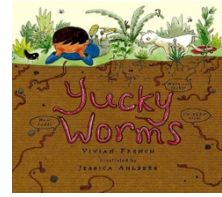




New Mexico Agriculture in the Classroom Yucky Worms



Volunteer Ag Literacy Project

"Essentially, all life depends upon the soil...There can be no life without soil and no soil without life; they have evolved together."--Charles E. Kellogg.

Book

Many people don't realize how important worms are to our environment. This book opens our eyes to the world of worms. It shows us where they live, what they eat and most importantly, what they leave behind. "Yucky Worms" shows us why farmers and gardeners think of worms as their friends and that they really aren't that yucky at all!

How the Project Works

Volunteer reads to students in K-5 classrooms and completes a simple hands-on-activity with the students (Suggested time approximately 45 minutes-1 hour)

Project Materials Include:

- A worm bin, newspapers, spray bottle with water
- A clear cup with soil in it
- Toy worm
- Printed "Pass The Worm" review questions
- Seeds such as beans or watermelon, etc.
- Soil Poster "Have You Eaten Any Soil Lately?"
- 6 small paper bags (lunch sacks)
- Printed food cards (attached)

Checklist

- Give teacher evaluation BEFORE you start presentation.
- Collect teacher evaluation *after* the presentation.
- Complete the attached feedback form once you have completed project.
- Send forms to agclass1@nmflb.org as soon as visit is complete.

Before the presentation, be sure students wash their hands.

Part 1: Introduction-Recruiting the Future (SUGGESTED TIME: 5 MINUTES)

1. Briefly introduce yourself and discuss your connection to agriculture.
Suggestion: If you live on a farm or ranch, you may want to bring props, crop samples or photos of the farm, equipment, or animals.
2. Ask if they know where their food comes from. Then explain that if it was not for farmers and ranchers we would not have food to eat or even jeans to wear!
3. Ask if they have ever heard of the word *agriculture*, then explain that it involves food/fiber (clothes), Fuel (ethanol), flowers (greenhouses and nurseries) and forestry (timber for homes).

Part 2: Engagement: Meet A Worm (SUGGESTED TIME: 10 MINUTES)

Materials needed: Worm bin, newspapers, spray bottle with water, clear cup of soil

1. Place worm bin where students can see it. Don't tell them what's inside!
2. Inform students that you will give them some clues about what is inside the container.

CLUES:

- *They **aerate** the ground. (Explain aerate-puts air into the soil)
- *They are **important** to soil health.
- *They are a source of food for animals like birds, rats, and toads.
- *They consume 2 tons of dry matter per acre per year.
- *They are capable of digging as deep as 6.5 feet.
- *They are commonly used as fishing bait.

Say, "Can you guess...WORMS!"

1. WHY LEARN ABOUT WORMS?

Get a worm out of the bin and place it in a clear cup of soil, hold it while you talk.

- Tell students the following: *“Worms are like underground farmers, they keep very busy improving our soil!”*
- Ask them, *“What is soil?”* Ask them, *“Is there is a difference between dirt and soil?”* *“Dirt is under our fingernails and on the bottom of our shoes.”* *“Soil is living, and we need it grow our plants.”*
- Say the following: *“Soil helps grow our food, clothes and homes.”* *“Without soil, we would not have anything to eat!”*

2. HOW DO WORMS IMPROVE THE SOIL?

- They break down organic matter, such as leaves and grass.
- They make tunnels that help break up and loosen the soil allowing water and air to get into the soil. This helps the plants roots to grow.
- Their castings (worm poop) are a type of fertilizer that help the plants grow.

3. THUMBS UP/DOWN (Preparing students for the book):

Ask students the following questions and have them give a thumbs up or thumbs down:

**You know where they live. *How they move? *What they eat? *How many hearts they have?*

4. Welcome Worms:

- Say, *“Meet your new friends”!* *“But you need to follow these rules to welcome them and make them feel comfortable”.* *“You can let the worm shake your hand if you like”.* *“Here are the rules”:*
 - *Make sure hands are clean.**
 - *Be quiet so you won’t scare them.**
 - *To hold a worm, hold your palm flat and do not squeeze your hand. (Demonstrate)**
 - *Don’t let them fall.**
 - *Do not touch the worm too much, they breathe through their skin.**
- Put students in groups and give each group a damp newspaper with some of the soil and worms. Give students about 3 minutes to observe, then put worms back in the bin.
- While students are observing worms tell them to think of one interesting thing they notice about the worms and one thing they want to know. Tell them to keep those questions in the back of their mind because they are going to listen to a story about worms and the story may answer their questions.

Part 3: Book Reading (SUGGESTED TIME: 10 minutes)

- Introduce the story. For example, *“I am going to read a story about worms and how they help farmers and gardeners with the soil.”* Say, *“Pay attention to the story because when we are done we are going to play a game called Pass the Worm to see if you can answer some fun facts about worms and soil!”*

Common Core Standards - English

K.RI.1	2.RI.1	4.RI.1
1.RI.1	3.RI.1	5.RI.1

- PRACTICE reading the book before your classroom visit (Make it exciting!).** Time yourself!

Read some of the interesting facts about worms that are not included in the story, located towards the bottom of the pages.

Part 4: Transition Activity-Pass the Worm Game (SUGGESTED TIME: 5 MINUTES)

You will need to have a toy worm or make a stuffed worm for this fun review game. It is similar to musical chairs. Questions for this activity are at the end of this lesson. Make sure you adapt the game to the grade level you are presenting to.

- To begin, have students sit in a circle, volunteer stands inside the circle (the worm bin).
- Tell them that when you say, *“GO”*, they start passing the worm around the circle. When you say *“STOP”*, they stop passing the worm. The child who has the worm will answer the question given.
- If they get the answer right, they get to stand in the worm bin with the volunteer.

- If they get it wrong, they stay where they are. Start the game again by saying, “GO”. After a few seconds, say “STOP” and repeat instructions from above. Have a student from the bin pick a question for the volunteer to ask.

Part 5: Activity: Soil Chain (SUGGESTED TIME: 10 MINUTES)

MATERIALS:

Poster- *Have You Eaten Any Soil Lately?* Cup of soil Seeds lunch sack Printed food cards

**Please note: Food cards include 1 set for lower elementary, 1 set for upper elementary*

Objective: Talk about how food (plants) get their start in the soil and that is why we need to keep soil healthy.

- Show students a seed and a cup of soil and explain that it is planted in the soil and will eventually grow and become food for you to eat. Put 1 seed into the cup of soil and then pass the rest of the seeds around.
- Show the poster “*Have You Eaten Any Soil Lately?*”. Talk about the parts of the hamburger. Explain that each ingredient of the hamburger once started out in the soil as a seed, except for the beef patty and cheese.
- Explain how the beef patty traces back to the soil, then a pickle. **Beef patty-cow-grass-soil.**
Pickle-cucumber-cucumber plant-soil. Pick 4 students to come to the front and stand in order to represent the soil chain of the pickle.

Soil Chain Activity: Students will use the food cards to make a soil chain and then explain how it traces back to the soil.

Lower Elementary Instructions-*Food cards include 6 different sets-one for each group.*

- Place students into groups of 4. Give each group a lunch sack that includes a set of food cards. Give the instructions below.
- “You will receive a lunch sack with a set of food cards. “You will take your food cards out and place them in order, linking the food back to the soil.” **Example: Milk-cow-grass-soil**
- “When your group is done, stand and hold the cards in the correct order to show how it traces back to the soil.”



Upper Elementary Instructions: Pizza Soil Chain

This activity is similar to the lower elementary except that students in the group will be tracing a different food item (pizza ingredient) back to the soil. As an example, refer back to the hamburger poster.

- Place students into 2 groups.
- Give each group a lunch sack with the food cards. The cards include 4 pizza ingredients and their soil links; pepperoni, cheese, sauce and the crust, for a total of 18 cards per lunch sack.
- Group members will work as a team to make a soil chain of the pizza and its ingredients. Encourage them to place the picture of the pizza in the center of the floor/table and put the 4 ingredients around the pizza. Then team members will sort out the rest of the cards and match them up with the correct ingredients.
- The first group that correctly makes their pizza soil chain, wins.
- Volunteer should check each group for accuracy.

Part 6: Wrap Up (If time allows)

- Ask if there are any questions.
- Review why worms are important to the soil and why soil is important to us.
- Leave the book and the soil poster with the teacher.
- Leave a copy of this lesson and encourage them to see the lesson extension links listed below.
- Encourage teachers to contact you for further lessons on worms and soil.
- Collect the teacher evaluation before you leave and send it and student numbers to: agclass1@nmflb.org

This lesson was adapted from National Ag In The Classroom lessons “Working Worms” and “Vermicomposting”, found below:

Lesson Extensions/Ideas:

→“**Working Worms**” <https://newmexico.agclassroom.org/matrix/lessonplan.cfm?lpid=366>

Make your own worm bin and have your students adopt a worm, certificate included.

→“**Vermicomposting**” <https://newmexico.agclassroom.org/matrix/lessonplan.cfm?lpid=510> Perform **science** investigations on earthworms from your worm bin.

→ “**It’s a Dirty Job**” <https://newmexico.agclassroom.org/matrix/lessonplan.cfm?lpid=345> Learn about the important role that worms play in decomposition and plant growth.

→ “**What’s in Soil?**” <https://newmexico.agclassroom.org/matrix/lessonplan.cfm?lpid=378> Identify the components of soil and demonstrate that soil contains air and water.

→ “**The Soil Chain**” <https://newmexico.agclassroom.org/matrix/lessonplan.cfm?lpid=144> Students recognize their relationship to soil and model the connections between common objects and the soil.

Helpful Hints Before Your Classroom Visit

- Practice! Prepare by reading book and practicing activity. You want to fit your presentation and activity within the time scheduled. Teachers have very busy schedules so please try to stick to your allotted time.
- Check in with the teacher. If possible, before your presentation, briefly visit with the teacher. Share a copy of the activity and ask if there are students that need special accommodations.
- Can everyone see and hear? Before you start reading, make sure all the students can see and hear the book, so they will be good listeners.
- Move the book around as you read. Either while you are reading, or after reading each page, move the book so each student can see the great images. This is especially important with younger grades.
- Pay close attention to the students’ mood. Move along fast enough to maintain student’s interest, but slow enough for all students to thoroughly enjoy the story.
- Most importantly, have fun! Enjoy this wonderful experience of reading aloud and teaching children about the importance of agriculture.

QUESTIONS:

Contact New Mexico Ag In The Classroom with any questions you may have on the Ag Literacy Project or to request a training session.

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Visit www.nmaitc.org for free lessons and resources.

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