

Winter Issue
2011-2012

The Mud Puddle

Muskingum Soil and Water Conservation District
225 Underwood Street, Suite 100
Zanesville, OH 43701
www.muskingumswcd.org

Winter
Issue
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CRITTER CORNER HICKORY HORNED DEVIL

The “Devil” Under Our Feet

While enjoying a fall walk in the woods, I literally came face to face with one of the creepiest looking things I have ever encountered in nature, a hickory horned devil. This caterpillar literally looks like a miniature dragon. They are very large, five to six inches in length and nearly $\frac{3}{4}$ of an inch in diameter, covered with up to five pair of long, orange, curving, hornlike structures tipped in black on the thorax. The rest of their blue-green body is covered with shorter black spikes. They look so alien to anything else you find in an Ohio woodlot and it's understandable how they got their name. But, despite their fierce appearance, they are actually harmless to handle and will freely crawl around on your hand.

These little devils hatch from an egg and are nocturnal feeders for the first week or so of their life, when they begin to feed during the day also. They live their life as a caterpillar for 37-42 days, dining on the leaves of hickory, walnut, butternut, ash, lilac, persimmon, sycamore, sumac and sweet gum trees. The larva mature in late summer and burrow into an earthen chamber to pupate. They do not actually form a cocoon, but simply burrow 5-6 inches into the soil where they overwinter. The pupa remains underground to emerge in mid-summer when weather conditions are right. This insect can actually overwinter for two seasons underground if adverse conditions occur that are not acceptable for their survival. Once the moths emerge, the female emits pheromones which males detect with their antennae. After the moths mate, the female spends the remainder of her life laying eggs, while the male mates with several other females. These moths have reduced mouth parts and therefore don't eat. Consequently, they only live their life as an adult for about a week.

The hickory horned devil is the larva of the regal moth. This beautiful moth has the largest body mass of any moth found in latitudes north of Mexico. It has a wingspan of 5-6 inches, its body covered with orange and yellow hair. The forewings are gray with bright orange veins and yellow spots. Hind wings are mostly orange with scattered, yellow patches. Unlike most moths and butterflies, the regal moth have a single generation throughout their range and can only be found during the mid to late summer. Although common in the deep south, the moths are more sporadically located as you move northward.

Sadly, like many other beneficial insects, the use of pesticides and introduction of invasive species, such as the gypsy moth, have led to serious declines in the population of these strange insects. They also do not live well in captivity. In all my time spent in the forest, this was the first time I had ever seen one. They are however, not something you easily forget. With a face (and everything else) only a mother could love, these interesting little “devils” could be literally right under your feet. Think about that the next time you take a leisure fall stroll in the forest.



EDUCATION PROGRAMS

HOW TO CONTACT THE MUSKINGUM SWCD
FOR EDUCATION PROGRAMS:

MONDAY THROUGH FRIDAY
8:00 A.M.-5:00 P.M.
454-2027 OR 454-2767

NICOLE HAFER, EDUCATION SPECIALIST
CAN CREATE A PROGRAM TO SPECIFICALLY MEET
YOUR CLASSROOM NEEDS.

EMAIL: NICOLE.HAFER@MUSKINGUMSWCD.ORG
OUR WEB SITE LISTS THE CLASSROOM PROGRAMS:
WWW.MUSKINGUMSWCD.ORG

FEEL FREE TO CALL FOR MORE INFORMATION
ABOUT PROGRAMS FOR YOUR CLASSROOM!
ALL PROGRAMS ARE FREE.

School Program Cancellation Policy

With winter quickly approaching and the possibility of snow days on the horizon, I feel it is necessary to let you know about policies concerning your classroom presentations. On days when your school closes due to weather, power outage, etc. and I am scheduled to present to your classes, I will make every attempt to reschedule for another date. It is very likely, however that as the winter progresses, the days I have set aside for "make up" program days will become filled. If that happens, I will not be able to reschedule your presentation. I apologize for this in advance, but as many of you know my schedule fills up very quickly.

Muskingum SWCD Bird Feeder and Nest Box Order Form

Name _____

Address _____

City _____ State _____

Zip _____ Phone _____

I would like to order the following:

#5 Bird Feeder	\$39.00	=	_____
Thistle Feeder	\$42.00	=	_____
Sunflower Feeder	\$25.00	=	_____
Bluebird Nest Box	\$24.00	=	_____
Slanted Blue Bird Box	\$35.00	=	_____
Wren Nest Box	\$20.00	=	_____
Hanging Wren Nest Box	\$20.00	=	_____
Wood Duck Box	\$72.00	=	_____
3 Chamber Bat Box	\$47.00	=	_____

Total Enclosed \$ _____

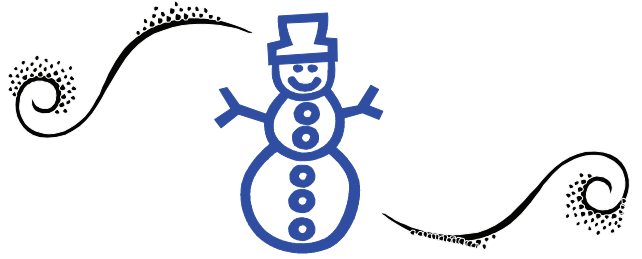
Make Check Payable To:
Muskingum SWCD
225 Underwood Street, Suite 100
Zanesville, OH 43701
Phone: (740) 454-2027



**"Like" us on Facebook
and receive all our
posts and updates!**

www.facebook.com/MuskingumSWCD

Activities



Mud Fossils Activity (Allow 30-45 minutes)

INSTRUCTIONS & SAFETY PRECAUTIONS:

1. This activity calls for the students to observe real fossils. If you have none, you might borrow some from a local geologist or a serious amateur fossil collector. Geologists can be found at most colleges or universities, through various State and Federal government agencies, or through a number of engineering and environmental consulting firms. Fossil collectors can often be found at local gem and mineral shows or through local rock shops.
2. This activity requires two class periods with 3-4 days in between to allow fossils to dry. Note: If you do not have any real fossils, go directly to item 2 of the Exploration Phase.
3. Prior to item 2 of the Exploration Phase, the teacher should mix soil and water in the dishpan to make a thick mud mixture. Try this before the lesson to be sure you get the correct consistency.
4. Emphasize that care is needed with the sharper objects and tools used to pick the fossils so that the students and those around do not get poked or hit by flying mud.

EXPLORATION PHASE:

1. You may wish to introduce this activity by having students observe real fossils.
2. Ask students questions such as:
 - * How does a paleontologist recover fossils?
 - * How do you think these fossils were formed?
 - * What could we learn by observing fossils?
 - * Where are fossils found?
3. Take students outside for this part if possible. Have each group of students number their margarine tubs. Then, have students place a layer of mud in the margarine tubs, more than half filling the tubs. Press the chosen material (leaves, bones, etc.) into the mud. Cover with 3-5 cm of mud. Let mud mixtures thoroughly dry in the sun (3-4 days).
4. Give each group of students a filled margarine tub. Have students carefully break mud apart to find materials and imprints. Emphasize that they are trying to get the fossils out in the best possible condition.
5. Display mud fossils.



CONCEPT DEVELOPMENT PHASE:

Ask the students the following questions:

- * What are fossils?
- * How do fossils get preserved?
- * What problems are there in recovering fossils and prints from hardened mud? What would it be like to remove fossils from a rock?
- * What are the best ways to remove fossils and prints without breaking them?



APPLICATION PHASE:

Discuss with students how geologists use fossils in the interpretation of earth history and in the location of petroleum and other economic resources.

<http://online.wr.usgs.gov/outreach/mudFossils/mudFossilsActivity.html>



ROCK CYCLE 1

Problem: To simulate the changes that occur during the rock cycle

The **ROCK CYCLE** is a diagram that shows the slow, continuous process of rocks changing from one type to another. The Rock Cycle is a series of changes. Igneous rock can change into sedimentary rock or into metamorphic rock. Sedimentary rock can change into metamorphic rock or into igneous rock. Metamorphic rock can change into igneous or sedimentary rock.

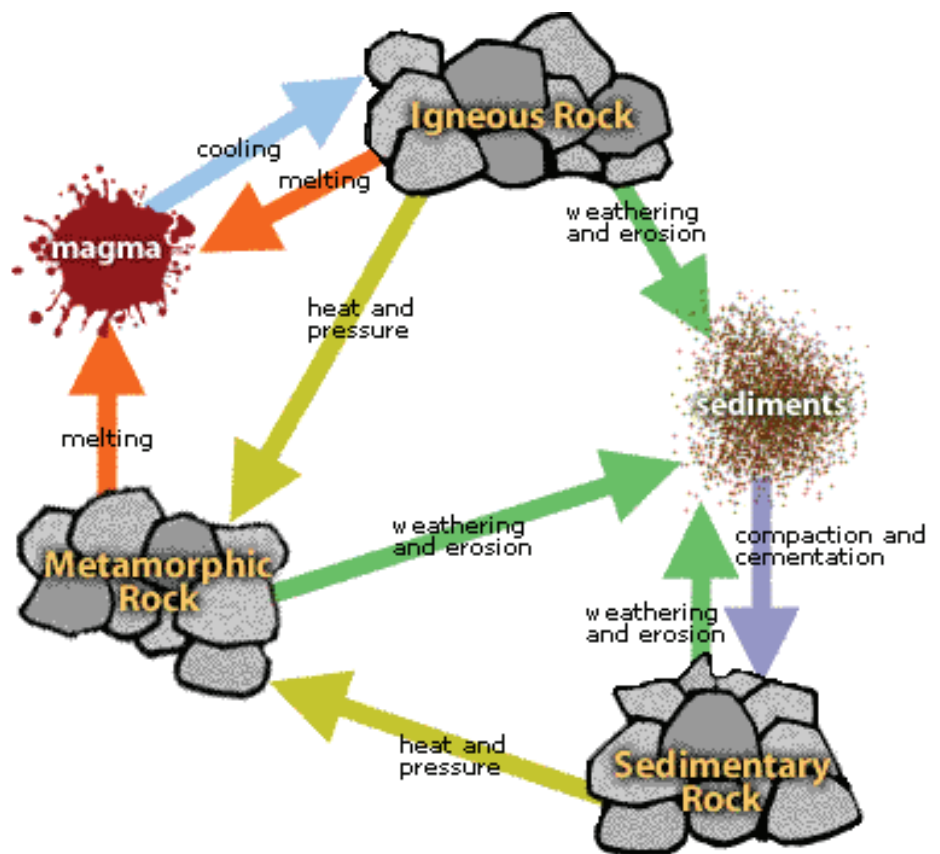
The rock cycle is an illustration that is used to explain how the three rock types are related to each other and how Earth processes change a rock from one type to another through geologic time. Plate tectonic movement is responsible for the recycling of rock materials and is the driving force of the rock cycle.

A trip through the rock cycle takes millions of years.

Materials: Sugar cube, Candle, Test tube clamp, Foil, Hand lens, Goggles

Procedure:

1. Examine the sugar cube with a hand lens. How is the sugar cube like sedimentary rock?
2. Crush the sugar cube into a powder. What part of the rock cycle does this represent?
3. Make a "boat" with your foil. Pour the crushed sugar into the foil boat. What part of the rock cycle does this movement represent?
4. Wear goggles around open flames. Use the test tube clamp to hold the boat over the candle flame. Observe as the sugar begins to melt. What part of the rock cycle does this represent?
5. Set the foil boat aside and let the sugar cool and harden. What part of the rock cycle does this represent?
6. Break the hardened sugar into pieces. What part of the rock cycle does this represent?



Conclusion:

Describe how the rock cycle works.

M. Poarch - 2003, <http://science-class.net>, <http://www.cotf.edu/ete/modules/mse/earthsysflr/rock.html>



Teachers! Get an early start!!!

It's not too early to think about ideas for the soil and water stewardship week poster contest!

This year's theme is "Soil to Spoon."
See information in this newsletter.

ROCKS 101

<p style="text-align: center;">Igneous</p> <p>Igneous rocks form when molten rock (magma) originating from deep within the Earth solidifies. The chemical composition of the magma and its cooling rate determine the final igneous rock type.</p>	<p>Intrusive (plutonic)</p> <p>Intrusive igneous rocks are formed from magma that cools and solidifies deep beneath the Earth's surface. The insulating effect of the surrounding rock allows the magma to solidify very slowly. Slow cooling means the individual mineral grains have a long time to grow, so they grow to a relatively large size. Intrusive rocks have a characteristically coarse grain size.</p>
	<p>Extrusive (volcanic)</p> <p>Extrusive igneous rocks are formed from magma that cools and solidifies at or near the Earth's surface. Exposure to the relatively cool temperature of the atmosphere or water makes the erupted magma solidify very quickly. Rapid cooling means the individual mineral grains have only a short time to grow, so their final size is very tiny, or fine-grained. Sometimes the magma is quenched so rapidly that individual minerals have no time to grow. This is how volcanic glass forms.</p>
<p style="text-align: center;">Sedimentary</p> <p>Sedimentary rocks are formed from pre-existing rocks or pieces of once-living organisms. They form from deposits that accumulate on the Earth's surface.</p>	<p>Clastic</p> <p>Clastic sedimentary rocks are made up of pieces (clasts) of pre-existing rocks. Pieces of rock are loosened by weathering, then transported to some basin or depression where sediment is trapped. If the sediment is buried deeply, it becomes compacted and cemented, forming sedimentary rock.</p> <p>Clastic sedimentary rocks may have particles ranging in size from microscopic clay to huge boulders. Their names are based on their grain size.</p>
	<p>Chemical</p> <p>Chemical sedimentary rocks are formed by chemical precipitation. This process begins when water traveling through rock dissolves some of the minerals, carrying them away from their source. Eventually these minerals are redeposited when the water evaporates away or when the water becomes over-saturated.</p>
	<p>Biologic</p> <p>Biologic sedimentary rocks form from once-living organisms. They may form from accumulated carbon-rich plant material or from deposits of animal shells.</p>
<p style="text-align: center;">Metamorphic</p> <p>Metamorphic rocks are rocks that have been substantially changed from their original igneous, sedimentary, or earlier metamorphic form. Metamorphic rocks form when rocks are subjected to high heat, high pressure, hot, mineral-rich fluids or, more commonly, some combination of these factors.</p>	<p>Foliated</p> <p>Foliation forms when pressure squeezes the flat or elongate minerals within a rock so they become aligned. These rocks develop a platy or sheet-like structure that reflects the direction that pressure was applied.</p>
	<p>Non-foliated</p> <p>Non-foliated metamorphic rocks do not have a platy or sheet-like structure. There are several ways that non-foliated rocks can be produced. Some rocks, such as limestone are made of minerals that are not flat or elongate. No matter how much pressure you apply, the grains will not align! Another type of metamorphism, contact metamorphism, occurs when hot igneous rock intrudes into some pre-existing rock. The pre-existing rock is essentially baked by the heat, changing the mineral structure of the rock without addition of pressure.</p>



Poster Contest Entry Form

Attach to back of poster

Please check appropriate category:

 K-1 2-3 4-6 7-9 10-12

Student

First Name _____ MI _____ Last _____
Address _____
City _____ State _____ Zip _____
Phone (____) _____ E-mail _____
School Name _____ Grade _____ Age _____

_____ The poster is an original completed by the student.
_____ The student received assistance from another person or materials/ideas from another source. Please explain on another piece of paper.

School

Teacher _____
School: Public _____ Private _____ Home _____
Address _____ Phone (____) _____
City _____ State _____ Zip _____
E-mail _____

Parent or guardian name (printed) _____

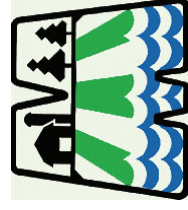
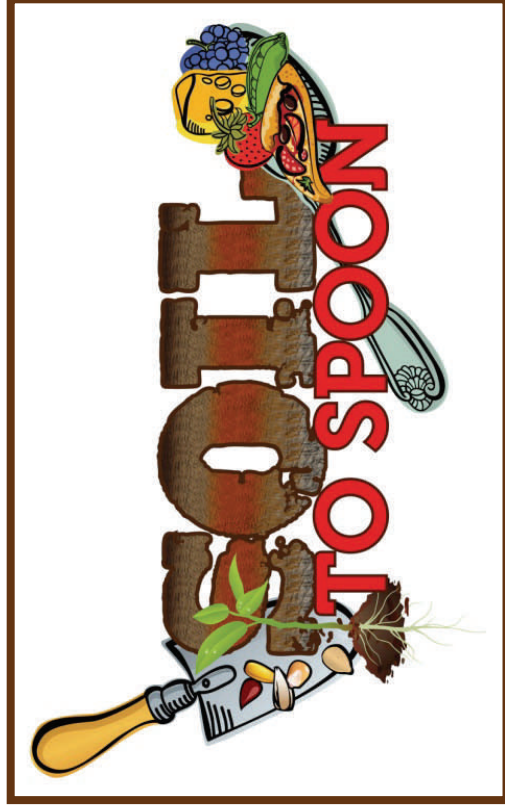
Signature of parent or guardian allowing NACD/District to utilize the poster for educational or promotional purposes: _____

Date _____

Muskingum Soil & Water Conservation District

Jeanette Weinberg, Information Administrative Assistant
225 Underwood Street, Suite 100
Zanesville, OH 43701
Phone (740) 454-2027 or (740) 454-2767
jeanette.weinberg@muskingumswcd.org

MUSKINGUM SOIL AND WATER CONSERVATION DISTRICT



Posters are due: Monday, April 2, 2012

Questions contact:

Muskingum Soil & Water Conservation District
Jeanette Weinberg, Information Administrative Assistant
225 Underwood Street, Suite 100
Zanesville, OH 43701
Phone (740) 454-2027 or (740) 454-2767
jeanette.weinberg@muskingumswcd.org

Additional information: <http://www.nacdnet.org/education/contests>

Rules

- Any media may be used to create a flat or two-dimensional effect (paint, crayon, colored pencil, charcoal, stickers, paper or other materials on regular posters (no computer only special category).
- Poster size must be between 8.5" x 11" and 22" x 28". (or as rules at your local or state level).
- Posters should be packaged so they remain flat when sent for judging.
- All posters must be created by an individual student rather than a team of students.
- The 2012 Stewardship title "Soil to Spoon!" must be on your poster. This is the only title eligible for the national poster contest.
- Each entry must have signed entry form to be eligible for judging.
- Although younger students will most likely receive help in planning from parents or teachers, NACD encourages each student to do as much of the work as possible by him/herself. Entries completed by students in their handwriting and coloring will score better than those designed, drawn and colored by adult assistance.
- Each entry to state contest must have been judged at each conservation district's or area contest prior to the state evaluation/contest.

Poster Evaluations

The posters are evaluated on the following criteria:

- Conservation message (50 percent) (Poster uses correct theme.)
- Visual effectiveness (30 percent)
- Originality (10 percent)
- Universal appeal (10 percent)
- Also taken into consideration - artwork completed on poster is that of participant (unless noted on entry form).

Prizes

Local winners will advance to State competition. State winners will be eligible for NACD National Poster Contest and prizes.

Who Can Participate?

The contest is open to public, private or home school students.

Why Participate?

Designing a poster and researching the theme can give you a voice in your community on important conservation issues. Good posters tell important stories to present and future generations. Posters capture people's attention with a powerful graphic and inspire with a message to your community.

What Makes a Good Poster?

<http://www.muskingumswcd.org/education/education.html>

Information Resources

- 4-H Virtual Farm - <http://www.sites.ext.vt.edu/virtualfarm/>
- Ag in the Classroom - <http://www.agclassroom.org/>
- Careers in Agriculture - <http://www.agday.org/education/careers.php>
- Do You have a clue where your food comes from? <http://urbanext.illinois.edu/food/>
- Farm to School programs - <http://www.farmtoschool.org/publications.php>
- Gardening on your school site <http://www.chicagobotanic.org/schoolgarden/index.php>
- <http://urbanext.illinois.edu/firstgarden/planning/school.cfm>
- <http://www.nationalgardenmonth.org/index.php?page=storyline-school>
- <http://www.growtolearn.org/>
- Junior Master Gardeners - <http://www.jmgkids.us/>
- Know Your Farmer Know Your Food - <http://www.usda.gov/knowyourfarmer>
- NACD - <http://www.nacdnet.org/education/resources/>
- National Ag Library - <http://www.nal.usda.gov/>
- National Agriculture Statics Services - http://www.nass.usda.gov/Data_and_Statistics/

Sponsors

The National Poster Contest program is sponsored by the National Association of Conservation Districts (NACD) and the NACD Auxiliary. NACD, founded in 1946, is a nonprofit organization representing nearly 3,000 local conservation districts in the 50 states and U.S. Territories. The NACD Auxiliary assists NACD with informational and educational outreach efforts.



NACD Stewardship has been celebrated every year since 1955. To learn more about NACD visit www.nacdnet.org.

OHIO GEOLOGY - FREE TEACHING RESOURCES

Looking for some great free resources on rocks and minerals? plate tectonics? the Ice Age? Look no further than the Ohio Department of Natural Resources Division of Geologic Survey. They have an excellent website packed full of information on all aspects of Ohio geology. The site, www.ohiogeology.com, includes publications, maps, data and media resources, activities and lesson plans. The "Hands on Earth Science" contains a series of handouts on such topics as: geologic time, rocks and minerals, scale models of Earth and the Moon, fossils, determining true north, plate tectonics and much more. When you click on the individual handout, a pop-up appears with the grade level indicators. Handouts include background information, simple geology lessons, experiments and links for more information. Also included are crossword puzzles and work searches.



The site also offers a series of "Geo Fact" sheets on general geology, land forms, earthquakes, rocks/minerals, fossils and information on individual minerals found in Ohio. You can also download educational leaflets on geologic features and issues specific to Ohio.

One of the best resources the site offers is the Ohio Rocks! curriculum. Ohio Rocks! is a multi-media project for students in grades 3-5. Found under "educational resources" this complete curriculum of eight lessons include content standards, lesson plan, lesson resources, and online videos. Each lesson plan contains a complete vocabulary list, Ohio standards connections, pre and post assessments, scoring guidelines, materials list, instructional procedures, technology connections and extension ideas. The activities are unique, simple for students to do in a group and encourage students to use methods of scientific inquiry. Not to mention the activities are really fun!

My new classroom geology programs include several activities from Ohio Rocks! as well many other grade level, hands-on activities. If your interested in scheduling any of the geology programs for your classroom, please give me a call.

The best overall site I have found so far is geology.com. The site boasts the best photos of minerals and common igneous, sedimentary and metamorphic rocks, with in depth descriptions of each. For those rocks we can never seem to find samples of, the photos are an excellent alternative. Geology.com also has complete lesson plans and many geology related topics, including one for High School students called "Murder on the Beach" which uses forensic science techniques to learn about the grain size and chemistry in different types of sand. There is a terrific printable geologic time scale chart and a ton of great energy resources, information and lesson plans.

For those students who always get their work finished before the rest of their classmates, www.kidsgeo.com has an awesome online rock cycle game and other fun online learning activities. The U.S. Geological Survey also offers great lesson plans and downloadable fact sheets, including activities on mapping, tectonic plates, earthquakes and volcanoes. Their site is www.usgs.gov. If you are looking for particular rock and/or mineral samples, let me know. I meet monthly with other education specialists throughout the state and can probably get it for you.

**The local library has an abundant amount of educational information!
They are a great resource!**

