stippling



Curved Hatching

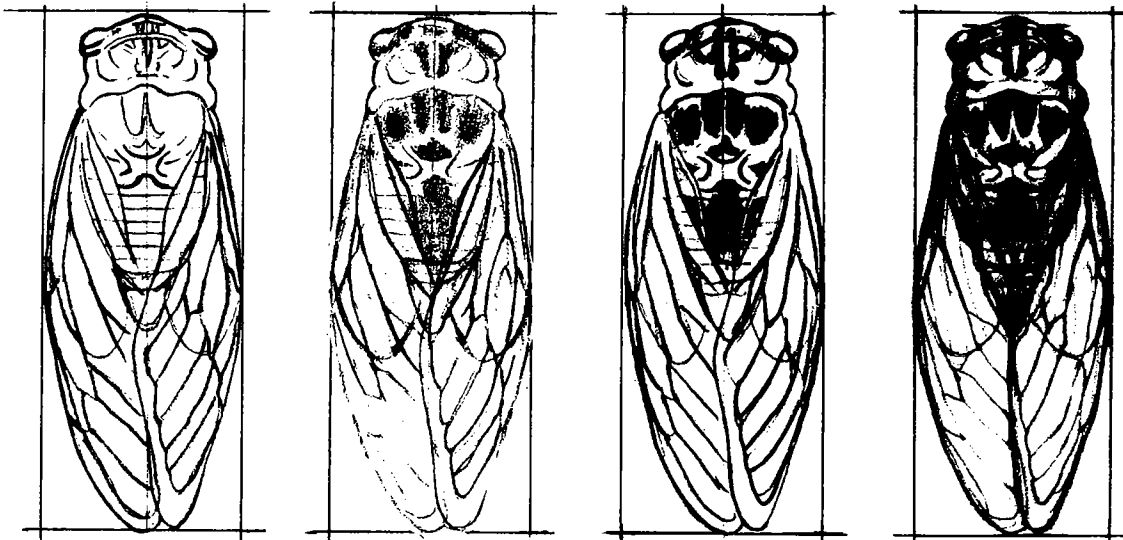
# Using Shading to Finish Your Drawing



1. Using a final outline, shading must now be added to bring depth to the drawing.
2. Analyze the subject to choose definite values on your scale.
3. Draw the overall tone, with light areas remaining light.
4. Shade in the darkest areas.

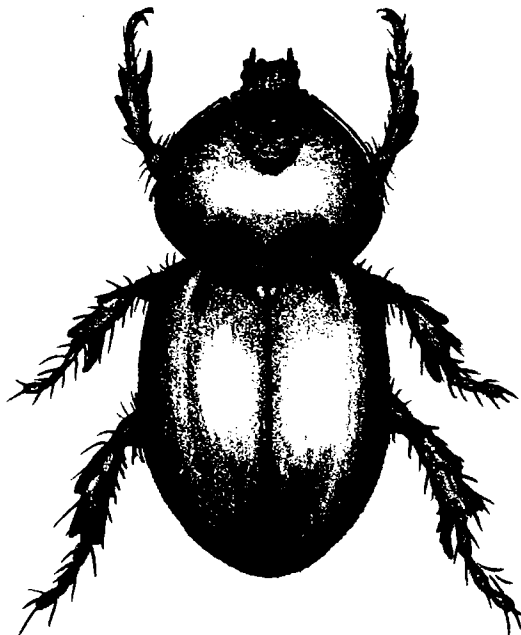
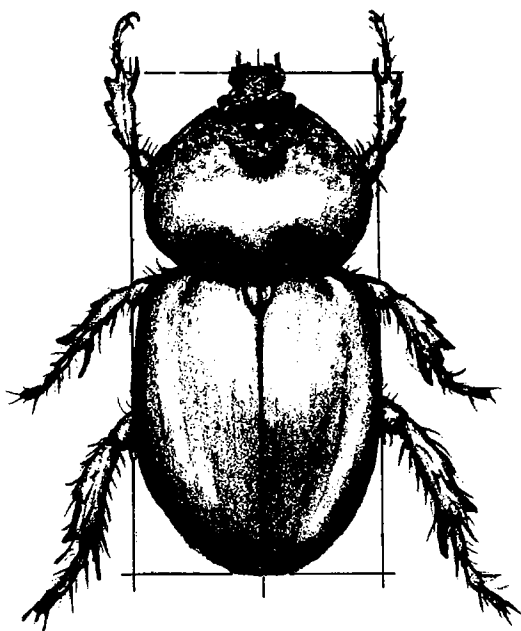
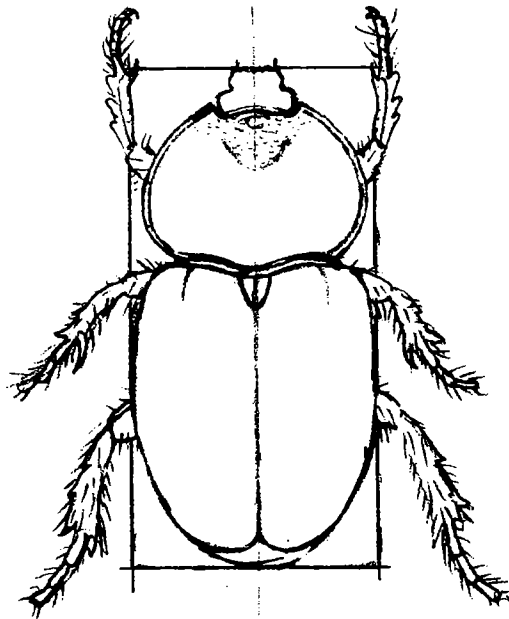
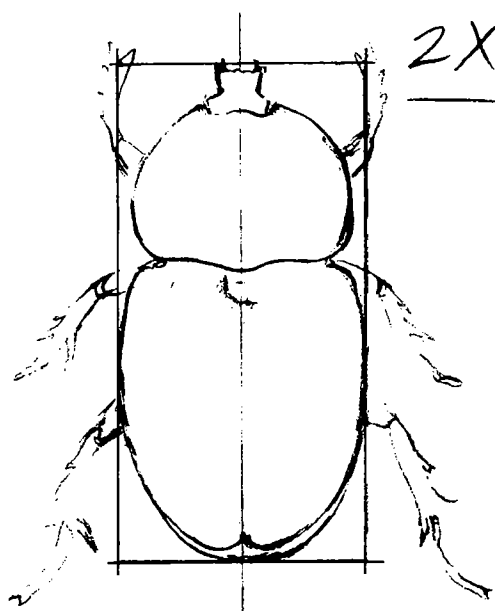
5. Fill in the tones between light and dark.
6. Add the fine details of light and dark.
7. Smooth the shading for even blending of tones to finish the drawing.

Finish the drawing by spraying fixative from a pressurized can. Charcoal fixative or clear plastic spray must be used.



Example: Pencil

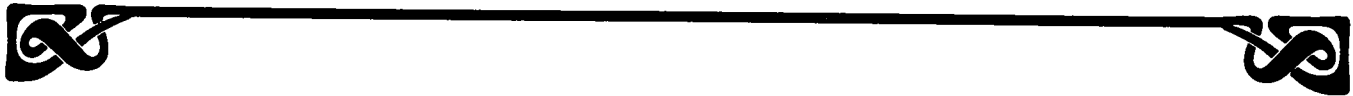




## Helpful Tips

1. Use sand paper to sharpen or flatten pencil lead for drawing and shading. A pencil sharpener will only give one kind of point.
2. Do not let drawing become too black. Work from light values to dark values.
3. Shading can be done by smudging soft pencil marks with a piece of tissue paper. This technique produces a uniform tone.
4. Most insects have *bilateral symmetry*, that is,

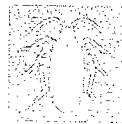




they look the same on both sides. You can save time by drawing half of the insect and then copying what you have drawn onto the other half of the page.

5. Whenever possible, have the light source coming from the upper left-hand corner of the drawing. That is the standard way of shading scientific illustrations.

## MOUNTING THE DRAWING



**W**hen the drawing is finished, the completed illustration will look better for display if it is mounted correctly.

1. Trim the drawing to remove excess paper around margins.
2. Back the drawing with white mount board.
3. Cut the board with a ruler and knife. Leave

2 inches of border around the drawing. If your trimmed drawing is 6 in x 6 in, you should cut the board 8 in x 8 in.

4. Mark the correct center location of the drawing on the mounting board.
5. Use a pressurized spray/mount adhesive that allows repositioning to glue the drawing in place.

## CONCLUSIONS

Drawing insects or other subjects is usually difficult for the beginner. A lot of work is needed before the hand and eye become totally coordinated. Often, your first drawings will not be as good as you would like. It is important not to become frustrated and give

up. Remember — practice makes perfect. Try simpler insects first before you move on to more complex ones. Try to learn through each mistake and correct it in your next drawing. Remember, above all else, art is fun!



# PROJECT ACTIVITIES

- 1) Gather materials for drawing insects.

For pencil drawings:

- \_\_\_\_\_ pencils
- \_\_\_\_\_ paper
- \_\_\_\_\_ erasers
- \_\_\_\_\_ ruler

For ink drawings:

- \_\_\_\_\_ India ink
- \_\_\_\_\_ ink pen with various tips

- 2) Sketch in pencil the outlines of at least 3 different insects (the more you practice the better). Remember to center these on a line drawn on your paper. This is to give you practice in drawing the overall shape of insects. Check for these things:

- \_\_\_\_\_ both sides of the insect are the same size
- \_\_\_\_\_ the legs and wings are the same length on both sides.
- \_\_\_\_\_ the drawing is not too dark — use light pencil marks

- 3) Rough in secondary details of the drawings from activity No. 2. Add as many fine details as you can. Hold the insect close to your drawing and compare these areas:

- \_\_\_\_\_ the head (eyes, mouthparts, and antennae)
- \_\_\_\_\_ thorax (wing and leg attachments)

\_\_\_\_\_ abdomen (number of segments)

\_\_\_\_\_ markings and hair

- 4) Take 2 of the pencil drawings from activity No. 3 and add shading. Choose a different type of shading for each drawing (pick from the five types of pencil shading mentioned earlier). Check for:

\_\_\_\_\_ texture (shiny or dull, smooth or rough)

\_\_\_\_\_ light and shadows (the light should be coming from one direction)

- 5) Take the pencil drawing left over from activity No. 2 and trace in pen and ink. Draw in details and ink these in also.

- 6) Using stippling (shading with the use of tiny ink dots), finish the drawing. Check for:

\_\_\_\_\_ texture (shiny or dull, smooth or rough)

\_\_\_\_\_ light and shadows (the light should be coming from one direction)

\_\_\_\_\_ size of dots (the stippling dots should be about the same size)

- 7) Mount your best drawing.

- 8) Display your drawings. Ideas for places:

1. Club meetings
2. School
3. 4-H exhibits
4. County fairs

List the places you have displayed your drawings.

# EXPANDED PROJECT ACTIVITIES

- 1) Draw examples from four insect orders.

For example: Butterfly, beetle, wasp, grasshopper.

- 2) Draw two life-stages of insect development.

For example: cockroach egg capsules, nymph of grasshopper or cockroach, caterpillar, maggot, moth.

- 3) Draw an insect from both top and side view.

- 4) Draw an insect in its natural setting and from other than a top view.

For example: a dragonfly by a stream

- 5) Color the drawing of the insect in its natural setting.

You may use:

- colored pencils
- magic markers
- pastel chalks
- felt-tipped pens
- crayons

# **Notes and Sketches**

# **Notes and Sketches**

# **Notes and Sketches**





This publication was promulgated at a cost of \$1,834.80, or 73 cents per copy, to interest 4H'ers in entomology and teach them fundamental drawing concepts. 9-2.5M-86

COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF FLORIDA, INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES, K.R. Tefertiller, director, in cooperation with the United States Department of Agriculture, publishes this information to further the purpose of the May 8 and June 30, 1914 Acts of Congress; and is authorized to provide research, educational information and other services only to individuals and institutions that function without regard to race, color, sex or national origin. Single copies of Extension publications (excluding 4-H and Youth publications) are available free to Florida residents from County Extension Offices. Information on bulk rates or copies for out-of-state purchasers is available from C.M. Hinton, Publications Distribution Center, IFAS Building 664, University of Florida, Gainesville, Florida 32611. Before publicizing this publication, editors should contact this address to determine availability.

