

Wigglers and Squirmers

Theme: Students will understand the importance of wigglers and squirmers on the prairie ecosystem.

Background

Age
3rd-5th grade
Time
2 hours

A Worm's main sense organ is its skin. It does not have eyes and ears. However, its skin is very sensitive to touch, light, temperature and moisture. The worm breathes by taking air out of the moist soil directly into the skin. Because its skin is light sensitive, worms can tell the difference between light and dark. They are nocturnal and rarely come out during the daylight. Earthworms eat decayed leaves and plant material. What isn't used for nutrition, the worm discards. This is very good fertilizer for the ground. An earthworm is capable of regenerating himself and can replace damaged or destroyed segments depending on the region. They have no lungs and must stay moist to breathe. Worms are also very sensitive to vibrations, which is probably good as they are a mole's favorite lunch! Worms have from 120-175 segments when full grown. Segments 31-37 are swollen. This is called the clitellum and it means the worm is adult and can mate and lay eggs. Although much of their time is spent underground, worms have enemies. Birds, frogs, centipedes, moles and man are their predators. Sometimes birds trick worms by tapping or pecking gently on the surface. If the soil is damp, this will entice them to the surface where the bird is waiting. Earthworms eat enormous amounts of soil, taking what they need nutrition-wise and casting off the rest. They also have five pair of enlarged tubes that act as hearts. The tubes pump blood through the vessel of the earthworm's body. There is two pair of bristles (setae) on each segment of the earthworm. These help him get around.

Program Activities

Introduction

Focus Question: What creatures do you think of when I say wiggler or squirmer?

Safety!

Remember to take a backpack with a first aid kit and cell phone along on the hike.



Station 1: Bear, Trout, Worm

Objective: Play a game that will help kids understand the role of wigglers and squirmers.

Talk about how these three creatures are related. If they don't have any suggestions, ask them what does the bear eat? (trout) What does the trout eat? (worm) What does the worm eat? (the bear after it dies)

Procedure:

1. Divide the class into two teams.
2. Tell them that they will decide as a team what animal they all want to be each round.

Signs:

Bear = hands curved in front like claws, bare teeth and growl.

Trout = suck in lips, make kissing motion, hands on hips, elbows moving back and forth like pectoral fins.

Worm = make a circle with first finger and thumb. Stick worm through it as if sticking out of an apple. At the end of the first round, they will decide again what they want to be.

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3. Once they have decided, they come to the center facing each other. (About 3-4 feet between each line.
4. The teacher/facilitator counts to 3 and on 3 both teams show their sign. For example, if Team 1 decides to be bear, on the count of 3 they will all growl, bare their teeth and make claws. Team 2 might decide to be worms so, on 3, they would all make an apple with a worm sticking out.
5. Everybody must decide what eats what. In the above example, the worm eats the bear so Team 2 chases Team 1. Whomever they touch is on their team. If both teams pick the same critter they simply retreat to their respective huddles and choose a different animal. Play several rounds



Station 2: Bird's Eye View

Objective: Students will understand the anatomy of a worm.

Materials

- Earthworms
- Paper plates, paper towels
- Hand lenses

Procedure:

1. Discuss briefly proper handling of living creatures. An earthworm is very fragile and sensitive.
2. Give each student a paper plate with a magnifying glass.
3. Place a nightcrawler on each plate.
4. Proceed to discover the world of an earthworm.
5. Lead the class through the following:
 - Look closely at you earthworm...
 - Does it have eyes?...No
 - Does it have a nose?...No
 - Dose it have ears?...No
 - Does it have a mouth?...Yes
 - What color is it?
 - Is it all the same color?
6. Now use the magnifying glass. Ask the same questions. Did any of the answers change?
7. Listening to worms:
 - Put a worm on a piece of moist paper and watch it as it contracts and spreads its muscles to move forward. You should be able to hear the scratching sound of the bristles as it grips when it moves along.

These bristles grip the soil on the edges of the burrows and help the worm move forward. They can also act as an anchor if a hungry bird is trying to pull the worm out of the ground.



8. Bridging the Gap:

- Put two blocks of wood on the table. Lay a sheet of paper on each but leave a one inch gap between them. Sprinkle one sheet so it is damp. Put your worm on the dry sheet and watch it “bridge the gap” to get to the wet one. What is the conclusion that can be drawn from this experiment? (Worms prefer damp places.)

Station 3: Nature Hike

Objective: Students will discover signs of wigglers and squirmers and the importance they play in the ecosystem.

Materials

- Backpack
- First Aid Kit
- Cell Phone

Nature Hike:

Talk briefly about what things wiggle and squirm on the prairie. Accept all their answers.

Share the importance of them in aerating the soil (worms), fertilizing the soil (worms), letting water into soil (worms), eating rodents (snakes), eating insects that are unwanted (salamanders).

Ask them what wigglers and squirmers they might see on the hike. Accept all answers. Give them each a magnifying glass. Tell them hike rules. Go out looking. When preparing to turn over rock or log, make sure they are all gathered around or ones in back will miss it. The wigglers and squirmers will slither away quickly.

Hike the woodland trail and around pond for signs or wigglers and squirmers.

Station 4: Make A Worm Apartment



Objective: Students will learn what worms need to live.

Materials

- 20 oz pop bottles and black paper
- Sand, soil and vermiculite
- Coffee grounds, brown sugar and water.

Procedure:

1. Give each student a 20 oz. Pop bottle.
2. Put 2 inches of sand in bottom of bottle. Get it in bottle with handfuls or use a cup. Funnels don't work very well.
3. Fill the jar 3/4th full of good loamy soil/sand. Add some vermiculite for airing the soil.
4. Moisten the soil – don't soak it however.
5. One teaspoon of coffee grounds and ¼ teaspoon of brown sugar layered on top will serve as the food source.
6. Wrap a piece of black paper around the outside of the bottle.
7. Add your nightcrawler.

Station 5: Rattler Game

Objective: The game shows how animals use senses other than sight to find their prey.

Materials

- Red and blue blindfolds
- Film canister rattles

Procedure:

1. Form large circle (snake pit).
2. One person is chosen as the snake.
3. Blindfold him/her.
4. Give each one a "rattle" (film canister with beans in it).
5. Explain that when the rattler rattles, the mouse must answer back but carefully try to avoid the snake finding her/him. If the snake has not located the mouse after 5 rattles, he goes hungry. If they locate the mouse and tag them, he's full. Begin next round by have each pick another "snake" and "mouse".



Wrap Up

Objective: Reinforce main concepts learned.

Ask students trivia about what they have learned.

Backup Activities

Edible Worm Apartment

Excellent activity when it is too cold outside for worms to survive

Objective: Students will enjoy a delicious treat while learning what habitat a worm needs to live

Materials

- Plastic tumbler cups
- Plastic spoons
- Napkins
- Plastic snack size ziploc baggies
- Green Sprinkles
- Mini marshmallows
- Oreo cookies
- Gummy worms
- Chocolate pudding cups

Procedure:

NOTE: Easiest if you prep this activity with a napkin, plastic spoon, and 10 mini-marshmallows placed underneath an overturned plastic tumbler cup at each student's place. Also, make sure you prep 2 oreo cookies in a snack size ziploc baggie and put a small garbage at the center of each child's table (A box or something that can easily be thrown away.)

1. Give each student a plastic tumbler cup. Tell them that they are going to create a worm habitat that they can eat.

2. Ask students where worms live. (Dirt) Then tell them that dirt is just not dirt, but soil that is built in layers. So we need to start at the very bottom. What is at the core of the earth? (Magma....if you want you could give them red hots to symbolize magma at the bottom of their cup) When magma cools what does it turn into? (Rock) Hand out 10 mini-marshmallows for them to place in the bottom of their cup. (If prepped have them turn over their cup and place the marshmallows in the bottom of cup.)



3. Have you ever walked on a construction site where the dirt was so hard it felt like cement? Above the rock layer we have hard packed soil. Hand out chocolate pudding cups and have students scoop out the pudding on top of the marshmallows. They can lick off their spoon and place it back in the cup to keep the table from getting dirty.
4. Worm's are often called the gardener's best friend. Why is this? (They aerate the soil.) Hand them out the ziplock baggies with 2 oreo cookies in it and have them act like worms breaking up the soil. Tell them worms don't bang soil on the table, but to break do it gently. Then they can open up their baggies and dump the good rich soil above the pudding layer.
5. If you take care of your garden/grass and water it often what happens? (Plants grow) Tell the students you will come around and sprinkle green sprinkles on top of their soil because they have good moist soil.
6. Ask them if they think they have a good worm habitat and why. Talk about the layers they built in their cup. If they think their habitat is suitable for a worm, pass out a gummy worm to each student for them to stick into their cup. Then they can take their spoon out of the pudding cup and eat their treat. Make sure they know to place all their trash into the garbage on the table.

