

April, 2012 Food For Thought

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Calendar

April is National Garden Month

News Flash - NHAITC was just notified that we will receive a \$5000 grant to help develop a school garden at the Child & Family Development Center at the NH Technical Institute in Concord. This is a great way to celebrate National Garden Month!

April 15-21 National Environmental Education Week

April 22 - Earth Day

April 27 - Arbor Day

Soil Facts

Greetings,

Whenever I start a program with children, whether it is in a classroom, at a library or with a homeschool group, I always ask, "Who knows what the word agriculture means?" The responses I get range from amusing to enlightening. Most young children however, do not know the meaning, but when I tell them it's a fancy word for farming, they get the idea. While that explanation may be fine as an introduction, it doesn't begin to flesh out the official definition or the intricacies of this area of study. So what *does* agriculture mean? Webster's dictionary defines it as, "the science and practice of the cultivation of the soil."

Many farmers are working with livestock, maple trees, honey bees or other facets of agriculture that don't seem directly related to the soil. However, all farming, in fact nearly everything we rely on, ultimately comes from the soil. Taking care of our soil is critical to our long term sustainability. President Franklin D. Roosevelt once said, "A nation that destroys its soil, destroys itself." Yet how often is soil studied in school? Many people shy away from soil science thinking that it is boring or too complicated. In this issue of *Food for Thought*, we'll provide some ideas on how to make studying soil fun and worthwhile, even for younger children and nervous educators! Check out the resources as well, then dig in because mud season may have ended early this year (at least in the central and southern parts of the state) but soil season has just begun.

Happy Spring,

The NH State soil is called Marlow, named for a town in the southwestern part of the state.

There are three main types of soil particles: sand, silt and clay.

Soil is deposited in different layers or horizons. These vary depending on how they were formed, where they are located in terms of topography and climate and how the land is used.

The O horizon is the organic matter on top, made up of course decaying plant and animal materials.

The A horizon is near the surface and contains humus, the decayed organic matter. It is what we commonly call topsoil, where the plants grow.

The B horizon is the subsoil, containing more minerals. In New England, B horizons typically extend to a depth of 2-3 feet below the surface.

The C horizon is un-weathered geologic material including the bedrock or parent material.

A teaspoon of productive soil may contain between 100 million and 1 billion bacteria (according to NRCS). It also contains a vast amount of fungi, yeasts, other microorganisms and macro-invertebrates (worms, insects, etc.) as well.

Ruth

Ruth Smith, Statewide Coordinator
NH Agriculture in the Classroom

Soil Lessons - Beyond Mudpies

Soil Samples

One of the best ways to start teaching about soil is to look at different samples. Collect soil from a variety of places such as your own yard, the school grounds, along a stream bank, near a sand pit - use your imagination. Label each sample so you know where it came from. Also label information about how deep it was or which layer it came from (more on that later). Have students bring samples from their own yards. The soil may be moist when you collect it. Weigh it, and then spread it out to dry and weigh it again. This is a simple way to explore which types of soil hold more moisture.

Edible Soil

After drying the soil, have students examine it. Depending on their age they can describe it by color, texture or smell. They may notice if there are different components visible in it. Discuss the ingredients that make up soil. A fun way to do this with younger children is to pretend to make soil stew, adding various ingredients to a pot. I've done this with edible items to represent the components and then you can really eat your stew! Ground up cracker crumbs look like sand, shredded wheat is good for dried grass, raisins can represent animal droppings, pretzel sticks are perfect sticks, ground up chocolate cookies make for good humus and don't forget the gummy worms! A couple of examples of this activity can be found by typing "edible soil recipe" in your web browser or visit these sites:

<http://www2.ngdc.wvu.edu/~hferguson/education/education/4thgrade.pdf> or
<http://web.extension.illinois.edu/mms/downloads/8222.pdf>

Seeking Horizons

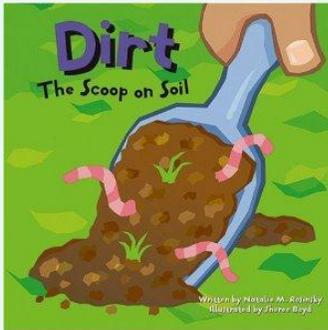
Here in NH you don't have to dig very

Soil Resources & Books

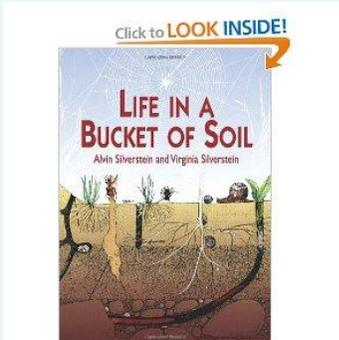
Dig In: Hands On Soil Investigations by National Science Teachers Association
Twelve activities and 2 stories help children learn about soil formation, animals in the soil, soil science and conservation. Activities are appropriate for grades 3-5. 2001. ISBN: 978-0-87355-189-2.

www.nsta.org/store

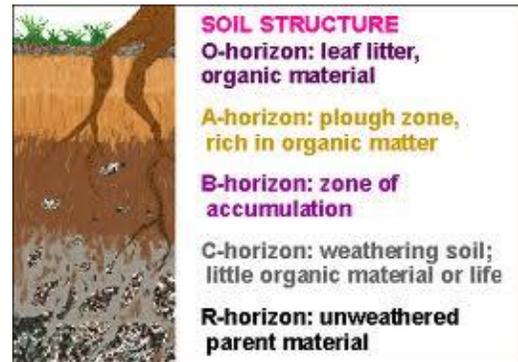
Dirt: The Scoop on Soil by Natalie M. Rosinsky
Help children dig deep and learn about sand, silt, clay and humus. Observations and hands-on projects are appropriate for grades K-3. 2002. ISBN: 978-1404803312.



Life in a Bucket of Soil by Alvin and Virginia Silverstein
Introduces children to many creatures that live in the soil, how they move, eat, survive and effect the soil in which they live. Appropriate for grades 5 and up. 2002. ISBN: 978-0486410579.



deeply to learn that soils form different layers. Our top soil is generally quite shallow and the bedrock (or parent



material) may be fairly close to the surface. Find a place where you can dig into the earth to show students the different layers. Look at the colors and textures. Examine horizon diagrams to learn about the characteristics and functions of the layers. See soil facts for the basic information. Exploring soil horizons can lend itself well to math and language arts activities too. Measure the depth of the different layers; determine the percentage that is represented in each layer. Develop stories, poems and descriptions about the different layers.

Particularly Interesting Particles

Soil is comprised of particles that are classified by size. Sand is the largest, then silt, then clay. Most soils have varying amounts of each of these and that is how soil scientists classify different soil types. Children can learn the basics of soil particles by making "soil shakes". Put some soil in a jar with water and shake it for 1-2 minutes. Then set it down and leave it undisturbed for 24 hours.

Predict how the different particles will settle. They separate by size and weight creating distinctive layers. Sand settles first, then silt, then clay (which often remains suspended in the water for a long time). Have the students observe and measure the layers. *Project Seasons*.

Project Seasons by Deborah Parrella This activity guide covers many aspects of farming and farm life but includes a wonderful section on soils including in-class projects and outdoor investigations. Activities appropriate for grades K-6. 1995. ISBN: 0-9642163-0-2

Jump into Science: Dirt by Steve Tomecek This book illustrates some of the animals that live in the soil and provides facts for children ages 4 and up about the importance of soil. 2007. ISBN: 978-1426300899.

Website Resources:

NY Ag in the Classroom - What's Living in My Soil? lesson plans aligned with NY state standards but relevant investigations, activities, vocabulary and ideas for NH too. For grades 4-5

<http://www.nyaged.org/aitc/resources/pdf/activities/soil.pdf>

Natural Resources Conservation Service - the go-to source for soil information. They are responsible for providing information to farmers and land owners about soil conservation. They also have ideas for teachers that include investigations, demonstrations, art projects and more.

http://soils.usda.gov/education/resources/k_6/index.html

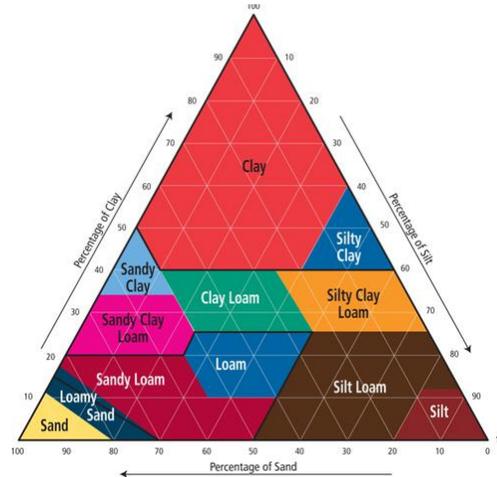
Local field offices can be found throughout NH where teachers can pick up soil posters, talk with soil scientists and sometimes borrow soil testing equipment.

<http://www.nh.nrcs.usda.gov/contact/directory/offices.html>

Songs for Teaching about Soil

Dirt Made My Lunch by Steve Van Zandt and the Banana Slug String Band

<http://www.songsforteaching.com/bananaslug>



For older students you can use those numbers to matc

h against the soil pyramid to determine the basic type of soil that you started with. Learn more about this type of activity from the Natural Resource Conservation Service (see resource list).

April Showers Bring . . . Field Trips

What better time of year to be taking a fieldtrip or at least planning one for May. There are many opportunities for showing off New Hampshire's agriculture around our great state and I think spring is the perfect time. That is, assuming it's not summer, fall or winter. Everywhere around us plants are greening up and new life is abounding.

Longhaul Farm in Holderness is an organic vegetable farm which can meet many of your school's educational needs. Owner Lorri Downs combines a teaching background with her farming experience. Check them out at www.Longhaulfarm.com.

Miles Smith Farm in Loudon has an outstanding beef farm with lots of history behind it. Check them out at www.milessmithfarm.com.

Connally Brothers Dairy Farm in Temple is home to cows, hogs, chickens and eggs (which one did come first?), ice cream that tastes very good on a warm day. They

stringband/dirtmademylunch.htm

See a long list of songs about soil, many to familiar tunes. Who knew you could do so much rockin' about rocks?!

<http://urbanext.illinois.edu/soil/songs/songs.htm>

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also demonstrate falconry for a change. This farm is very welcoming to fieldtrips. Check them out at www.connallyfamilyfarm.com.

All of these destinations have one thing in common and that is practical or applied education. Classrooms have their place but being able to see, feel and yes smell the agriculture around us is an unforgettable experience for most students. It is great to get out there and shake the hand that feeds you!

There are several educational centers that have an agricultural focus in and around NH as well. Check out the NH Farm Museum in Milton at www.farmmuseum.org; Stonewall Farm in Keene at www.stonewallfarm.org; Billings Farm and Museum in Woodstock, VT at www.billingsfarm.org and Prescott Farm Environmental Education Center in Laconia at www.prescottfarm.org.

If you have visited any farms or agriculturally related facilities that are educational and worthwhile, let us know so we can share these resources with others.