

Bugs for Birds!

**Insects, their characteristics,
other Arthropods and birds
that eat bugs**



What is an Insect?

Characteristics:

- 3 pairs of jointed appendages (6 legs)
- 3 body parts:
head, thorax, abdomen
- Tough exoskeleton
- Most have wings
- Mouthparts
- Compound and simple eyes
- Antennae



Which is an insect?



Both of these belong to a very large group of animals called Arthropods

Arthropods

- **jointed appendages (legs)**
- **segmented body**
- **tough exoskeleton**



A Spider is an arthropod but not an insect because it has 8 legs, two body parts and fang-like mouth parts to poison prey



This Green Lynx spider is eating a fly it caught from ambush

Spiders are Arachnids not Insects

Arachnids have 8 legs, biting mouth parts, and no antennae

Scorpions, tarantulas, and Harvestmen also are Arachnids



Scorpions have many segments



Tarantulas have two segments



Harvestmen have one segment

Other Arthropods

Crustaceans (crayfish & shrimp)



**Yellow-crowned Night-Herons and other
types of birds eat crustaceans**

Other Arthropods

Centipedes and Millipedes

Millipedes & Centipedes have many body segments

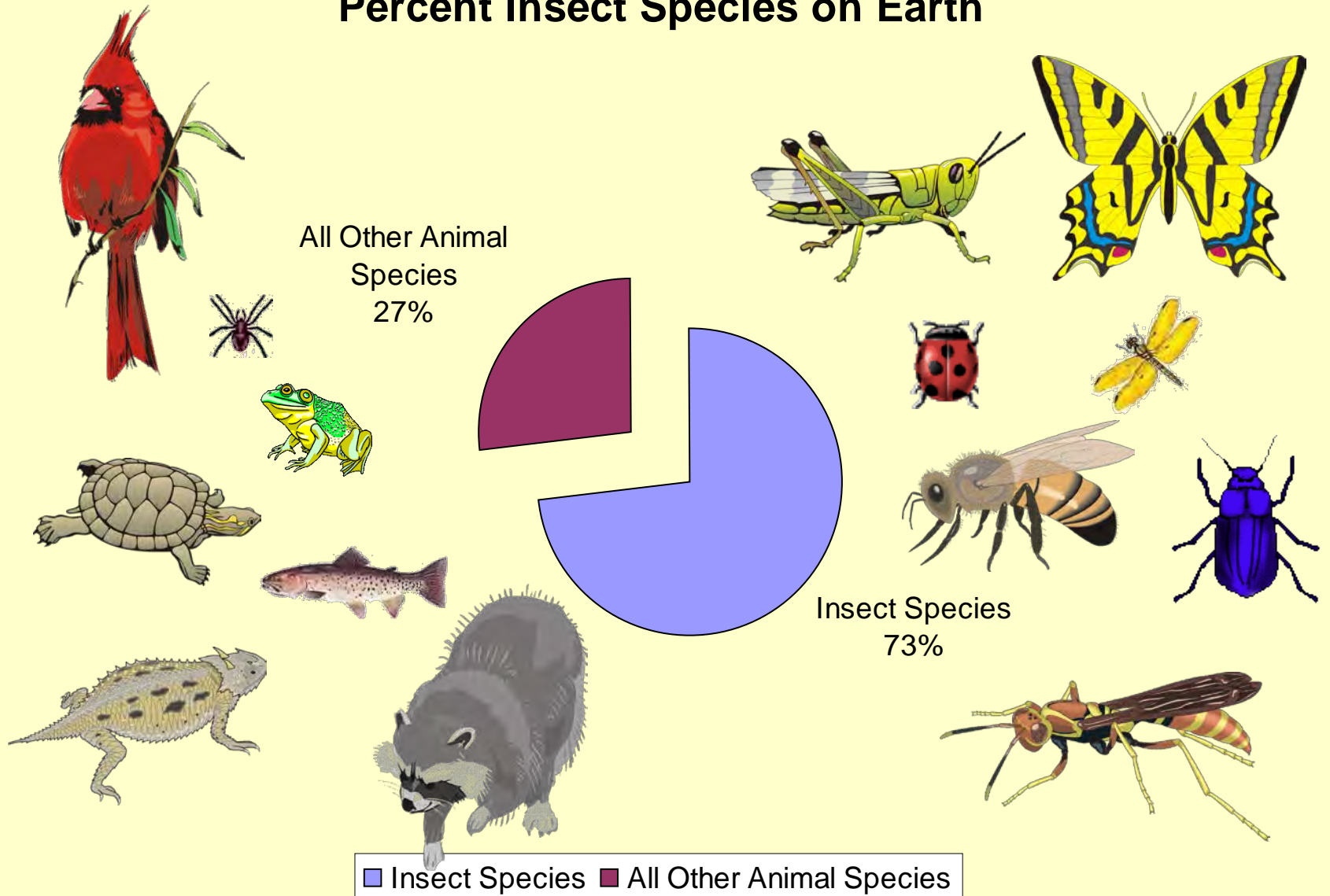


Centipedes have 1 pair of legs to each body segment

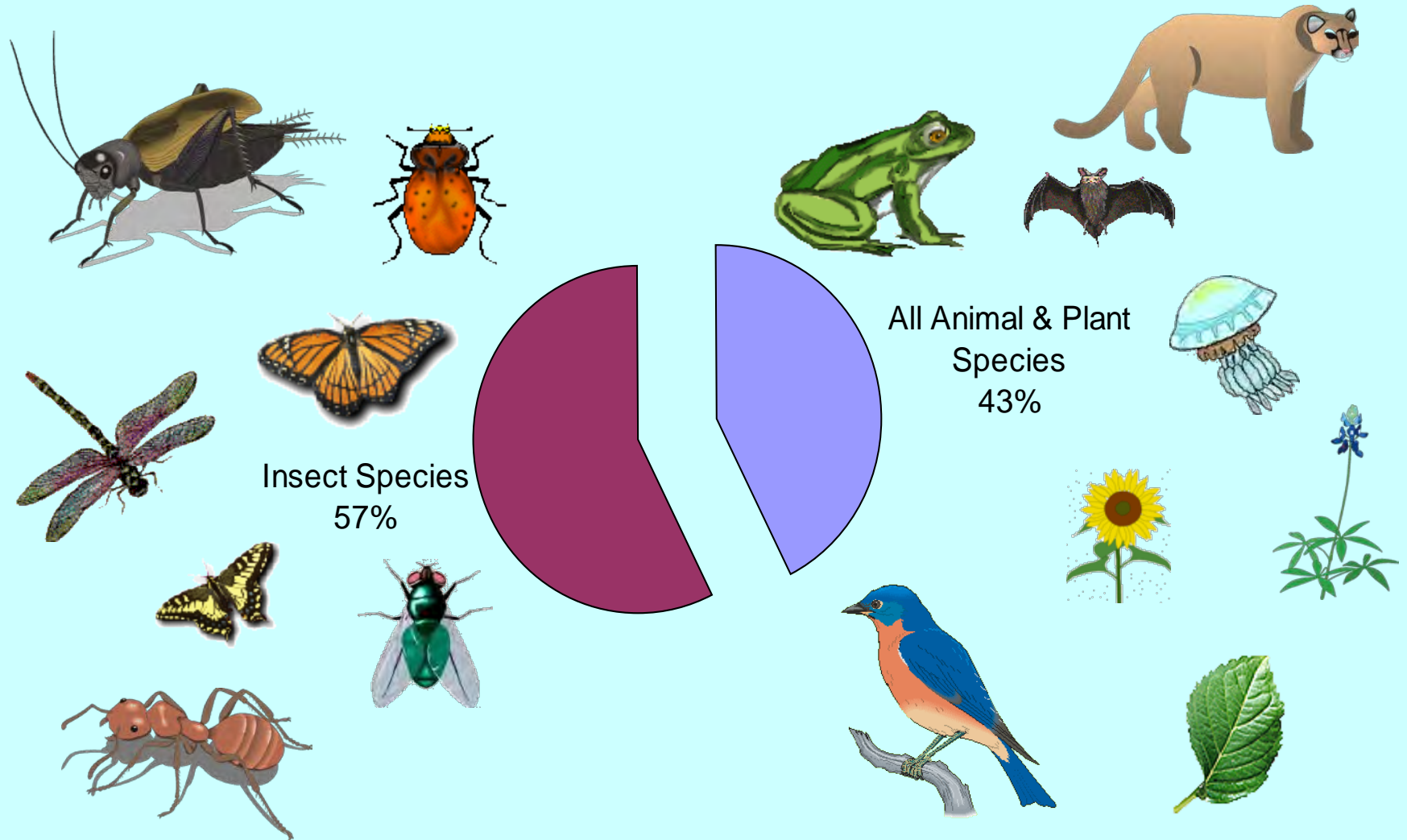


Millipedes have 2 pairs of legs to each body segment

Percent Insect Species on Earth



Percent Insect Species and All Other Plant & Animal Species



■ All Animal & Plant Species ■ Insect Species

Major Insect Groups and the Birds That Eat Them



ORDER ODONATA

Damselflies

Hold their wings together when resting



Dragonflies

Hold their wings out flat when resting



ORDER ORTHOPTERA

Grasshoppers

Have short antennae and ovipositor



Katydid

Have long antennae and ovipositor



Bobwhite feed grasshoppers to their young

ORDER COLEOPTERA

Beetles

Largest group of insects

Have wings that meet in a straight line down middle of back



Black-throated Green Warblers like to eat beetles, caterpillars and other insects

ORDER HEMIPTERA

True Bugs

Have wings that look like a shield



Cardinals feed insects to their young. From top left to right: milkweed bug, red & black plant bug, broad-headed bug, green stink bug, squash bug and water striders

ORDER LEPIDOPTERA

Moths & Butterflies

Covered with powdery scales

Moths fly mostly at night and butterflies during the day

Yellow-breasted Chats eat moths



Allianthus Webworm moth flies in day (above left), Witch moths fly at night (above right) as do Polyphemus moths which have spots like eyes to scare away predators

Beautiful Butterflies



Common Buckeye Butterfly



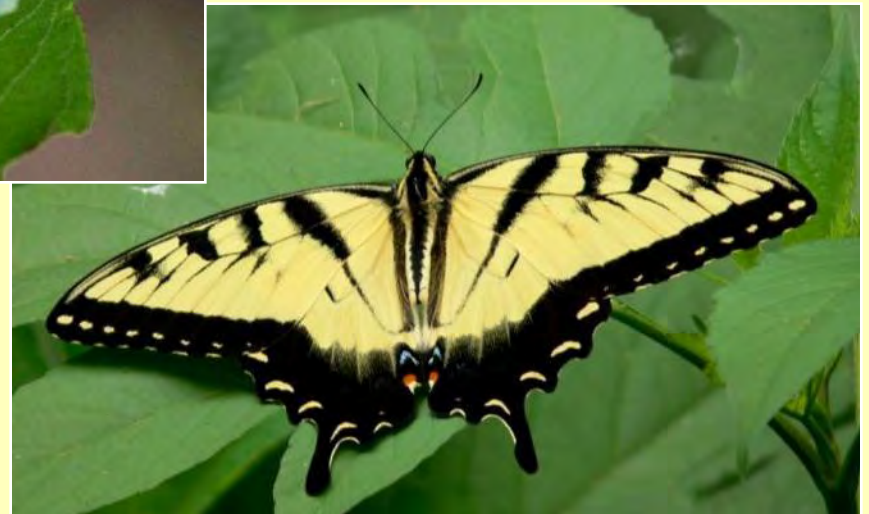
Sulfur Butterfly



Gulf Fritillary Butterfly



Hackberry Emperor



Eastern Tiger Swallowtail

ORDER HYMENOPTERA

Wasps, Ants, & Bees

Have stingers on tips of abdomen and 2 pairs of wings



Left to right: Yellow Jacket, Bumblebee, Blue-winged Wasp, Carpenter Bee, Ichneumon Wasp, Honeybee, Spider Wasp eating a spider, and Scolid Wasp. Audubon's Warbler is one bird that eats wasps!

ORDER DIPTERA

Flies

Have 1 pair of wings



Left to right: Yellow-backed Robber Flies;
Mosquito, Flower Fly, Bee Fly, Green Bottle Fly.



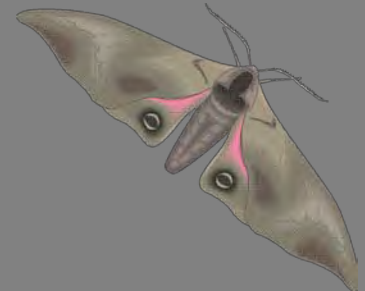
Magnolia warblers eat flies and many other kinds of insects

What does a Golden-cheeked Warbler Eat?

Almost entirely insects!

Can you name the bugs below?

(hint match these names to the bugs pictured below- flies, moths, ants, damselfly, caterpillars, walking stick, shield bug, beetles)



Can you find and name the hidden insects in these pictures? They are using camouflage to keep from getting eaten!



Birds love to eat fat, juicy nutritious bugs!



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Photos by Pat, Chris, and Nicole Merkord, Eric Runfeldt, and Gil Eckrich

Alignment

Alignment is provided to the Texas Essential Knowledge and Skills (TEKS) for English Language Arts and Reading, Mathematics, Science and Social Studies where applicable and color-coded for each grade level.

Grade 3 (red)

Grade 4 (blue)

Grade 5 (green)

Grade 6 (purple)

English Language Arts & Reading student expectations: **3, 4(A,B); 1, 2(A,B); 1, 2(A,B); 1, 2(A,B)**

Mathematics student expectations: **11(A)**

Science student expectations: **3(A), 10(A); 3(A), 7(C), 9(A); 3(A), 9(A,B), 10(A); 3(A), 12(E,F)**

Social studies student expectations: **17(E); 21(A-C), 22(A); 24(A-C), 25(A); 3(A), 21(A-C), 22(A)**

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