

Study Guide – Texas 4-H Entomology ID Contest
Subclass Acari

1. Review the Non Insects YouTube video for your age level at the Bexar Entomology page.
2. Follow along with your 4-H Entomology Study Guide
(<https://entomology.tamu.edu/extension/youth/4-h/4h-contest/>)
3. Review the definitions for the key words for Subclass Acari.
4. Read the Acari Facts
5. Answer the study guide questions
6. Quiz yourself to identify the species of Acari and if they are a pest/beneficial/inconsequential and where they are found in nature and/or their host.

Key Words to Know for Acari:

Haustellate

Parasite

Host

Scutum

Engorged

Acari Facts:

- Specimens for this 4-H contest are all considered pests
- The two ticks you need to know are “hard ticks”, meaning they have a hard shield on their back, called a scutum.

Study Guide Questions:

Which Acari uses a dog as its host?

Which Acari uses cattle as its host?

What type of mouthparts does Acari have

Junior Species (1) – Lone star tick

Intermediate Species (2) – Lone star tick, spider mites

Senior Species (3) – Brown dog tick, lone star tick, spider mites

Study Guide – Texas 4-H Entomology ID Contest
Araneae

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2. Follow along with your 4-H Entomology Study Guide
(<https://entomology.tamu.edu/extension/youth/4-h/4h-contest/>)
3. Review the definitions for the key words for Araneae.
4. Read the Araneae Facts
5. Answer the study guide questions
6. Quiz yourself to identify the species of Araneae and if they are a pest/beneficial/inconsequential and where they are found in nature and/or their host.

Key Words to Know for Araneae:

Chelicerae
Pedipalps
Cephalothorax
Predacious
Venomous

Araneae Facts:

- Recluse and widow spiders are considered medically important. The other species of spiders are beneficial as predators.
- Spiders have chelicerae with fangs for mouthparts. They bite and suck juices.
- Pedipalps are used like antennae to feel around and may appear to be a fifth set of legs, but are actually mouthparts.
- All spiders feed on prey and are predaceous.
- Spiders have 8 legs, two body regions (cephalothorax and abdomen) and no wings or antennae.

Study Guide Questions:

What are the two spiders considered harmful.

Where are the harmful spiders found?

What the location where the other spider species are found?

Which of the spiders listed is the largest?

Which spiders make webs?

Which spiders are found on plants?

Which spiders are found on the ground?

Study Guide – Texas 4-H Entomology ID Contest
Opiliones
(Intermediate and Senior only)

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2. Follow along with your 4-H Entomology Study Guide
(<https://entomology.tamu.edu/extension/youth/4-h/4h-contest/>)
3. Review the definitions for the key words for Orthoptera.
4. Read the Opiliones Facts
5. Answer the study guide questions
6. Quiz yourself to identify the species of Opiliones and if they are a pest/beneficial/inconsequential and where they are found in nature and/or their host.

Key Words to Know for Opiliones:

Inconsequential

Arachnid

Arthropod

Opiliones Facts:

- Opiliones only have one species name to know: Harvestmen
- Harvestmen are also sometimes called Daddy Long Legs
- Harvestmen can be predaceous or plant feeders, but not considered a pest.
- It is untrue that their venom is the most deadly, but their mouthparts are too small to inflict a bite.

Study Guide Questions:

Are Opiliones harmful?

What do Opiliones eat?

Why are they called Daddy Long Legs?

Study Guide – Texas 4-H Entomology ID Contest Scorpiones

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(<https://entomology.tamu.edu/extension/youth/4-h/4h-contest/>)
3. Review the definitions for the key words for Orthoptera.
4. Read the Scorpiones Facts
5. Answer the study guide questions
6. Quiz yourself to identify the species of Scorpiones and if they are a pest/beneficial/inconsequential and where they are found in nature and/or their host.

Key Words to Know for Scorpiones:

Pedipalps

Arachnid

Arthropod

Scorpiones Facts:

- Scorpions are considered a pest due to the painful sting they inflict.
- They have modified pedipalps as pinchers to grasp prey.
- They tend to hide under objects such as in log piles or under rocks.
- They are arachnids, a class in the phylum Arthropoda.

Study Guide Questions:

Are scorpions harmful?

What do scorpions eat?

Why are they considered Arachnids?

Study Guide – Texas 4-H Entomology ID Contest

Thelyphonida

(Senior only)

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(<https://entomology.tamu.edu/extension/youth/4-h/4h-contest/>)
3. Review the definitions for the key words for Orthoptera.
4. Read the Thelyphonida Facts
5. Answer the study guide questions
6. Quiz yourself to identify the species of Thelyphonida and if they are a pest/beneficial/ inconsequential and where they are found in nature and/or their host.

Key Words to Know for Thelyphonida:

Inconsequential

Acetic acid

Arid

Thelyphonida Facts:

- Thelyphonida are considered inconsequential
- Thelyphonida are found in arid regions of Texas and west Texas.
- They acetic acid when disturbed as a defense mechanism, which smells like vinegar. This gives them their common name.

Study Guide Questions:

Why are they called vinegaroons?

Where are they found?

What is their defense mechanism?

Study Guide – Texas 4-H Entomology ID Contest

Solifugae

(Intermediate and Senior only)

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(<https://entomology.tamu.edu/extension/youth/4-h/4h-contest/>)
3. Review the definitions for the key words for Orthoptera.
4. Read the Solifugae Facts
5. Answer the study guide questions
6. Quiz yourself to identify the species of Solifugae and if they are a pest/beneficial/inconsequential and where they are found in nature and/or their host.

Key Words to Know for Solifugae:

Inconsequential

Arid

Solifugae Facts:

- Solifugae are considered inconsequential
- Solifugae have strong jaws that tear apart prey.
- They are primarily found in arid regions of Texas.

Study Guide Questions:

Where are they found?

What is their significance?

Study Guide – Texas 4-H Entomology ID Contest
Chilopoda and Diplopoda
(Senior only)

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2. Follow along with your 4-H Entomology Study Guide
(<https://entomology.tamu.edu/extension/youth/4-h/4h-contest/>)
3. Review the definitions for the key words.
4. Read the Chilopoda and Diplopoda Facts
5. Answer the study guide questions
6. Quiz yourself to identify the species of Chilopoda and Diplopoda and if they are a pest/beneficial/ inconsequential and where they are found in nature and/or their host.

Key Words to Know for Chilopoda and Diplopoda:

Inconsequential status

Variable status

Chilopoda and Diplopoda Facts:

- Centipedes have one pair of legs per body segment and flattened.
- Centipedes are predaceous
- Millipedes are variable and can feed on plants.
- Millipedes have two pairs of legs per body segment, are more rounded.
- Centipedes have modified appendages on their hind end that look to be stingers, but will distract prey so that they are directed to the head where they can be consumed.

Study Guide Questions:

How are centipedes and millipedes different, morphologically?

Where are they found?

What does each feed on?

Study Guide – Texas 4-H Entomology ID Contest

Isopoda (Senior only)

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(<https://entomology.tamu.edu/extension/youth/4-h/4h-contest/>)
3. Review the definitions for the key words.
4. Read the Isopoda Facts
5. Answer the study guide questions
6. Quiz yourself to identify the species of Isopoda and if they are a pest/beneficial/inconsequential and where they are found in nature and/or their host.

Key Words to Know for Isopoda:

Compost

Variable status

Crustacean

Organic matter

Isopoda Facts:

- Isopods are sowbugs and pillbugs. Pillbugs can roll up into a ball, sowbugs cannot.
- They feed on decaying organic matter and are sometimes a pest, but usually go unnoticed.
- They require a moist habitat such as moist soil or under rocks or in leaf litter.
- They are crustaceans, which is a class of arthropods.

Study Guide Questions:

What is the difference between pillbugs and sowbugs?

What do they eat?

What phylum are they in?

What class are they in?

Study Guide – Texas 4-H Entomology ID Contest
Collembola
(Intermediate and Senior only)

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(<https://entomology.tamu.edu/extension/youth/4-h/4h-contest/>)
3. Review the definitions for the key words.
4. Read the Collembola Facts
5. Answer the study guide questions
6. Quiz yourself to identify the species of Collembola and if they are a pest/beneficial/inconsequential and where they are found in nature and/or their host.

Key Words to Know for Collembola:

Hexapoda

Furcula

Internal mouthparts

Arthropod

Collembola Facts:

- Springtails get their name from a tail like appendage called a furcula, which they can spring from their body and cause them to jump.
- Springtails are not technically insects in the order Insecta. They are in the subphylum Hexapoda. They were removed from Insecta because insects have external mouthparts and springtails have their mouthparts inside their head.
- They do have 6 legs and a pair of antennae and three body regions.
- They are found in moist environments such as puddle surfaces, wet soil, or in leaf litter.
- They are very small, usually microscopic.
- They have ametabolous metamorphosis or no metamorphosis.

Study Guide Questions:

Why aren't Collembola considered insects?

Where are Collembola mouthparts?

What is their lifecycle?

What is a furcula?