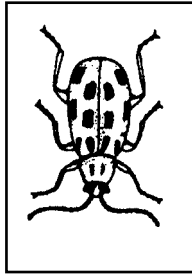


Ordering Insects

Class Insecta

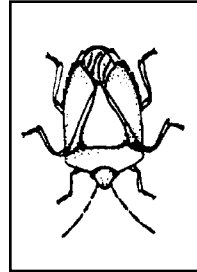
Order Coleoptera

- Beetles
- Two pairs of wings
- Chewing mouthparts
- Complete metamorphosis
- Bodies usually stout
- Hardened outer wings form straight line down back when folded



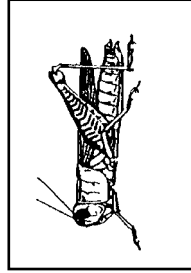
Order Hemiptera*

- True bugs
- Two pairs of wings
- Mouthparts typically piercing/sucking
- Gradual metamorphosis
- Have a triangular plate formed by wings that overlap
- Body usually broad and flattened



Order Orthoptera

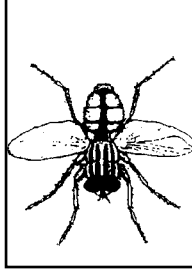
- Cockroaches, grasshoppers, crickets
- Two pairs of wings—may not have during juvenile stages
- Mouthparts typically chewing
- Gradual metamorphosis
- Enlarged hind legs for jumping



* These two orders are not in the student handbook, but are very common insects in gardens.

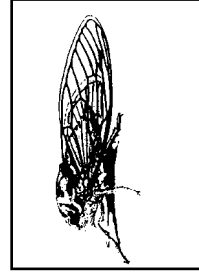
Order Diptera

- Flies, mosquitoes, gnats
- One pair of wings
- Mouthparts are piercing/sucking, lapping or sponging
- Complete metamorphosis



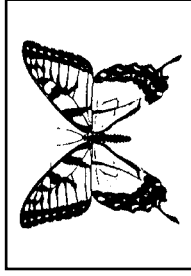
Order Homoptera*

- Aphids, scale insects, leafhoppers, cicadas
- When present, two pairs of wings; many wingless forms; wings come to a point above body on adults, giving tent-like shape
- Mouthparts are piercing/sucking
- Gradual metamorphosis
- Excretion of honeydew common to many members



Order Lepidoptera

- Moths, butterflies
- Two pairs of membranous wings covered with scales, may be brilliantly colored
- Mouthparts are sucking
- Complete metamorphosis
- Larvae known as caterpillars with chewing mouthparts



These drawings are examples to show the main characteristics of each order. To identify a specific insect, see the JMG web site or another insect guide.

Order Hymenoptera

- Ants, wasps, bees
- Winged, usually two pairs
- Mouthparts chewing or chewing and sucking
- Complete metamorphosis
- Abdomen connected to thorax by thin constriction ("wasp-waisted")

