



# Muddy Hands

Soil and Water Information for Educators Brought to You by the Lake and Geauga County Soil and Water Conservation Districts

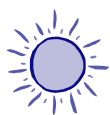


WINTER 2004

## Bringing the Land Lab Inside

You are arriving at school well before the sun comes up, and twilight is gathering before you head home again. The schoolyard is mud, ice, and dead grass. The land lab, if your school is lucky enough to have one, is a shapeless lump under the snow, with a few of last year's dead marigold stalks peeking through. Yes, it is definitely winter. This bleak scene does not mean the end of using plants as a teaching tool, though. It is time to move the land lab indoors.

In many ways, the indoor area is a more appropriate setting for scientific inquiry about plants. Insects and rodents can't terrorize young shoots, and errant basketballs will not crush a prized plant investigation. Plants can either be started for transplanting outdoors in the spring, or remain as houseplants at school or at home. The following are a few things you need to get started turning your classroom into a winter land lab.



**Light** -While a few plants do well with low light situations, many thrive with more light. Ordinary fluorescent lights will be adequate, but the intensity decreases with distance, so raise the plants on a shelf, or install lower lights. Another option is full-spectrum fluorescent bulbs. If you have a southern or western window, take full advantage of it. Indoor plants should receive 16 hours of light each day to make up for the lower level of light. Be sure to turn indoor plants often.

**Soil** -Bagged soils in the store are the easiest. They are premixed and sterilized, and some are even fertilized. If you use native soils, be sure to bake damp soil at 180\* F for about 1 hour and cool before

planting.



**Temperature** -Most plants do best between 60° and 80° F. Make sure your classroom does not get too cold overnight, especially with 'houseplants' that tend to come from tropical regions. Also, keep plants away from poorly insulated windows, especially at night.

**Water** -The most common mistake with indoor plants is too much water. That being said, there is no 'right' way to water.



The best way to determine if a plant needs water is by pushing your finger an inch into the soil. If it feels damp, don't water. Sometimes simply misting the leaves with a sprayer is enough. It is also important that the container have drainage. If a hole does not already exist, this can be accomplished with a drill. Tap water is adequate for most plants, but some do not do well will fluoridated or chlorinated water. Plants should not be allowed to stand in water.

**Fertilizer** -Generally, fertilizer is unnecessary in indoor plants and can lead to a buildup of salts in the soil which damages the roots. Slow release sticks or pellets are the best choice if fertilizer is necessary.



**Container** -Something to hold it all together. This is a great chance for students to express creativity with found objects or incorporate an art lesson. Remember to cut or drill holes, especially in waterproof containers.

If you gather these items; soil, containers, seeds, and some light, you can start an indoor garden in your classroom!

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*Special Insert: Ohio Science Standards and SWCD Programs*

**Be Creative!**  
**Reuse old objects as plant containers!!** You can put plants in any of the following containers. Just remember to make holes so the water can escape:

- hats
- shoes
- coffee mugs
- teapots
- cookie tins
- empty candle jars
- old fruit baskets
- muffin tins
- watering cans
- old purses
- yogurt cups
- egg cartons
- tin cans

Thank you to the Western Reserve Federation of Conservationists for funding this issue of Muddy Hands and supporting environmental education!



## Indoor Pest Management

Even inside, bugs can be a problem. The best solution is to prevent the problem. Examine your plants carefully before purchasing them. Be sure native soil is sterilized before using it. If you already have a problem, here are a few solutions to try.

1. Discard the plant. This can keep the problem from spreading to other plants. Isolating infected plants will also keep the problem insects contained.

2. Wash the leaves and stem. Look carefully at the underside of the leaves and don't be afraid to spray down the plant.

3. Diatomaceous earth, a fancy name for silicic acid. The white powder kills insects by drying them out. It is not picky and will kill beneficial insects too so keep it indoors.

4. Fight bad bugs with good bugs. Identify the problem insect and then figure out what eats it! To keep the insects on the plants use a fine mesh fabric or sheer curtains to tent the infested plants.

5. Do you have annoying gnats? They live on fungus growing in water logged soil. Try a sticky trap. Also, decrease your watering.



## Butterfly Garden - start it inside

Yes, the weather outside is frightful but it's the perfect time of year to dream about what you would like to be doing when the weather is nice again. If you are envisioning yourself walking around in a beautiful and educational butterfly garden, we have some suggestions on how to get started now so that by mid -summer your garden will be in full bloom.

There are a number of decorative perennials that will help attract butterflies to your garden because they are a source of nectar.

The following list should get you started:

- |                            |                      |
|----------------------------|----------------------|
| * Butterfly Weed           | * Wild Lupine        |
| * Milk Weed                | * Liatris            |
| * Goldenrod                | * Sneezeweed         |
| * Ironweed                 | * Boneset            |
| * Joe Pye Weed             | * Aster              |
| * Dogbane                  | * Purple Cone Flower |
| * Black-eyed Susan         | * Bergamot           |
| * Green-headed Cone-flower |                      |



Many local nurseries will sell the seeds for these plants so you can begin your butterfly garden inside this winter. It is important to keep

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## Indoor Gardening Ideas



- \* Adopt existing plants that need some TLC. Learn how to divide, propagate, and identify many common houseplants that may already be in your school.
- \* Plant a living habitat for a small pet. Give them a place to hide, climb, and snack. Recycle their waste in the process.
- \* Make an herb garden. Most herbs will thrive inside and students can choose their favorite flavors.
- \* Try some veggies. Make sure you pick plants where the stems, leaves, or roots are eaten since most plants will not flower indoors. See if you can start a salad on the windowsill.
- \* Create a sculpture garden where the pot is the focus and the plant is part of the design. Grass seeds are good for these projects.
- \* Focus on foods. Many things we eat either are seeds or have seeds. See which ones you can get to germinate. Can you start an apple tree? A grapefruit? An avocado?
- \* Stuck on you. Walk through an overgrown field and plant that seeds the stick to you.
- \* Topiary. Several plants will stand up to repeated pruning. Rosemary can be shaped into balls, cones, and many other shapes. For younger students, grass can be cut easily with safety scissors. Draw or paint faces on the pots and let the grass be hair.



## Activities for your Classroom...

### Planting Your Bog

(Build Your Own Bog Extension Activity - See Fall 2003 Muddy Hands for directions on how to build a bog)

Bogs have highly water saturated and acidic soil. These two conditions decrease the rate of organic decomposition. Because the nutrients in the soil are not quickly replenished by decaying organic material, the soil is nutrient poor. Water logged, acidic, and nutrient poor soil isn't the ideal habitat for most plant species. Bog plant species, however, are specially adapted to withstand these harsh conditions. Once you establish your bog habitat there are a few interesting bog plants that will be able to take root in your classroom. With regular pruning, these species will flourish in their new home.

**Labrador Tea** (*Ledum groenlandicum*) - Labrador Tea is a low lying shrub that can grow up to 4 feet tall. It has leathery leaves which can be crushed and boiled to make tea. The flower is white and blooms in late May.

**Round-leaved Sundew** (*Drosera rotundifolia*) - This carnivorous plant can grow to be 10 inches tall when flowering. The flower is white to pink and blooms in the summer. The leaves of the Sundew can curdle milk!!

**Blueberry** (*Vaccinium angustifolium*) - The height of blueberry can range from 2 to 24 inches. The berries are a favorite snack for animals as well as humans, but bears, rabbits, and deer will also eat the leaves. In 1980's, 20% of tourism in the Great Lake Region of the U.S. was related to blueberry picking!!

**Wild Cranberry** (*Vaccinium oxycoccus*) - The Wild Cranberry has pink to red flowers. It is very small and it's leathery leaves are evergreen. Unlike the Large Cranberry, the fruits from this species are rarely harvested.

**Pitcher Plant** (*Sarracenia purpurea*) - Pitcher plants are another carnivorous plant. While it's consumption of insects, spiders, and small amphibians makes the plant larger and produce more flowers, it does not need 'meat' for survival. The flower is rose pink to dark red in color and can grow up to 2 feet tall.

### How Plants Grow (Grades 4-8) A Project Learning Tree Activity

Plants are living systems that need sunlight, air, water, and soil to survive.

**Getting Ready** - Approximately three weeks before beginning the activity place about 50 bean, pea, or alfalfa seeds in a clear jar on a layer of damp paper towels near a window. Monitor the seeds daily and discuss with your students what seeds need to develop. The seedlings will be ready for experimentation when they have developed leaves and roots.

#### The Activity

1. Divide students into research teams. Have students discuss what factors they think are necessary for plants to grow. Then have them design experiments to test whether or not plants really need those elements to grow. Help the students predict what might happen throughout their experiment and then help them conduct it.

**Control** - Plant four seedlings in four separate containers of potting soil. Label these containers "control" and place them near a window or other light source. Water as needed.

**Test for Light** - Plant four seedlings in four separate containers of potting soil. Label these containers "no light" and place them in a dark cupboard or closet. Water as needed.

**Test for Water** - Plant four seedlings in four separate containers of potting soil. Do not water. Label the containers "no water" and place them near a window or light source.

**Test for Soil** - Put four seedlings in four separate containers on a wet paper towel and label them "no soil". Place them near a window or other light source and be sure to keep their towel moist.

2. At set intervals, let students measure the plants as they begin to grow. Have them graph the height of the plants at each interval.
3. After a period of time, have students compare the plants. Ask them whether the plants look different, and if they do, what caused the differences?
4. Try other variables, such as wind (with a fan), consistent watering versus a wet/dry cycle, or water logging.

## Muddy Hands

*Butterfly Continued from p.2*

in mind that if you actually want to attract local butterflies to your garden you must plant native plants. A butterfly from North America probably won't be interested in nectar from a Japanese plant because it doesn't know what it is. Also, when you choose your plants, be sure that they bloom at different times. If they all bloom in the spring you will not be attracting butterflies during the summer or fall. You'll want to start planting your seeds in February so that they are large enough to be transplanted outside in the spring. Good luck and happy planting!!

### Helpful Websites

<http://www.ces.uga.edu/pubcd/b959-w.html>

\* Information on indoor plant care & diseases.

[http://wlapwww.gov.bc.ca/epd/epda/ipmp/Brochures/indoor\\_pl\\_pests.htm](http://wlapwww.gov.bc.ca/epd/epda/ipmp/Brochures/indoor_pl_pests.htm)

\* Indoor pest management information.

<http://www.midwestplants.com/ByState/Ohio/ohio.html>

\* Reference guide to Ohio Nurseries.



### The Search is On



Muddy Hands would like to

spotlight local schools which are incorporating conservation with education and achieving results. You know you're out there! Now it is time to showcase all that hard work you are doing. Did you find a unique solution to a problem in the land lab? Have you developed a novel approach to meeting the Ohio science standards in your classroom? Please give us a short description (under 200 words) of your project (you may include **one picture**). Also include a way for other teachers to contact you if they want more details. Mail or e-mail your write-up to Beth at Lake SWCD for future issues or Annie at GSWCD.

### 2004 Conservation Poster Contest

This year's contest theme will be "The Living Soil." Students from K-12 are encouraged to represent their knowledge of how conservation improves the environment as it relates to the theme. The deadline for entry in competition is May 1, 2004. Please contact your district education specialist for more details and official entry forms.



### **New Education Specialist at Geauga SWCD!**

Help welcome Annie Rzepka to Geauga SWCD—she started as the new education specialist in November 2003. Annie was an Interpretive Naturalist at Lake Metroparks before she decided to join the soil and water world. Congratulations to Annie and welcome aboard!!

### **Your SWCD Contacts:**

**Geauga SWCD**— Ann Rzepka, Public Education Specialist  
440-834-1122  
14269 Claridon-Troy Rd., PO Box 410  
Burton, Ohio 44021  
website: <http://www.geaugaswcd.com>

**Lake SWCD**— Beth Landers, Education Coordinator  
440-350-2730  
125 East Erie St.  
Painesville, Ohio 44077  
website: <http://www.lakecountyohio.org/soil>



### **Teacher of the Year Contest**



The purpose of this contest is to recognize the outstanding conservation education efforts by Ohio teachers. Teachers in grades K-6 and 7-12 will be recognized in two separate categories. Details about the contest can be found on the Lake and Geauga SWCD websites, or by calling the district offices (see contact information) for contest guidelines and application information. There will be a prize offered at the county level, and the winners of each category will move on to state competition. Let's recognize our outstanding Lake and Geauga county teachers by nominating them today!

*All Lake and Geauga SWCD and USDA programs and services are available without regard to race, age, gender, national origin, political belief, color, religion, disability, sexual orientation, or marital or family status.*