

Bees, Earthworms, & Spiders

By Abby Sweet

Sources: (mentioned in each lesson)

Enduring Idea: Conservation

Summary and Rationale: Students will be learning about the benefits and 'jobs' of bees, earthworms, and spiders as well as other kinds of creatures that are normally considered scary.

Key Concepts

Creatures like bees, earthworms, and spiders can be beneficial to people.

People can learn to live with bees, earthworms, and spiders.

Essential Questions

How are bees, earthworms, and spiders beneficial to people?

How can people learn to live with bees, earthworms, and spiders?

Learning Targets and Evaluation

Conceptual LT: I can understand why these creatures are beneficial to people.

Assessment: worksheets, drawings, verbal

Technical LT: I can assist in the creation of artwork that represents these creatures.

Assessment: group and individual artwork

Art making Method Taught

Ceramic pieces (TBD), large hand painted/collaged/printed panels to represent flower/vegetable garden, free drawing, drawing from life, decoupage, paper mache (sculpture), layering of materials

Day One: Bees

By Abby Sweet

Sources: Material from The Montana Pollinator Education Project, *What Do Insects Do?* By Susan Canizares and Pamela Chanko, <https://www.youtube.com/watch?v=MQiszdkOwuU> , <http://www.preschooleducation.com/http://www.raymondhuber.co.nz/bringing-bees-to-the-people/>

Enduring Idea: Conservation (of bees)

Summary and Rationale: Students will be learning about the body parts, benefits, and 'jobs' of bees.

Key Concepts

Bees are insects with an important job of being pollinators.

Creatures like bees can be beneficial to people.

People can learn to live with bees.

Essential Questions

What are pollinators?

What are the body parts of a bee?

How are bees beneficial to people?

How can people learn to live with bees?

Key Words/Vocab: pollinators, pollen, nectar, corbiculae, honeycomb

Learning Targets and Evaluation

Conceptual LT: I can understand why bees are helpful to people.

Assessment: worksheets, drawings, verbal

Technical LT: I can assist in the creation of artwork that represents bees.

Assessment: group and individual artwork

Art making Method Taught

We will create a honeycomb sculpture from chicken wire and paper that viewers in the gallery space will be able to walk through/around. We will also work on panels incorporating layers of paint, tissue paper, and other multimedia.

Pre-Class Preparation and Supplies

Pre-made wire sculpture, construction/tissue paper, paint, live flowers, art paste, brushes, shirts, Computer and cords, power point, video, song, handouts and kits, book

The Plan:

Attention: Fruits and Veggies on tables, students can eat some

Hook: Where do these foods come from? (store...Where before that? Did you know that bees helped make these foods here today?)

Objective: Students will understand how bees are important to people.

Predictions: What do you think you will learn today?

- Show PowerPoint about Bees
- Notes for slides:
 1. We are going to be learning about Bees and other types of Pollinators
 2. What are pollinators? **A pollinator is an animal or insect with the important job of helping plants to make fruits or seeds.**
 3. Honeybees are a type of pollinator
 4. So are Bumblebees-do you ever see these?
 5. When a bee lands upon a flower to feed from it, it's buzzing (vibration of tiny muscles) shakes the pollen off of the flower's parts and it sticks to the tiny hairs on the bee (or other animals). Female bees have tiny "hair baskets" (**corbiculae**) on their hind legs in which they carry balls of pollen moistened with nectar. Both honeybees and bumblebees use nectar and pollen as a source of nutrition or food to get energy from.
 6. **Corbiculae-Hair Baskets**
 7. What are the other body parts of a bee? (hand out)
 8. **So how do bees help people?**
 9. Remember the fruit and vegetables we ate? Bees helped to pollinate those plants so that the plants could make the fruit and vegetables.
 10. Bees help farmers by helping them produce large, healthy crops like wheat or alfalfa.
 11. They help other animals dependent upon the pollinated plants for food.
 12. Honeybees make honey! This is a **honeycomb**. Who do you know that loves honey?
 13. Winnie the Pooh
 14. **How can people learn to live with bees?**
 15. Become a beekeeper or support beekeepers.
 16. Plant a garden that attracts pollinators.
 17. Try to avoid using harsh insecticides in your garden! They kill the GOOD bugs too!
- Review vocab words and essential questions...
- Bug Hunt Song

We're going on a bug hunt added 11-9-98

Original Author Unknown-Edited by Abby Sweet

<http://www.preschooleducation.com/sbug.shtml>

Sung to: "We're going on a bear hunt"

We're going on a bug hunt!
I can't wait!
I'm not afraid of bugs!
Are you ready? OK!

Look! A bee!
A black & yellow bee,

Pollinating flowers.
BUZZ.....

We're going on a bug hunt!
I can't wait!

I'm not afraid of bugs!
Are you ready? OK!

Stop! A worm!
A giant, earth worm,
Crawling through the soil.
Shh...

We're going on a bug hunt!
I can't wait!
I'm not afraid of bugs!
Are you ready? OK!

Oh my! A spider!
A helpful garden spider,
Spinning a pretty web

We're going on a bug hunt!
I can't wait!
I'm not afraid of bugs!
Are you ready? OK!

Wait! A ladybug!
All shiny, red and black,
Now she's ready to fly away.
Goodbye! Goodbye...It's time for ART!

- Art Stations: 20-25 minutes each
 1. One group start with sculpture (outside-weather permitting)
 2. Another can work on painting panels (outside-weather permitting)
 3. Another can work on bee drawings (black markers and paper-look from posters, specimen, inside)
- End: Gather in circle-show them what is in kits-they will be in cubbies for you to take home.

Earthworms

Day Two: Earthworms

By Abby Sweet

Sources: *Wings, Stings, and Wiggly Things* by martin Jenkins,
<http://kids.nationalgeographic.com/animals/earthworm.html>
<http://animals.howstuffworks.com/worms/earthworm-info.htm> ,

Enduring Idea: Conservation (of Earthworms)

Summary and Rationale: Students will be learning about the body parts, benefits, and 'jobs' of earthworms.

Key Concepts

Earthworms are insects with an important job of being a decomposer.
Creatures like earthworms can be beneficial to people.
People can learn to live with earthworms.

Essential Questions

What are decomposers?
What are the body parts of an earthworm?
How are earthworms beneficial to people?
How can people learn to live with earthworms?

Key Words/Vocab: decomposers, annuli, setae, organic matter, compost, castings

Learning Targets and Evaluation

Conceptual LT: I can understand why earthworms are helpful to people.

Assessment: worksheets, drawings, verbal

Technical LT: I can assist in the creation of artwork that represents earthworms.

Assessment: group and individual artwork

Art making Method Taught

We will make drawings that represent earthworms and apply actual compost to the drawings. We will use clay to make worms that will later be painted. We will also work on panels incorporating layers of paint, tissue paper, and other multimedia.

Pre-Class Preparation and Supplies

Book: *Wings, Stings, and Wiggly Things* by Martin Jenkins, candy/real worms, 1-3 compost stages in small containers, paper, modge podge, clay, newspaper, honeycomb, dead bees, notes, camera

The Plan:

Attention: Bowl of candy worms on table

Hook: Are these worms real? Let's touch/taste/smell/and look at them.

Objective: Students will understand how earthworms are important to people.

Predictions: What do you think you will learn today?

Read: *Wings, Stings, and Wiggly Things* by Martin Jenkins (worm section)

- Now let's look at real worms...have you ever found real worms in your gardens/yards before? (Dump a container of night crawlers on the table...the reaction is classic!)
- What do you think about worms?
- Let's compare worms: Lie candy worms and real worms side by side...let kids examine them.

Notes!

Worm Bodies:

1. Worms live in soil and places where there is rotting organic material, like dead leaves.
2. Worms do not live in deserts or places with permanent snow.
3. Most worms are 7-8 inches long, but can reach up to 14 inches. The largest earthworm is from South Africa-up to 23 feet long! Longer than three jump ropes.
4. How do worms feel? Slimy? Rubbery? Can you see the lines? They are called segments or **annuli** and on the annuli are bristles called **setae**. These things help worms crawl and move through the dirt.
5. Worms do not have eyes, but light-sensitive parts on their bodies to help guide them.
- 6.

Decomposers=Compost:

7. Worms are **decomposers**. Decomposers are organisms that break down **organic matter** in soil. When they go to the bathroom, their deposits (poop!) goes into the soil and this is sometimes called **castings**. We will try to find some outside (weather permitting.)
8. Let's look at the different stages of compost. (I used three stages..you could use as many or few as you like. Mine has real worms in it!)

Benefits of Worms:

9. Worms help people, do you know how? They help make the soil rich by providing and transporting nutrients for plants to grow. Farmers like worms to be in their gardens. The plants from these gardens make some of the food that we eat everyday!

People and Worms:

10. People can support worms in their gardens by keeping out chemicals, adding leaves, keeping the soil moist, and not digging very much!

Art:

Worm Drawings:

Each student gets one piece of small-medium brown butcher paper. Use dark crayons or oil pastels to make worm drawings. Remember to include the segments, or **annuli**.

Next, use modge podge mixed with actual compost/soil to paint around the worm, but not inside if they can help it.

Break: Go outside to find worm castings. Sing a bug/worm song.

Clay Worms:

Each student will get a section of clay to make worms. They should not be too thin/small as they can break so easily. Use popsicle sticks to make segments.

End of class: Gather in circle to review what we learned. Think back to last week when we learned about bees: eat some honeycomb!

Spiders

Day Three : Spiders

By Abby Sweet

Sources: *Wings, Stings, and Wiggly Things* by Martin Jenkins

Outside and Inside Spiders by Sandra Markle

Spiders by Nic Bishop

Common Spiders of North America by Richard A. Bradley

<http://benefitof.net/benefits-of-spiders> Benefits

<https://www.youtube.com/watch?v=0EkesTafD38>, "Spider Tunes its Web Like a Guitar"

<http://littlegiraffes.com/teaching-ideas/451/spider-theme-activities-lessons-and-teaching-ideas/> Project Ideas

<https://www.youtube.com/watch?v=rNBNGl9uLCI> Grandmother Spider Story Video

<https://www.youtube.com/watch?v=JN4sAxKhm4o> Make a web

Enduring Idea: Conservation (of Spiders)

Summary and Rationale: Students will be learning about the body parts, benefits, and 'jobs' of spiders.

Key Concepts

Spiders are arachnids with an important job of eating insects and animals.

Creatures like spiders can be beneficial to people.

People can learn to live with spiders.

Essential Questions

What are arachnids?

What are the body parts of a spider?

How are spiders beneficial to people?
How can people learn to live with spiders?

Key Words/Vocab: arachnids, spinnerets, abdomen, cephalothorax, pedipalps

Learning Targets and Evaluation

Conceptual LT: I can understand why spiders are helpful to people.

Assessment: worksheets, drawings, verbal

Technical LT: I can assist in the creation of artwork that represents spiders.

Assessment: group and individual artwork

Art making Method Taught

We will use make hand prints with glow in the dark paint to create part of a spider body, drawing in the rest. We will use clay to make small pinch pots. We will also work on panels incorporating layers of paint, tissue paper, and other multimedia.

Pre-Class Preparation and Supplies

Books, yarn ball, paper plates, sparkly yarn, black paper, glow-in-the-dark paint, white oil pastels, paint colors, spider body parts worksheet, sponge brushes, computer, pencils, crayons, dead bugs,

The Plan:

Attention: Dead insects/bugs on the table to observe

Hook: Spiders may use these insects for nutrition, they eat them!

Objective: Students will understand how spiders are important to people.

Predictions: What do you think you will learn today?

Next, show a real, dead spider.

- These insects and spiders are ones that I have collected from gardens.
- Spiders are important to the environment because they eat many insects; they eat more insects than birds do!
- Spiders help the environment, people, plants, and animals by eating so many insects.
- Some spiders might also eat lizards and small animals!
- Spiders are different from insects, and they are called arachnids.

Notes!

What are arachnids?

1. Arachnids are creatures that have 8 legs and they are usually predators.
2. There are many other kinds of arachnids. (show image on pg 26 from *Common Spiders of North America*.) Scorpions, ticks, daddy long legs

Body parts of spiders: Pass out work sheet with spider's labeled body parts.

1. Spiders have many body parts, but the main ones that we want to know about are the abdomen, cephalothorax, pedipalp, and spinnerets.
2. **Abdomen:** contains the heart which pumps pale blue blood! This is also where we find the spinnerets, which make silk
3. **Cephalothorax:** the front, or head. Contains spider's legs, eyes, fangs, brain, stomach

4. **Pedipalps:** two short arms that the spider uses to hold its prey
5. Spiders have 8 legs, Insects have 6

Art: 1st Step ,Hand Spiders

- Black piece of paper to each student (8"x8"), explain that we are going to use glow-in-the-dark paint to make part of our spider bodies: the **cephalothorax** and their 8 legs
- Paint GITD paint on palm and four fingers, not thumb.
- Stamp hand onto paper twice (repaint each time) fingers facing opposite directions
- Let dry, continue lesson

Benefits of Spiders:

1. Spiders are helpful to people, to you and I.
2. Spiders are excellent pest control, meaning that they eat insects that are bothersome like grasshoppers, aphids, mosquitoes, and others. They eat "good" bugs too, but it is important that we do not have too many of these insects on earth. Many spiders use a web to catch their prey. (Watch web cartoon)
3. Scientists are discovering how their venom can be used to treat arthritis.
4. In some parts of the world people like to EAT spiders. South America
5. Spiders can be a symbol of good luck especially to people that weave, spin, or sew.
6. Spiders can prevent disease by eating insects or bugs that spread disease, like mosquitoes with malaria.

People and Spiders:

6. People can support spiders in their gardens by keeping out chemicals and planting shrubs and tall flowers for the spiders to cast webs on.
7. Spiders are much smaller than people (most of them!) and they are actually pretty scared of us. Usually you can just brush off a spider if you find one on you.
8. If you find a spider in your house, you might be able to have a parent help you catch it and put it outside. But some people are very afraid of spiders.
9. Some spiders should be avoided, like hobo spiders, black widows, and brown recluse, which are all spiders that live in Montana. Find an adult if you see one of these spiders and stay away from it!
10. People can learn a lot from spiders because of their engineering skills in web building.
11. People throughout history have admired the spider and consider it a very important creature.

Break!

Let's go to circle to play a fun game called Spider Web! Bring ball of yarn.

- Make a class web to encourage cooperation. Begin with a ball of black yarn. Roll the yarn back and forth, having each student hold their portion of the web until it is complete. This song may be sung to the tune of "Row, Row, Row Your Boat" as you make the web.

Spin, spin, spin a web,
Round and round we go.
Up and down and all around,
Weaving to and fro!

Art: Grandmother Spider's Pot and Sun (Indian Education for All)

- Introduce that many Native American tribes have creation stories involving the spider
- Start by watching Cherokee Grandmother Spider Story.
- Hand out small balls of clay and demonstrate how to make a small pot and also a ball. (ball will be piece of sun)
- Once finished, help sign projects with initials.
- Set aside to dry.

Handprint Spiders Cont.

- Hand out spider hands
- Have them trace around the hands and then draw an abdomen.
- Draw pedipalps, eyes, and fangs,
- Draw spinnerets.
- If time, paint abdomen ONLY.

Clean up!

End of class: Gather in circle to review what we learned. Look at spider books. Remember the insects we learned about last week and talk about relationships.

See you tomorrow for Animal Wonders!

Day Four, Saturday: Animal Wonders

Supplies: Panels

Rules

Worksheet

Song

Panels

Day Five, Friday: Work Day

Supplies: anything we need to work on

Rules

Song

Panels

Day Six, Saturday: Celebration Day!

Supplies: ladybugs to release, game supplies, treats

Rules

Slideshow of the projects

Worksheet-best part! Drawing

Games

Treats

