



The Art and Science of Taxonomy

as applied to arthropods

an introduction to names and classification

presented by Valerie Bugh





coleoptera
diptera
hemiptera
hymenoptera
lepidoptera
orthoptera





coleoptera

diptera

hemiptera

hymenoptera

lepidoptera

orthoptera

beetle

fly

true bug

wasp

moth

grasshopper





Phylum - Arthropoda
Subphylum - Crustacea
Class - Malacostraca
Order - Isopoda
Family - Armadillidiidae
Genus - *Armadillidium*
Species - *vulgare*

Pillbug



Kingdom - Animal
Phylum - Arthropoda
Class - Insecta



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Species - *clivicollis*



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common name:

Milkweed Leaf Beetle





1. Insect or other?



1. Insect or other?

Wings are the only clue you need here to determine it is an insect.



2. Is it familiar enough to determine which order?

Looks like a bee, but so do some flies.



2. Is it familiar enough to determine which order?

Looks like a bee, but so do some flies.

Flies have just two wings while bees have four. Can you see the number of wings?

Long antennae and small eyes point to bee.



3. Characteristics to narrow it down further?



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**Large, chunky, fuzzy.
Looks like a bumble bee.**



4. Do any other insects resemble bumble bees?



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Yes, carpenter bees.



4. Do any other insects resemble bumble bees?

Yes, carpenter bees.

clues:

**bumble bees have
fuzzy abdomens**

**carpenter bees have
shiny abdomens**



lepidoptera





lepidoptera



butterflies
and
moths





geometridae
inchworm moths



pterophoridae
plume moths



noctuidae
owlet moths



hesperiidae
skippers

sphingidae
sphinx moths



lycaenidae
hairstreaks



hemiptera



hemiptera ~ true bugs



pentatomidae



reduviidae



lygaeidae



gerridae



miridae



coreidae

stink bugs
pentatomidae



assassin bugs
reduviidae



seed bugs
lygaeidae



gerridae
water striders



miridae
plant bugs



coreidae
leaf-footed bugs





diptera





diptera ~ flies





asilidae
robber flies



syrphidae
hover flies



tabanidae
horse flies

bombyliidae
bee flies



culicidae
mosquitoes



neriididae
cactus flies





southern house
spider

are spiders
and insects
equal taxons?



horse-bean longhorn
beetle



southern house
spider

class

chelicerata **insecta**

order

araneae coleoptera
(spiders) (beetles)

family

filistatidae cerambycidae

genus

Kukulcania *Trachyderes*

species

hibernalis *mandibularis*

horse-bean longhorn
beetle







araneae ~ spiders





thomisidae



araneidae



theraphosidae

oxyopidae



lycosidae



salticidae





thomisidae
crab spiders



araneidae
orbweavers



theraphosidae
tarantulas

lynx spiders
oxyopidae



wolf spiders
lycosidae



jumping spiders
salticidae







**arachnid
orders**



acari

opiliones



scorpiones



**arachnid
orders**



**opiliones
harvestmen**

**acari
ticks and mites**



**scorpiones
scorpions**





coleoptera





coleoptera ~ beetles





cerambycidae



carabidae



scarabaeidae

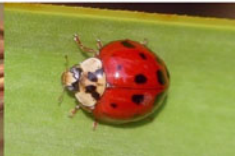
curculionidae



chrysomelidae



coccinellidae





cerambycidae
longhorn beetles



carabidae
ground beetles



scarabaeidae
scarabs

weevils
curculionidae



leaf beetles
chrysomelidae



ladybird beetles
coccinellidae





homoptera



homoptera ~ planthoppers



dictyopharidae



cercopidae



membracidae



issidae



derbidae



flatidae



acanaloniidae



cixiidae

dictyopharidae



**spittlebugs
cercopidae**



**treehoppers
membracidae**



issidae



derbidae



flatidae



acanaloniidae



cixiidae





hymenoptera



hymenoptera ~ bees, wasps and ants

vespidae



halictidae



apidae



megachilidae



formicidae



ichneumonidae

paper wasps, etc.
vespidae



sweat bees
halictidae



bumble bees, etc.
apidae



megachilidae
leafcutter bees,
etc.



formicidae
ants



ichneumonidae
ichneumon wasps





subphylum: myriapoda





class: diplopoda



class: chilopoda



class: diplopoda ~ millipedes



class: chilopoda ~ centipedes



orthoptera



orthoptera



**katydids, crickets and
grasshoppers**





gryllidae



acrididae

tettigoniidae





gryllidae ~ crickets

tettigoniidae ~ katydids



**acrididae
grasshoppers**







neuroptera





neuroptera ~ lacewings, etc.





myrmeleontidae
antlions



raphidiidae ~ snakeflies



ascalaphidae
owlflies

chrysopidae ~ green lacewings



mantispidae ~ mantisflies







odonata





odonata

**damselflies
and
dragonflies**





gomphidae



libellulidae



coenagrionidae

lestidae





gomphidae
clubtails

pond damsels
coenagrionidae



libellulidae
skimmers



lestidae
spreadwing damsels





ephemeroptera



psocoptera



trichoptera



mecoptera

ephemeroptera ~ mayfly



**psocoptera
barklouse**



**trichoptera
caddisfly**



**mecoptera
scorpionfly**