

CREEPY CRAWLERS EVERYWHERE!

Master Teacher: Helen Mebane

GRADES: 6 - 8

TIME ALLOTMENT: 1 fifty minute class session

OVERVIEW:

In this lesson, students do not have to be frightened to go exploring outside anymore. They will be able to determine which few venomous insects or spiders actually can harm them. The video contains excellent close-ups photos of these insects or spiders along with first aid treatment if needed. Students will also learn how to avoid these insects or spiders since most are beneficial to man. Each student will then develop a poster of his or her arthropod for student body to read and learn its information.

SUBJECT MATTER: Science

LEARNING OBJECTIVES:

Students will be able to:

- ☐ Describe the general characteristics of the venomous insects or spiders
- ☐ Explain how to avoid venomous insects or spiders
- ☐ Describe first aid treatment if bitten or stung by an venomous insect or spider
- ☐ Determine if the insect or spider is harmful or beneficial to man
- ☐ Develop a poster of his/her arthropod for others to view

STANDARDS:

(8.1) Scientific processes. The student conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. The student is expected to

A. demonstrate safe practices during field and laboratory investigations;

(8.2) Scientific processes. The student uses scientific inquiry methods during field and laboratory investigations.

B. collect data by observing and measuring;

(E) construct graphs, tables, maps, and charts using tools including computers to organize, examine, and evaluate data.

(8.6) Science concepts. The student knows that interdependence occurs among living systems. The student is expected to:

(C) describe interactions within ecosystems.

(8.14) Science concepts. The student knows that natural events and human activities can alter Earth systems. The student is expected to:

(B) analyze how natural or human events may have contributed to the extinction of some species;

MEDIA COMPONENTS: Video

ETV Series-Venomous Insects, Spiders and Other Arthropods #101

WEBSITES:

Venomous Creature- Insects

<http://pelotes.jea.com/vensins.htm>

Brief explanation and photos of puss moth caterpillars, Io moth caterpillars, saddleback moth caterpillars, and tussock moth caterpillars.

Venomous (Stinging) Creatures- Insects

<http://pelotes.jea.com/venstinghtm.htm>

Brief explanation and photos of honeybees, yellow jackets & sounds they make, and centipedes

Venomous Creature- Arachnids

<http://pelotes.jea.com/venarac.htm>

Brief explanation and photos of black widow spider, brown recluse spider, and scorpions

Arthropods Coloring Pages

<http://pelotes.jea.com/ancoltran.htm>

Brief explanation on how to color each of these arthropods: centipede, brown recluse, black widow, Io moth caterpillar, Tussock moth caterpillar, honey bee, yellow jacket, scorpion, Saddleback moth caterpillar, and Puss moth caterpillar. Arthropods Coloring Pages

Insect and Pest Series Index from Ohio State University

<http://www.ag.ohio-state.edu/~ohioline/hyg-fact/2000/index.html>

Brief explanation and photos of brown recluse spider, black widow spider, tarantulas, centipedes, yellow jackets, bee and wasp stings, paper wasp and hornets, mud daubers, cicada killers wasp, honeybees in house walls, African honeybee and many

MATERIALS:

Activity Sheet #1 - one per student

Vocabulary Sheet - one per student

PREP FOR TEACHERS:

Bookmark websites, cue videotape to correct starting point, handouts (Activity #1, Vocabulary) should be ready to distribute.

INTRODUCTORY ACTIVITY:

Step 1: Distribute Vocabulary Sheet to students and familiarize students with vocabulary terms.

LEARNING ACTIVITY:

Step 1: To give students a **FOCUS FOR MEDIA INTERACTION**, say, "While you are viewing this video, look for the answers to questions on the Activity Sheet #1. "We will be describing the characteristics of some venomous insects and spiders. Have any of you ever been bitten or stung by a venomous insect or spider and then you had to be taken to the hospital for treatment? If so, describe what happened? How many of you feel that all insects or spiders should be killed immediately? If so, raise your hands. Hopefully, at the end of this video, you will learn how to avoid these insects since most of them are beneficial to man.

Step 2. Begin the video when the narrator says, "Spiders, scorpions, bees, and wasps are all arthropods." Arthropod is the scientific name for a group of invertebrates with jointed appendages.

Step 3. Pause the video when you see a scorpion - Class *Arachnida* and Order *Scorpionida* on the screen. Answer question #1 from activity sheet 1. Out of _____ species only one is venomous which occurs in southern _____ and adjacent states. (40, Arizona) The sting is no worse than a bee sting. Scorpions are roaming hunters that prey on other arthropods, which paralyze with their venom with their stinger located at the end of the jointed appendage. Young scorpions are born alive and are carried on their mothers' backs. They may be found in kitchens and bathrooms. Treatment is to apply an ice pack the area where stung. Consult a physician if in Arizona. Resume video.

Step 4. Pause the video when you see bees, wasps, and ants - Class *Hexapoda* and Order *Hymenoptera* on the screen. They are beneficial to humans. Bees are extremely important as pollinators of plants. Wasps kill enormous amount of detrimental insects. They are natural biological control. Answer question #2. What is the difference between a bumblebee and a honeybee? (Bumblebees - Family Apidae are large, fuzzy black and yellow, their nests are in the ground. Honeybees - Family Apidae are smaller and brownish color, their nests are above ground and larger colonies.) Resume video.

Step 5. Pause the video when you see yellow jackets on the screen. Their nests are several tiers of hexagonal paper shells. Answer question #3. List four areas in which yellow jackets may build their nests. (Their nests may be built in the ground, in hollow trees, or in walls of buildings, in the open, or under porches, or attached to branches.) Resume video.

Step 6. Pause the video when you see a paper wasp - *Polistes sp.* on the screen. Answer question #4. What is the difference between a paper wasp and a yellow jacket? (A paper wasp is longer and more slender than the yellow jacket.) It is found in building eaves and in sheds. Resume video.

Step 7. Pause the video when you see a solitary bee and wasp on the screen. Answer question #5. Under what conditions, do solitary bees and wasps like to sting humans? (Most species are harmless and never sting unless it is grabbed or stepped on.) Resume video.

Step 8. Pause the video when you see a mud dauber - *Sceliphron caementarium* on the screen. Answer question #6. What do mud dauber place into its nests for its young to eat? (It constructs its nest out of mud and then

places spiders and insects near this nest to feed its young.) Small nest cause needless concern to homeowners. Resume video.

Step 9. Pause the video when you see a cicada killer - *Sphecius speciosus* on the screen. Answer question #7. Are cicada killers harmful to man? (They are gigantic wasps, which are harmless, and their nests are on the ground.) They capture cicadas to feed their young. Resume video.

Step 10. Pause the video when you see a velvet ant - Family *Mutillidae* on the screen. Answer question #8. Are velvet ants really ants and what do they eat? (They are actually wasps but the wingless females resemble ants. They are predacious on other wasps and bees.) If stepped on they will defend themselves and they have an extremely painful sting. They should not be handled since they are beneficial, they should be avoided and not destroyed. Resume video.

Step 11. Pause the video when you see many fire ants - *Solenopsis sp.* on the screen. Workers repeatedly sting. Answer question #9. Why is the fire ants' bite so painful? (They grip their victims with their jaws and inserted their stingers and eject venom.) They are small but their sting is excruciating painful and it can cause serious reaction to those who are allergic. Fire ants colonies live beneath the ground and construct large mounds in fields. Resume video.

Step 12. Pause the video when you see harvest ants - *Pogonomymex sp.* on the screen. Answer question #10. What is the difference between fire ants and harvest ants? (Harvest ants are much larger and their nests are flat and in a circular path with bare ground where they have consumed the vegetation.) Best way to avoid being stung is to recognize their ant nest.

Step 13. Pause the video when you see pictures of bees, wasps, and ants on the screen. Answer question #11. What is the best treatment when a honeybee stings you? (Treatment is to remove the honeybee stinger. Wash with soap and water. An ice pack applied to the area will keep down the swelling and reduce pain and itching. Another helpful remedy is to use a paste of baking soda and water. Elevate affected limb. Get analgesic and antihistamine.) Always use parental guidance whenever taking any medication and consult a physician for allergic reactions. Answer question #12. What are some symptoms for those who are allergic to bee stings? (For those who are

allergic, even a single sting can be life threatening. Symptoms include difficulty breathing or swallowing, hoarseness, nausea and dizziness.) Medical treatment should be obtained immediately. Resume video.

Step 14. Pause the video when you see a puss caterpillar - Order *Lepidoptera* and Family *Megalopygida* on the screen. It has hollow venomous hairs that cause severe irritation when they penetrate the skin. Answer question #13. What is the best way to remove the venomous hair of a puss caterpillar from someone's skin? (Treatment is to repeat stripping with tape to remove the spines.) Pack the area with ice and make a paste of baking soda and water. Resume video.

Step 15. Pause the video when you see a centipede - Class *Chilopoda* on the screen. This multi-segmented worm has one pair of legs per segment. It can be ten inches long and has two venomous powerful claws located behind the head. It is active at night and hides under rocks or cracks during the day. Answer question #14. When camping, what should you do to avoid being bitten by a centipede? (When camping, shake the sleeping bags and clothing and do not walk around barefooted at night.) Treatment is to wash with soap and water. Then apply 10% ammonia solution or apply cool, wet epsom salt dressing. Check if victim is analgesic. Resume video.

Step 16. Pause the video when you see a wheel bug - *Arilus cristatus* on the screen. Answer question #15. How long does the painful bite from a wheel bug last and is it a dangerous bite? (The bite has an intense pain that lasts for 3 to 6 hours. The bug penetrates the skin with its beak and injects venomous saliva normally used to kill insect prey. While the bite is painful, it is not dangerous.) Resume video.

Step 17. Pause the video when you see a black widow spider - *Latrodectus sp.* on the screen. The most common and best-known spider in the U. S. She has a shiny, black body and a red hourglass shaped mark on the underside of the abdomen. Answer question #16. What does the bite from a black widow spider feel like and is it a dangerous bite? (The bite feels like a pinprick at first becoming very painful after a few hours. Webs are built in sheltered nooks such as dark corners of buildings, woodpiles, water meters, and dense brush. Untreated cases can result in shock, convulsions, paralysis, and death.) Answer question #17. How many people have died due to a black widow spider

bite? (4 - 5% of untreated cases result in death.) Treatment is to consult the physician immediately. Resume video.

Step 18. Pause the video when you see a brown recluse spider - *Loxosceles reclusa* on the screen. A brown violin shaped mark on its back identifies it. Answer question #18. List five areas in which brown recluse spiders may be found. (It may be found under stones, bricks or lumber stored outdoors, or in dark undisturbed indoor locations such as attics, basements, or water heater closets.) There is little pain when it bites, but after a few days an ulcer forms and it is very slow to heal. It often leaves a disfiguring scar. The bite is very rarely fatal. Treatment is to consult a physician immediately. Resume video.

Step 19. Pause the video when you see a tarantula - Order *Araneae* and Family *Theraphosidae* on the screen. The bite hurts and it's highly beneficial; it's a predator of insects and it avoids humans if left alone. Answer question #19. Is it dangerous to handle a tarantula? (If they are handled, the hairs on its abdomen will irritate the skin. It is especially painful if these hairs get into the eyes.) Treatment is none is needed. Resume video.

Step 20. Pause the video when you hear, "Arthropods are essential to the part of living world." Answer question #20. List three things which arthropods do that benefit man. (Some arthropods pollinate plants, consume destructive insects, and are an essential food source for many small vertebrates.) Remember this the next time you're tempted to reach for the bug spray. Stop and eject the video after you see the tarantula crawl away.

CULMINATING ACTIVITY:

Step 1: Say, "Now that we have finished answering the Activity Sheet #1, you are ready to begin working on your research poster of the venomous insect, spider, or other arthropods of your choice. Using half of a regular size poster, your poster must contain:

1. a colored drawing of your arthropod no smaller than 15 cm x 22 cm,
2. both the scientific and common name,
3. brief description
4. life cycle and habits,

5. bite symptoms,
6. first aid treatment,
7. how to avoid being stung or bitten and
8. determine if the arthropod is harmful or beneficial to man.

Here is a list of all the insects which you viewed on the video: scorpions, bees, wasps, ants, yellow jackets, paper wasps, mud daubers, cicada killers, velvet ants, fire ants, harvest ants, puss caterpillars, centipedes, wheel bugs, black widow spiders, brown recluse spiders, tarantulas.

Use the websites that I have bookmarked to begin your research.

CROSS-CURRICULAR EXTENSIONS:

LANGUAGE ARTS

Interview someone who has been bitten by venomous insects, spiders or other arthropods. Write a one-page report from the interview.

SOCIAL STUDIES

Have students locate on their neighborhood's map where they would find the most venomous insects, spiders or other arthropods.

SCIENCE

Take the students on a field trip to a zoo such as the Brownsville zoo, Corpus Christi zoo, or San Antonio zoo to study the general characteristics and behaviors of some venomous insects, spiders, or other arthropods.

COMMUNITY CONNECTIONS:

Visit your local hospital and interview an emergency nurse or doctor who had to treat someone with a spider bite from either a black widow or brown recluse. Ask questions such as, "Where was the victim when he/she was bitten by these spiders? What did the bite feel like? How long does it take for the bite to fully heal? What could the victim do to prevent this from ever happening again?"

STUDENT MATERIALS:

- Activity Sheet #1 - one per student
- Vocabulary Sheet - one per student

Activity Sheet #1

Name: _____ Date: _____

Period: _____

Directions: Answer these questions from viewing the video. (5 points each)

1. Out of _____ species only one is venomous which occurs in southern _____ and adjacent states.
2. What is the difference between a bumblebee and a honeybee?
3. List four areas in which yellow jackets may build their nests.
4. What is the difference between a paper wasp and a yellow jacket?
5. Under what conditions, do solitary bees and wasps like to sting humans?
6. What do mud daubers place into their nests for their young to eat?
7. Are cicada killers harmful to man?
8. Are velvet ants really ants and what do they eat?
9. Why is the fire ant's bite so painful?
10. What is the difference between fire ants and harvest ants?

11. What is the best treatment when a honeybee stings you?
12. What are some symptoms for those who are allergic to bee's stings?
13. What is the best way to remove the venomous hairs from someone's skin?
14. When camping, what should you do to avoid being bitten by a centipede?
15. How long does the painful bite last from a wheel bug and is it a dangerous bite?
16. What does the bite from a black widow spider feel like and is it a dangerous bite?
17. How many people have died due to a black widow spider bite?
18. List five areas in which brown recluse spiders may be found.
19. Is it dangerous to handle a tarantula?
20. List three things which arthropods do that benefit man.

VOCABULARY

Venomous - the insect or spider is able to inflict a poisonous bite or sting.

Detrimental - the insect or spider is able to cause damage or injury.

Hexagonal - a six sided shape; for example a honeybee hive.

Predacious - the insect or spider preys on other animals.

Excruciating - the insect or spider causes intense bodily pain to its victim.

Analgesic - a state of not being able to feel pain.

Antihistamine - a drug, which is used to minimize the symptoms of an allergic condition.

Convulsions - violent, involuntary contractions of muscles due to an insect's sting or spider's bite.