



Enviro Ag

Environmental Agriculture Activities

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The IAITC Enviro Ag booklet is designed to provide activities focused on environment and agriculture friendly, science based activities incorporating household materials and a healthy dose of experiential learning.



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Traveling Lunch

Objective:

Students will discuss what the everyday foods they eat are made of and where each of these foods originate from around the world.

Materials:

- Index cards
- Push pins
- Paper
- Yarn
- US and World maps
- Measuring stick/ruler
- Other reference materials



This activity works best after eating lunch.

Directions:

1. Start by discussing what each student had for lunch. Individually, have the students write down what they ate.
2. Using the student lists, compile one main list of all the different types of lunches the students ate, starting with main dish. The teacher will gather the data and make three lists (main dish, drink, and dessert). Once all the data is gathered, write down each item on an index card and lay them on the ground to form the axis of your bar graph. Discard duplicate items.
3. Next have each of the students write their name on three index cards.
4. One at a time have the students make columns on the bar graph indicating what their main dish, drink, and dessert was using index cards. (ex. hot lunch, peanut butter and jelly, meat and cheese)
5. Continue to form columns with name cards for all three bar graphs: main dish, drink, and dessert. (ex. Drink—juice, milk, or other & Dessert—fruit, cookies, candy)
6. Study each finished graph and determine the winning main dish, drink, and dessert.
7. Next have the class start a discussion about the ingredients in each winning item. As a class, dissect each food and have a volunteer record each ingredient. (ex. Peanut butter and jelly, bread—wheat, peanut butter—peanuts, and jelly—grapes)
8. Using the new list of ingredients the students can begin research where each ingredient is commonly grown. Using reference materials and maps, label with a push pin where each ingredient came from. (ex. Peanuts; Georgia)
9. On the map also label the classroom location.
10. Using the scale on the map measure the mileage from each ingredient to the classroom, record this data, mark using a piece of yarn and attaching to each push pin.

Discussion

Which ingredient traveled the farthest distance?

Which ingredient traveled the least distance?

What is the total distance the entire winning meal traveled?

Using some of the other popular choices for lunch, the distance they traveled.

Starting From Scratch

Objective:

In this activity students will learn first hand where everyday items and food comes from.

Materials:

- Four large containers
- Labels
- Magazines
- Scissors
- Writing utensil
- Paper

Directions:

1. Together have the students think about their daily routines. Break the class into pairs and record items and food used in their daily activities.
2. After making a list of their daily activities, instruct the students to cut out pictures from magazines to show activities, items, or foods from their list.
3. As a class discuss the pictures the students have cut out. Compare the pictures to see how many were similar and different.
4. Next, divide the pictures into categories: food, clothing, health, shelter, transportation, education and recreation.
5. Discuss with the class how we can trace each of these items back to their original source. Collect all of the pictures, removing duplicates, and combine into two piles.
6. Show the class all four large containers, labeled “Store,” “Factory,” “Natural World,” “Farm.”
7. Next, split the class into two groups, forming two separate lines. Place the containers on the opposite side of the room from the lines of students. Place the pictures between the containers and the lines.
8. Next, explain the rules for the relay race.

Relay Race:

- one student from each line starts by picking up a picture and sorting it in the container they think it originated from.
- run back to the line and tag the next person in line.
- continue until all the pictures have been sorted
- The first team to sort all the pictures first wins!

9. After the relay race, review each picture in the bins and decide as a class if that is the correct container or could it be traced back further?

Here is what you should end with in each bin.

- Store—most items should be traced back further than the store. Yes, we purchase most items from the store but they originate from somewhere else.
- Factory—the factory makes a lot of the items we use everyday, but the materials come from different places.
- Natural World— this bin should have variety of pictures. (ex. Wooden objects, metals, plastics and synthetic materials.) What categories do these objects fit in? (ex. Clothing, health, shelter, transportation, education or recreation)
- Farm—this bin will also have a variety of pictures. Most of the pictures should be examples of food products. There could be a few examples of natural fibers, like wool, cotton, and silk.

Discussion

Discuss the importance of our natural world and farmland with the class.

- What is a renewable resource?
- After seeing what products originate from farms and the natural world could we live without them?
- How can we help to secure the safety of our farmland and natural resources?
- What farming practices do farmers use to ensure the safety of our water, soil and air?
- Other ideas...



The Giving Tree



Objective:

To demonstrate all of the parts of a tree and explore how each of these parts are used to make a wide variety of common products.

Background:

How do we use trees? Besides using a tree to swing from or as a good source of shade, we also use many everyday products made from different parts of a tree. Together, begin to brainstorm all of the parts of a tree, listing all eight parts. (Leaves, wood, bark, roots, flowers, fruits, seeds, sap) Then discuss some of the different products we use everyday from tree parts.

Materials:

- Umbrella
- Paper Leaves
- Small piece of wood
- Yarn
- Paper bag
- Markers
- Rope
- Hat
- Artificial Flowers
- Plastic Fruit
- Gloves
- Paper Seeds
- Syrup
- Tape

Tree Parts:

Leaves – an umbrella with paper leaves attached

Wood – a small piece of wood with a long string attached to wear as a necklace

Bark – a vest made from a paper grocery bag, decorated with squiggly lines to resemble patterned bark.

Roots – rope tied together at different lengths with knots in it tied at the student's feet.

Flowers – a headband decorated with small yellow, green, or white flowers made from pipe cleaners.

Fruits – fruit shapes cut out of construction paper and hung on loops of string to hang over the students outstretched arms

Seeds – gloves with paper cut outs of seeds attached to each finger

Sap – two jugs of water to shake

Directions:

1. Assemble the pretend parts of a tree as directed in the prop parts.
2. Ask the students to brainstorm a list of all the things that trees give us and write down a list.
3. Have the students list the eight different parts of the tree: leaves, wood, bark, roots, flowers, fruits, seeds, sap.
4. As each part is mentioned, have one student come to the front of the class to “wear” that part of the tree.
5. Once each part is represented in front of the class, start matching items from their lists’ to the different parts of the tree.

Discussion:

1. Ask students to compare the parts of a tree to the parts of a flower.
2. Ask students to discuss different types of trees and where they can be found around the world.
3. Have students draw pictures of trees in different parts of the world.
4. Have students conduct a trees product inventory in their homes by surveying each room for products make from trees.
5. Try some unusual edible tree treats such a mangos, pomegranates, dried figs, whole coconuts, kiwi fruit or papaya.



Eggciting Sidewalks

Objective:

Make your own sidewalk chalk using household items.

This chalk is not for chalkboards, sidewalks only!

Materials:

- 6 egg shells
- 1 tsp. very hot water
- 1 tsp. Flour
- Small dish
- 1 tbsp. measuring spoon
- Paper towels
- Food coloring

Directions:

1. Wash and dry 6 eggshells.
2. Using a clean rock, grind the eggshells on a hard surface until shells become a fine powder. (about 1tbsp.)
3. When most of the eggshells are ground enough, sift out the large pieces and throw away, save powder aside.
4. In a small dish, mix hot water and flour into a paste.
5. Add eggshell powder and mix well.
6. Add food coloring. (optional)
7. Shape mixture into a stick and roll into a paper towel.
8. Set chalk aside to dry (about three days)
9. Peel towel back from one end of chalk and begin drawing.



“Not so Ordinary” Ornaments

Objective:

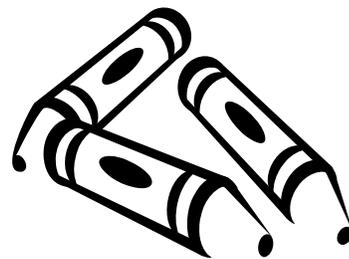
Using your old soy crayons, make ornaments to decorate around the house.

Materials:

- Old soy crayons
- Cookie cutters
- Waxed paper
- Microwavable dish
- Toothpick
- Yarn or string
- Paper towels
- Pot holders

Directions:

1. Separate soy crayons into similar colors.
2. Peel off all paper and break crayons into small pieces. (about 1 inch)
3. Heat soy crayon pieces in microwave safe dish for 3 to 5 minutes, stirring occasionally, until melted.
4. Place cookie cutter on wax paper
5. Using hot pad carefully pour hot wax into cookie cutter.
6. Wipe out wax from cup with paper towel before it hardens
7. Let wax cool in cookie cutter. Using a toothpick, make a hole at the top before it gets too hard.
8. After wax is hard, push ornament out of cutter.
9. Use yarn or string to hang ornament.



Home Made Paper

Objective:

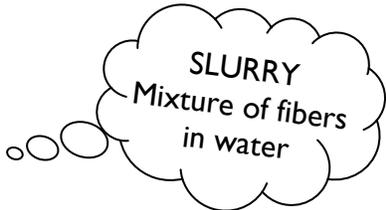
Make paper from start to finish. Observe what materials go into paper and how that changes the texture. Compare and contrast different kinds of paper, hypothesize what each is made of.

Materials:

- Bathroom tissue (20 sheets)
- Blender
- Mixing bowl
- Water (2 cups)
- Liquid Laundry starch (1/2 cup)
- Rolling pin
- Wire screening (2X2 in. square)
- Paper towels/newspaper
- Hair dryer (optional)

Directions:

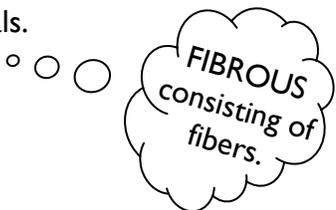
1. Tear tissue into small pieces.
2. Combine tissue and water in blender.
3. Blend until slurry appears.
4. Pour slurry into mixing bowl and add starch.
5. Slurry should be about an index finger deep, add water if needed.
6. Dip screen into slurry lifting out horizontally. (should have an even layer of slurry on screen)
7. Fiber side down, place screen on paper towels/newspaper.
8. Cover screen side with more paper towels/newspaper.
9. Using rolling pin, squeeze out all water.
10. Carefully, remove top paper towels/newspaper and screen.
11. Let paper dry or use a hair dryer.
12. Paper should remove easily from paper towel/newspaper.



SLURRY
Mixture of fibers
in water

Discussion:

- Try making paper using other **paper** materials. Use old newspaper, magazine, tissue paper, wrapping paper, etc.
- Try making paper using **other** materials. Try grass, dryer lint, celery, or other fibrous materials.



FIBROUS
consisting of
fibers.

Land and Water Terrariums

Objective:

Build a terrarium to experiment with the connection between land and water; how does one affect the other? Build several models and record data to compare results.

Materials:

- Two-Liter bottle (2)
- Bottle cap (1)
- Fabric wick (string)
- Water
- Soil
- Seeds
- Scissors

Directions:

1. Start by removing labels from soda bottles. (Use a hair dryer, set on low, to remove label easily) Label bottle #1 and #2
2. Cut base off of bottle #1
3. Using bottle #1, cut 6-7 in. below the top curve straight across,
4. On bottle #2, cut top off 2 in. below curve straight across
5. Have an adult punch a hole into the bottle cap. The hole must be big enough for the wick to slide through easily.
6. Attach bottle cap to top of bottle.
7. Punch a few holes into the middle of the bottle #1
8. Turn bottle top with cap upside down and place into bottle #1
9. Place both of these pieces in the bottle #2.
10. Next, saturate wick in water.
11. Slide wick into terrarium through bottle cap until it reaches the bottom.
12. Fill top with soil and seeds and the bottom with water. Make sure the wick remains in the middle of the soil not pushed to the bottom.
13. Use of variety of soil, water and seeds to compare experiments.



Water Works—Water Cycle Terrarium

Objective:

Explore different ways that water works through nature.

Materials:

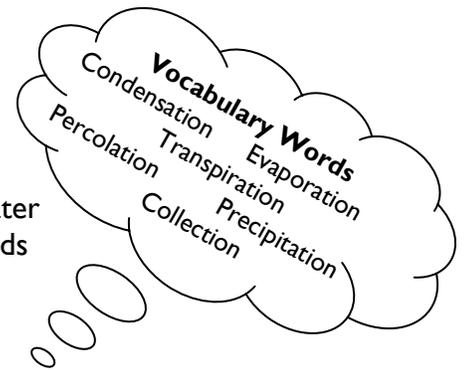
- 2 liter bottles (3)
- Bottle caps (2)
- Wick (string, 12 in.)
- Film canister (clear)
- Scissors
- Soil
- Water
- Seeds
- Ice

Directions:

1. Remove labels from bottle. Mark each bottle #1, 2, or 3.
2. Bottle #1, cut the top off enough to have a straight edge all the way across.
3. Bottles #2 and #3, cut just above the bases on both so that each has a straight edge on bottom.
4. Have an adult poke a hole in one bottle cap.
5. Screw cap on bottle #2.
6. Insert long wick so that a loop is hanging inside the bottle and about 3 in. from both ends of the wick hang from cap.
7. Screw cap without a hole on bottle #3.
8. Tie short wick around neck of bottle #3 leaving end to hang down about 2-3 in.
9. Build terrarium, place bottle #2 with wick ends hanging down in bottle #1.
10. Insert bottle #3 into the open end of bottle #2, short wick should be dangling.
11. Saturate both wicks.
12. Add 2 cups of water to Bottle #1
13. Fill Bottle #2 with a cup of moist soil. Soil should cover the loop of wick but not push it down to the bottom.
14. Plant 2-3 seeds (fast growing plants work best) in soil in Bottle #2.
15. Insert film canister on top of soil in the center of bottle #2. (trim the canister if you need to so that it fits)
16. Carefully, place bottle #3 on top of bottle #2 with the wick hanging inside of the film canister.
17. Fill bottle #3 with water and ice.

Watch what happens!

Note: when your not using bottle #3 remove it from bottle #2 in order to give the plants plenty of air circulation.



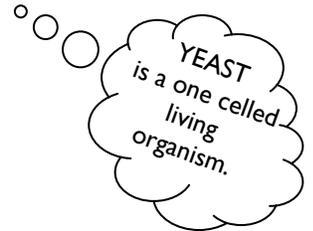
It's ALIVE! - Playing with Yeast

Objective:

Observe how yeast works. Record data comparing different control agents and how the yeast reacts.

Materials:

- 1/2 liter bottled water (3)
- Funnel
- Measuring spoons
- Sugar
- Marker
- Baby shampoo
- Antidandruff shampoo (containing *ketoconazole*)
- Bakers yeast (2)
- Balloons (3)
- String
- Ruler
- Watch



Directions:

1. Fill water bottles about 1/2 full, leaving the same amount in each.
2. Add 1tbsp. of sugar to each bottle
3. Screw caps on and shake until sugar is dissolved
4. Label one bottle CONTROL
5. In the next bottle add 2 tsp. of baby shampoo.
6. Label this bottle BABY SHAMPOO
7. In the third bottle add 2 tsp. of antidandruff shampoo
8. Label the third bottle ANTIDANDRUFF SHAMPOO
9. Add 1 tsp. of bakers yeast to each bottle.
10. Screw caps back on and carefully swirl bottles to mix contents.
11. Quickly remove caps and place balloons over the neck of each bottle.
12. Write down the time
13. Over the next several hours watch each bottle and record what happens at what time. *When do the balloons pop upright?*
14. Measure the circumference of the balloons with the string.
15. Record measurement and time after each.

Discussion:

- Which balloon started to expand first?
- If you smell the balloons or bottles, do you smell any alcohol?
- Which balloon expanded the most?
- Did the antidandruff shampoo influence how the yeast reacted?



1701 Towanda Ave.

Bloomington, IL 61701

Phone: 309-557-3334

Fax: 309-557-2098

www.agintheclassroom.org