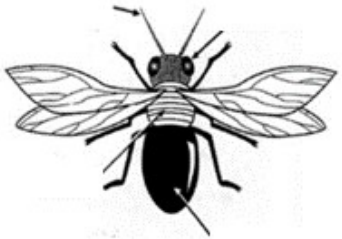
VIDEO GUIDE: Insect Classification

Directions: Use the videos below to answer the questions and fill in the table on each order.

1. Try using this dichotomous key to identify this fictitious species. The body is considered anything below the head (use your fingers to measure). What species is it?



Identify the species

***Characteristics of the Genus* Problematica**

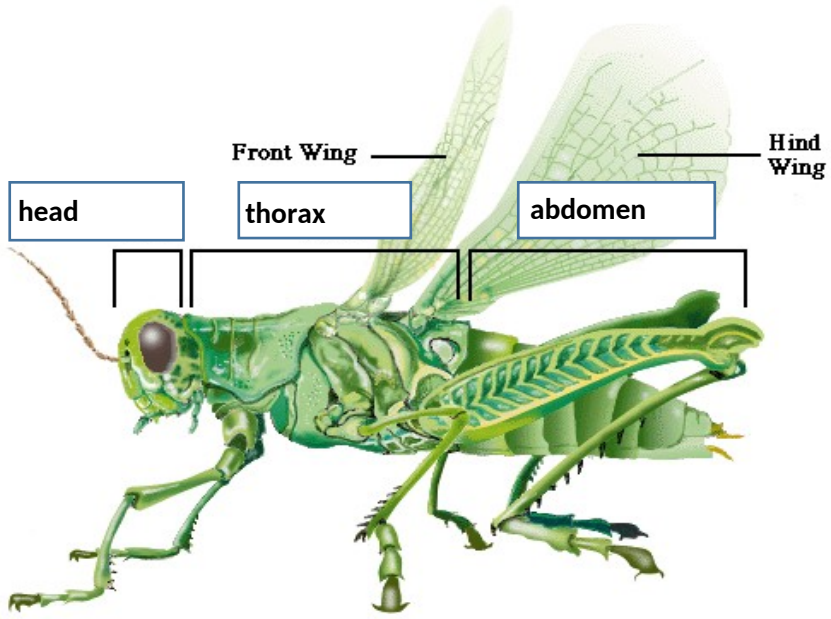
1	Thorax and abdomen entirely black	*Problematica alva*
	Thorax striped and abdomen black	Go to 2
2	Antennae curled	*Problematica brancus*
	Antennae straight	Go to 3
3	Wings longer than body	*Problematica cantrellis*
	Wings shorter than body	Go to 4
4	Wings white	*Problematica differensis*
	Wings black	*Problematica fortunatas*

1 – striped thorax
2 – straight
3 – longer
Problematica cantrellis

2. Describe the four main characteristics of an insect.

Adult insects have 3 pairs of legs, 0-2 pairs of wings, 1 pair of antennae, and 3 body regions – the head, thorax, and abdomen.

3. Fill in the 3 body segment names.



4. Describe the main difference between Hemiptera and the organisms that were previously classified as Homoptera.

Homopterans have uniform wing texture, while hemipterans have half-wings. Homopterans have a smaller proboscis used for sucking juice from vascular plants.

5. Fill in the table of orders.

Insect Order	Examples	Type of Metamorphosis	Type of Mouthpart	Type of Wings	Additional Identifying Characteristics
Zygentoma	Silverfish, firebrats	ametabolous	chewing	wingless	Love chewing on paper in moist environments, 2 cerci and 1 caudal filament at the back end (looks like 3 antennae)
Ephemeroptera	mayflies	hemimetabulous	Vestigial mouth parts (adult)	1 pair of triangular	Mature Imago have long antennae and *really* long filaments on the back
Odonata	Damselflies, dragonflies	hemimetabulous	Prehensile labium (extendable jaws under the head) predaceous	2 pairs of wings (reticulate venation) damsel: equal sized pairs dragon: rear pair larger	Large eyes proportionally to head long and thin abdomen damselflies can fold their wings back, dragonflies can't
Dermaptera	earwigs	hemimetabulous	chewing	Front pair is a smaller protective pair (tegmina) rear pair is membranous and fan-shaped	Pincer-like cerci at the back
Orthoptera	Grasshoppers, crickets, katydids, locusts	hemimetabulous	chewing	Forewings are hardened larger fan-like rear wings Neopteran (folding wings)	Large hind legs for jumping large compound eyes short antennae = grasshopper long antennae = katydid tympanum (ear) in front tibia (first abdominal segment) for locating other individuals of the species
Phasmatodea	Stick insects	hemimetabulous	chewing	2 pairs, some species have 0	Short or long thin antennae look like sticks/leaves/grass

				Neopteran (folding wings)	
Mantodea	Praying mantis	hemimetabulous	predaceous	Some have wings, some don't Neopteran (folding wings)	Triangular head, big eyes big raptoral forelegs for catching prey
Blattodea	Cockroaches	hemimetabulous	chewing	Neopteran (folding wings) leathery forewings membranous hind wings	Filiform antennae dorsoventrally flattened cursoral legs (optimized for running) pronotum (plate that covers thorax and back of head)
	termites	hemimetabulous	chewing	Neopteran (folding wings)	termites look like ==== ants look like o-o-o ant antennae are elbowed (W) termite antennae are beaded (V)
Thysanoptera	thrips	hemimetabulous	Unique mouthparts cone-like mouth sucks juice out of plants (or in some cases other insects/thrips)	2 pairs of wings with long hairs (look like feathers)	
Hemiptera	aphids cicadas planthoppers leafhoppers shield bugs "true bugs"	hemimetabulous	Piercing-sucking mouthparts	"half wings"	Stickbug = not bug stink bug = bug (separate word) triangular scutellum over thorax proboscis on underside of head capsule
Neuroptera	Lacewings, mantidflies, antlions	Complete metamorphosis	chewing	Neopterous 4 membranous wings	
Coleoptera	beetles	Complete metamorphosis	chewing	Front wings are hardened into a	Most diverse insect order all species have an elytra shell over

				casing (elytra)	their hind wings
Diptera	True flies horse fly bee fly lovebug crane fly mosquito	Complete metamorphosis	Piercing-sucking mouthpiece cutting-sponging in some groups	2 membranous wings	Big compound eyes
Siphonaptera	fleas	holometabolous	piercing-sucking	wingless	Laterally flattened
Lepidoptera	Butterflies, moths	holometabolous	Chewing mouthparts (caterpillar) Adult – siphoning proboscis	Large scaled membranous wings	Moths – antennae taper to a point thick bodied wings lay against abdomen at rest nocturnal
					Butterflies are active during the day club-shaped antennae wings out at rest
Hymenoptera	ants bees wasps	holometabolous	Different species have different diets + mouthparts	Most species have 2 pairs of membranous wings + hamuli	