



How Are We Connected?


Thread: HOW ARE WE CONNECTED?


How Are We Connected? cultivates an awareness and appreciation of what sustains us: our food, fiber, and relationships. This Thread provides an opportunity to deepen our connection with our local food system. Beginning with our air, soil, water, and space, we begin the exploration of food, fiber, family and friends. We weave, knead, bake, and create products that we use and eat, and discover the joy of living with gratitude and in relationship to the world around us.

WHAT'S THE Big Idea?







 **Community:** A group of living and nonliving things sharing a common purpose or space.

 **Interdependence:** All living things are connected. Every organism, system, and place depends on others.

 **Cycles:** Every organism and every system goes through different stages.

 **Change over time:** All organisms, places, and systems are constantly changing.

Enduring Understandings

-  All living things have needs.
-  Food comes from nature, from plants and animals.
-  We need food to live, fiber to keep us warm, and relationships with other living things to feel connected (to make us happy).
-  We rely on each other and other living things to meet our needs.
-  Knowing where our food and fiber come from is important to understanding the relationship between humans and the natural world.
-  There are some things that we need to live (food, shelter, air, water, community), and other things that we don't need to live, but they make our lives more enjoyable.

Connecting beyond the Classroom

Family Connections

Food naturally brings people together. There are many ways of sharing food to strengthen family-school relationships: host a potluck, have a “school lunch for dinner” event, bake breakfast items with the children and host a brunch for families, or offer family cooking nights (this can be a great opportunity to partner with local chefs or grocery stores). Another way to connect with families might be to host a gardening event, or fiber-craft night (knitting, crocheting, felting). Be sure to communicate

Dear Families,

We are so excited to be embarking on an exploration of **How Are We Connected?**

We wanted to share our plans with you so that you might discuss what we are learning with your child. For this study, the question “How Are We Connected?” will guide us as we explore our food, fiber, and relationships.

Our goal is to help your child develop an understanding of and appreciation for where our food and fibers come from. They’ll learn about the ideas of **community, interdependence, cycles**, and how all things **change over time**. In the process, they’ll come to understand:

- All living things have needs.
- Food comes from nature, from plants and animals.
- We need food to live, fiber to keep us warm, and relationships with other living things to feel connected (to make us happy).
- We rely on each other and other living things to meet our needs.
- Knowing where our food and fiber come from is important to understanding the relationship between humans and the natural world.
- There are some things that we need to live (food, shelter, air, water, community), and other things that we don’t need to live, but they make our lives more enjoyable.

Here are some suggestions to extend this focus at home:

- Prepare food with your children, whether you make favorite family recipes or create new dishes.
- Plant a small garden or window box with your child.
- Take you child with you when you shop for food or clothing and talk about where these items come from.
- Visit a local farm.

Thank you!

WHAT’S the “BIG IDEA?”

Community: A group of living and nonliving things sharing a common purpose or space.

Interdependence: All living things are connected. Every organism, system, and place depends on others.

Cycles: Every organism and every system goes through different stages.

Change over time: All organisms, places, and systems are constantly changing.

to families about the Thread, its Essential Question and Big Ideas, so that families can extend the conversations at home. Many families already prepare food together with their children and might enjoy the opportunity to deepen the experience through connecting to the child's experiences at school. Provide suggestions on conversation topics for the family dinner table.

Service-learning Opportunities

Food and fiber are basic human needs, though not all members of our communities have what they need. Children can contribute to improving the quality of life for all in the community through gleaning (a second harvest for donation, picked after the main crop has been gathered), or “growing a row” in the school garden specifically designated to donate. Another option is organizing a clothing drive, which may be donated to an outside organization or may be intended for school use, such as a winter clothing drive. All children can participate in advertising the drive and sorting or organizing donated items.

Community Connections

How Are We Connected?, with its core Big Idea of interdependence, is focused on understanding and developing the relationships between all members of a community and meeting our needs through these community connections. Take children into the community to see where people get their food, whether it's your local farmer's market, grocery store, or corner convenience store. Map these locations with children on your Learning Wall. If you are fortunate enough to have a local farmer's market operating during school hours, take a field trip and meet the farmers. If this isn't option, invite local farmers into the school to talk about their work. If you have any ethnic markets in your area, field trips to these stores can offer children an opportunity to discover diversity in local diets. Partnering with local organizations to host cooking classes at your school (you provide the space and the community partner provides the instruction) can be another great way to bring the community into the school.



The Sustainability Academy organized a winter clothing drive as a service-learning project.

Self-guided Opportunities

Loose Parts

Ubiquitous, classic playdough is an essential component to the loose parts collections for *How Are We Connected?* Consider making the playdough with children to extend the experience (see recipe, p.197). Wool, cornstalks, feed corn, and wheat stalks can all serve double duty as loose parts for children to incorporate into play, as well as empty food containers (boxes and plastic containers), spoons, bowls, and measuring cups. Natural materials such as stumps, rocks, sticks, and strips of leather



Playing with Food

Is it OK?

In a world where not everyone has enough to eat, “playing” with food always presents a dilemma. Is it appropriate to use food for play, when so many children face hunger every day? This is something our educators have struggled with, and haven’t resolved. We feel there is value having these food items available for children to explore, but we also acknowledge the privilege of having food in such abundance. This came alive for us one day when one of our educators was working with a group of children who had recently immigrated to the United States and previously lived in refugee camps. The children were sitting in kiddie pools full of feed corn intended for sensory play, and instead of playing, began eating. This was a powerful and moving experience for us, one that has called for a great deal of processing, grappling, and reflection. While we still provide kiddie pools of feed corn for children to explore, we struggle with the ethics of wasting food and implying that it is for play. We are more sensitive and aware of the messages it sends and some of our educators opt not to use food for this type of sensory play or traditional pre-school art projects, like bean mosaics or macaroni necklaces. In an attempt to address the issue, we have decided not to use food that is fit for human consumption in a way that will render it inedible. (In contrast, we let children grind feed corn, which is intended for livestock, then feed it to our chickens.) We continue to encourage children to engage with food through growing, harvesting, and then eating their bounty. We believe that struggling with this inequity is important and should not be brushed aside, but rather confronted and kept in the front of our minds.

unstructured play. Encourage the children to pretend to be farm animals by offering hobby horses, sheep, and cows. Whenever outside, encourage children to ask questions and follow their curiosity.

can all be used. (Once you’ve introduced grinding corn, see p.189, the tools can be offered for children to continue to work with on their own.) The block collection can be used to create stores and buildings; cardboard boxes can be transformed into shipping containers or farm stands. And if your classroom has a collection of plastic farm animals and a barn this is the perfect time to leave them out for play.

Dramatic Play

To explore “how are we connected?” the dramatic play area can be transformed into a multitude of settings: farmers’ market or farmstand, grocery store, clothing store. Consider providing dress-up clothing that will allow children to transform themselves into farmers, butchers, bakers, grocers, or chefs. Allowing children to explore real food through taste tests and providing snacks for the group can also be a way to infuse dramatic play with a touch of reality. Highlight seasonal produce to connect where you are to what you eat. The play kitchen can be stocked with plastic or wooden food replicas, recycled packaging from real food items, and playdough. Consider providing a collection of fabric scraps from a variety of fibers for children to play at designing clothing. Provide animal puppets and costumes to allow for another dimension of dramatic play.

Outdoor Play

Invite children to play in the garden whatever the season—exploring, digging, planting, tasting, harvesting. Create a “play garden” where children can plant rocks, pinecones, sticks, and other treasures, or make mud pies. Make child-sized gardening tools available for

Linda's Picks

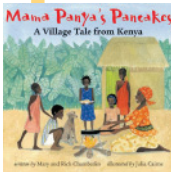
for HOW ARE WE CONNECTED?



Seed Magic by Jane Buchanan and Charlotte Riley-Webb. Peachtree Publishers, Atlanta, GA, 2012.



Flower Garden by Eve Bunting. Sandpiper, 2000.



Mama Panya's Pancakes, A Village Tale from Kenya by Mary & Rich Chamberlin. Barefoot Books, Cambridge, MA, 2005.



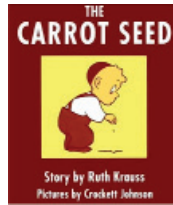
How Groundhog's Garden Grew by Lynne Cherry. Scholastic Inc., NY, NY, 2003.



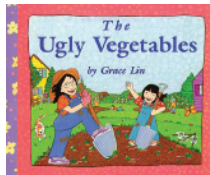
Jack's Garden by Henry Cole. Greenwillow Books, NY, NY, 1995.



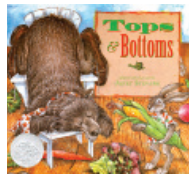
The Chicken Chasing Queen of Lamar County by Janice N. Harrington. Douglas & McIntyre Ltd, Toronto, CA, 2007.



The Carrot Seed by Ruth Krauss. Harper Collins, Mexico, 1945.



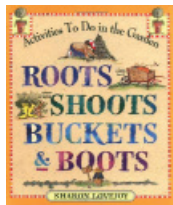
The Ugly Vegetables by Grace Lin. Charlesbridge, Watertown, MA, 2001.



Tops and Bottoms by Janet Stevens. Scholastic, Inc., NY, NY, 1996.



Our School Garden by Rick Swann. Readers to Eaters, Bellevue, WA, 2012.



Roots, Shoots, Buckets and Boots by Sharon Lovejoy. Workman Publishers, NY, NY, 1999.

for educators

Art

Many elements of food and fiber can be offered to children to incorporate into their artwork—seeds, wool, yarn, feathers, food packaging, twine, sticks, and empty seed packets and seed catalogs. Clay or playdough are great three-dimensional media for children's creativity. Introduce children to weaving using a simple loom, and offer both manufactured yarns and natural fibers such as grasses and vines for weaving.


 **Numeracy**

Baking is the perfect opportunity for children to practice measuring skills and become familiar with recipes. Sorting, weighing, and grading eggs can be done using egg scales if you have access to eggs, real or pretend. Children can survey their peers to find out who likes different kinds of foods, and then graph the results. The classroom collection of plastic and wooden food items (and even laminated photos of foods) can be used to carry out numerous food sorts: size, color, shape, classification, like/dislike. Explore the patterns in woven fabrics. Practice measurement by gluing seeds spaced out on toilet paper, then plant the paper right in the garden!

 **Explore Table**

Set up an area in the classroom where children can further investigate food and fiber. Using a wheat mill, children can hone gross motor skills while processing grain into flour. Offer a new or unusual vegetable in a self-service taste test. Fill your water table with feed corn, soil, or seeds. A bucket of warm, soapy water and dirty fleece can offer children another chance to wash the wool following “Felting Fun” (see p.185). Offer magnifying glasses so children can get a closer look—offer wheat stalks, scraps of wool or fabric, seeds, or any item that draws children’s interest.

How Are We Connected?

Facilitated Learning Experiences:

KEY: 🏠 Community • 🍎 Food & Farming • 🌿 Nature

WHAT'S THE
Big Idea?
Community
Interdependence
Cycles

EVERY SEASON

Water, Water Everywhere 🏠 🌿 177

Got Cheese? 🍎 178

Pizza: From Farm to You (Forget the Box!) 🍎 🌿 180

From a Cow? 🍎 183

Felting Fun 🍎 185

FALL

Apples to Sauce 🍎 187

Corn 🍎 189

Johnny Cakes 🍎 191

Sum of the Seeds 🍎 193

WINTER

Wonderful Wheat 🍎 194

Bread, Good Bread 🍎 196

Dress up a Chicken 🍎 198

Chicken Connections 🍎 200

SPRING

School Gardening with Young Children 🏠 🍎 202

Digging In 🏠 🍎 204

Paper Making 🍎 🌿 206

Shear Delights 🍎 208

Super Soil Explorations 🏠 🍎 🌿 210

SUMMER

Farmers' Market Learning Journey 🏠 🍎 212

Ice Cream Making 🍎 213

Herbal Delights 🍎 215



Water, Water Everywhere

WHAT'S THE Big Idea?

Interdependence

Enduring Understandings

- All living things are connected.
- Water that falls on our place is connected to water all over the world.

Objectives

- Children discover that water is a resource that is everywhere.
- Children experiment with water.
- Children play with water.

Directions

This is a great activity do any time of the year after a heavy rainfall.

1. Read *A Drop of Water* by Gordon Morrison. Make a list of the places where children find water in their lives, indoors and outdoors.
2. Focus on the water that is outdoors in your place. Where is the water found? A community may be located near a river or brook, a lake or pond. Discuss these water sources, show pictures of them, locate them on a map. If possible, visit these water sources.
3. After a heavy rain, have your students follow the running water. Where is going? Down a sewer drain? Collecting in a puddle? Running into the lake? Discuss what will happen to it in these locations.
4. Do “The Water Cycle Dance,” to remind children of the water cycle (see “Water Goes Up and Down” in *What’s Happening*, p.151).
5. Allow children to put acorn lids, sticks, or any natural floating objects into the flowing water to follow the water’s path. Where do these objects end up? Make dams to try to change the water’s course. Discuss findings. Draw pictures or take photos of what happens.
6. Revisit the sites the next day, in several days. What has changed? Stayed the same? Process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.

Discussion Questions

- Where does water come from?
- Where does water go?
- How do people use water?
- How does water help your community?
- How does it hurt your community?

HOW ARE WE CONNECTED?

EVERY SEASON



Materials

- *A Drop of Water* by Gordon Morrison
- map of your community showing sources of water
- pictures of water sources—lakes, ponds, rivers, brooks (specific to your area, or generic images)



Extensions

- *Water Dance* by Thomas Locker
- Encourage children to add landforms made out of every day “good junk” to your water table to represent hills, meadows, roads. Children can manipulate the landforms and observe what the water’s reaction. Add more water, what results? Take water away, what happens?

Got Cheese?

WHAT'S THE Big Idea?

Interdependence Cycles

Materials

- *Extra Cheese, Please* by Cris Peterson
- ingredients for cheese making (see Recipe Card)
- sauce pan
- wooden spoon
- colander
- cheesecloth or a fine mesh strainer
- two bowls

Enduring Understandings

- Milk changes from a liquid into a solid, cheese, when a certain process is followed.
- Cheese is made from milk.
- Milk comes from cows.
- Cheese can have many different tastes and forms.

Objectives

- Children demonstrate how to follow a recipe to make cheese.
- Children show interest and curiosity about how cheese is made.
- Children play being a cheese maker.
- Children understand that food comes from nature.



Children begin making cheese by stirring the milk mixture over heat until the milk starts to curdle.

Directions

1. Ask the children if they know what cheese is made from. Do they like cheese? What are their favorite kinds? See how far back they can trace the food chain: cheese -> milk -> cow -> water + grass + sunlight.
2. Read *Extra Cheese, Please* by Cris Peterson. Discuss the cheesemaking process with children. Ask if the children would like to make cheese. Make sure to wash hands and discuss good hygiene when cooking with children.
3. Show the children the ingredients and ask if they have any ideas about how to make cheese. Consider writing the recipe out for children to follow along. Explain the cheese-making process, then begin. Allow the children to help whenever possible. Ask children to use their “owl eyes” to observe the process. First, put the milk into the saucepan, then add the vinegar or lemon juice. Heat the milk mixture for 8–10 minutes on low heat, stirring occasionally until it starts to curdle.
4. Remove the pan from the heat, but continue stirring until all the milk has curdled. It has now separated into curds, which is the solid part, and whey, which is the liquid. Allow the children to taste it if they like and see what Little Miss Muffet was eating!
5. Have the children line the colander with two layers of cheesecloth and set it over a large bowl. Pour in the curds and whey.
6. Carefully gather the four corners of the cheesecloth together and twist it to form a bag around the curds. Continue twisting to squeeze out as much whey as possible.



Little Miss Muffet's Cheese Curds

INGREDIENTS

- 2 cups milk
- 3 tbsp. of lemon juice or vinegar
- a pinch of salt

INSTRUCTIONS

1. Put the milk into the saucepan, then add the vinegar or lemon juice. Heat the milk for 8–10 minutes on low heat, stirring occasionally until it starts to curdle.
 2. Remove the pan from the heat, and continue stirring until all the milk has curdled. It has now separated into curds, which is the solid part, and whey, which is the liquid.
 3. Line the colander with two layers of cheesecloth and set it over a large bowl. Pour the curds and whey into the colander.
 4. Carefully gather the four corners of the cheesecloth together and twist them to form a bag around the curds. Continue twisting to squeeze out as much whey as possible.
 5. Next place the curds into another bowl, add some salt to taste, and have the children stir. You can also add fruit or herbs.
-
7. Next, place the curds into another bowl, add some salt to taste, and have the children stir it up. You can also add fruit or herbs. Ask the children to predict how it will taste. Consider dividing up the cheese curds and making several different flavors, then doing a taste test to compare.
 8. Process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.

Discussion Questions

- What did we start with? (*milk*)
- Where did the milk come from? (*a cow*)
- What did we add to it? (*lemon juice and heat*)
- How did it change? Describe what happened to the milk. (*The milk solids, called the curds, separate from the whey.*)
- Does this cheese taste like other cheese you have eaten?
- What are some of your favorite foods that include cheese?

Extension

- “Cheese tasting:” Taste a variety of cheesed and compare them to the cheese you made. Graph favorites or write descriptions of textures and tastes.



Pizza: From Farm to You

(Forget the box!)

Materials

- *Pizza at Sally's* by Monica Wellington
- ingredients and equipment to make pizza (see recipe cards on facing page)
- pizza toppings, if desired

WHAT'S THE Big Idea?

Interdependence

Enduring Understandings

- All living things are connected.
- Food comes from nature: from plants and animals.
- Humans cultivate plants to provide us with food.
- Humans raise animals to provide us with food.

Objectives

- Children demonstrate an understanding that a pizza comes from a farm, not a box.
- Children discover how to make a pizza and all of its corresponding parts from scratch.

Directions

At Shelburne Farms we have a fall field trip called *Farm to You*, where students from kindergarten to fifth grade make pizzas from scratch! In four hours, four groups make different parts of the pizza: dough for

crust, tomato sauce, cheese, and toppings. You may want to spread the process out over several days so everyone can have a role in making each part of the pizza, or you can round up lots of parent volunteers and make the pizzas in one day and celebrate with a pizza party.

1. Discuss pizza! Ask, "Who likes it?" "What toppings do you prefer?" "Who wants to make one?"
2. Ask children to name the parts of a pizza: crust, sauce, cheese, and toppings. Ask, "Where do these parts originate?"
3. Read *Pizza at Sally's* by Monica Wellington to discover what process they followed.
4. Talk about what it would take if the class made its own cheese or ground its own flour. Once you have decided if you will make the pizza in a day, or over several days, you'll know how to divide up the workload. Prepare each pizza part, as described below.
5. **Dough:** Grind wheat berries into flour using a wheat mill or purchase flour from the store. Follow the recipe provided to make pizza dough. You can pre-cook the dough and then freeze it for later use, or make it as the last step before putting the pizza parts together.





Pizza Dough

Recipe makes two dinner-plate-sized pizza crusts.

INGREDIENTS

5–6 c. flour
2 tbsp. sugar
2 tsp. salt
1 ½ tbsp. yeast
¼ c. oil
2 c. warm water

INSTRUCTIONS

1. Mix yeast, warm water, and sugar in a bowl. Let sit for about five minutes to allow yeast to activate.
2. Add one cup of flour to the yeast water and mix. Stir in salt and olive oil. Mix in remaining flour until dough is consistent.
3. Knead dough on floured surface for about ten minutes. Form dough into a ball, then place it in a lightly oiled bowl to rise.
4. Once the dough has doubled in size, knock it down by punching it with a fist.
5. Cover with either a wet cloth or plastic wrap until ready to roll out. (If using plastic wrap, be sure to oil the surface of the dough to prevent sticking).

Pizza Sauce

INGREDIENTS

20 tomatoes
2 tbsp. olive oil
1 large onion, chopped
3 cloves garlic, minced
fresh herbs (sage, basil, oregano, thyme), chopped
salt, pepper, and honey to taste

INSTRUCTIONS

1. Bring a pot of water to a boil. With a knife, make a small “x” on the bottom of each tomato. Place tomatoes in boiling water for a few seconds, until you see that the skin is starting to come loose. Remove from water. When cool enough to handle, rub off skins and compost.
2. Core peeled tomatoes. Squish the flesh so that there aren’t too many large pieces in your sauce. (“hands optional” for the squishing part).
3. Heat olive oil in a large saucepan over medium heat. Add onions, garlic, and a dash of salt. Sauté five minutes, or until onions turn translucent.
4. Add tomatoes to the onions and garlic. Bring to a boil.
5. Add herbs, salt, pepper, and honey. Reduce heat to a rolling simmer (about medium-high heat).
6. Stir occasionally and cook until sauce is thick (no water sitting on top of tomato solids). It’s ready to put on your pizza!!

Queso Blanco Cheese

Spanish for “White Cheese”

INGREDIENTS

1 gal. whole milk
¼ c. white vinegar*
1 teaspoon salt

**Substitute the juice of 3–5 lemons for the vinegar, or add in addition to. The cheese will have more tang!*

INSTRUCTIONS

1. Heat milk to 185°F, stirring constantly. (Be careful not to burn it!)
2. Add white vinegar in 3 equal additions, and continue to stir. While stirring, watch for white curds and light green whey to form.
3. Let rest for 5 minutes.
4. Line a colander with cheesecloth, and while stirring slowly, pour the milky mixture into the cheesecloth.
5. Add salt and stir gently to mix.
6. Tie the corners of the cheesecloth together and hang it to drain (5–7 hours is ideal, but 10–30 minutes is sufficient).
7. Solidified cheese can be broken and salted or kept unsalted. (You can also add herbs for flavor!)



Extensions

- **Let's Make a Pizza**
(Welcome Books: *In the Kitchen*) by Mary Hill
- **The Little Red Hen (Makes a Pizza)** by Philemon Sturges
- **Pizza Counting** by Christina Dobson
- Try different sauces and toppings and make pizza throughout the year.
- Challenge another class to a pizza bake off.
- Plant a Pizza Garden (see "Digging In," p.204)

6. **Sauce:** There are several options. You can visit a farm to harvest tomatoes, pick them from your school garden, go to a farmers' market to buy directly from the farmer, or purchase the tomatoes at a local grocery store. If you do this activity in the summer, many families who have gardens may have an excess of ripe tomatoes and would welcome the chance to donate them for a delicious sauce. Follow the recipe provided.
7. **Cheese:** Most likely, you'll be hard pressed to find a cow to milk, so head to the grocery store for milk and other ingredients for the cheese. Follow the recipe provided.
8. **Toppings:** After much deliberation, decide on toppings for the pizza and discuss where to find these toppings. Gather, wash and chop the toppings.
9. Once all the parts are made, you're ready for the **final pizza assembly:**
 - a. Preheat your oven to 425°F.
 - b. Divide the dough into two balls and roll them out. Try your hand at twirling the dough into a air to make a round shape. You can also roll into a rectangular shape to fit onto a cookie sheet if you do not have round pizza pans. Keep the crust thick enough to avoid holes, but not so thick that it won't bake all the way through.
 - c. Place a layer of cornmeal on the pans to prevent sticking. Lay the dough on the pans. Add sauce, cheese, and toppings.
 - d. Bake your crust for about ten minutes. Time will vary depending on the thickness of your crust. While your pizza is cooking, process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.
 - e. Let the pizza cool, then cut into slices let the pizza party begin!

Discussion Questions

- Where does cheese come from?
- What other food comes from cows?
- Where does pizza dough come from?
- What other foods come from wheat?
- Where does pizza sauce come from?
- What else comes from tomatoes?

From a Cow?

HOW ARE WE CONNECTED?

EVERY SEASON



WHAT'S THE Big Idea?

Interdependence

Enduring Understandings

- Food comes from nature: from plants and animals.
- People depend on cows and cows depend on people.
- All living things are connected.

Objectives

- Children demonstrate an understanding of the food cycle.
- Children consider how humans use cows to meet our needs.
- Children play with animal products, identifying cow products.

Directions

1. Read *No Milk!* by Jennifer Ericsson. Discuss with children the different kinds of products that we get from a cow.
2. Tell the children you have a bag filled with four products that come from a cow. Invite a few children to reach into the bag and pull an item out. Ask the children to identify the item and how it comes from a cow.
3. Lay the cow products out. Hold each product up one at a time and ask, “What are some items that we can make from each of these?”
 - **Milk:** cheese, butter, yogurt, ice cream, etc.
 - **Meat:** sirloin steak, ribs, hamburger, etc.
 - **Leather:** shoes, belts, purses, coats, etc.
 - **Manure:** fertilizer, potting soil
4. Divide the children into two groups. Explain that they will compete in a relay race as they identify animal food products that come from a cow.
5. Take out the bin of food items. Have each team form a line. Ask the first child in each line to pick an item out of the bin. He or she should determine if it comes from a cow, seeking help from teammates if necessary. Children who can read can be encouraged to look at the ingredient labels.
6. Explain that once the child decides if it is from a cow, or not, the child should run and place the item in either the bin labeled “From A Cow,” or labeled “Not From A Cow.” The child drops the product into the appropriate bin, runs back to the line, taps the next child to go.

Materials

- **No Milk!** by Jennifer A. Ericsson

A bag of cow products (pictures of each item would work as well):

- **milk:** milk carton
 - **meat:** rubber steak dog toy
 - **leather:** piece of leather
 - **manure:** a bag of dark soil
-
- basket or bin of general food items, some that include cow products, others that don't
 - bin labeled: “From a Cow” (or with a picture of a cow)
 - bin labeled: “Not from a Cow” (or with a picture of a cow with an “X” through it)



A bag of cow products representing: milk, meat, leather, and manure



Extensions

- Make ice cream (p.213), butter (*What's Happening?* p.133), or cheese (p.178) as a way to make the connection that milk provides many food products for humans.
- Invite a dairy farmer to your class to explain what is involved with his or her profession.
- Make a class recipe book of favorite cow products.

7. Once everyone in a line has had an opportunity, the line sits down and waits for the other line to finish.
8. Once everyone has finished, the entire group should go through the bins to explain their choices.
9. Finally, process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.

Discussion Questions

How do humans depend on cows?

How do cows depend on humans?

What do humans do if they cannot tolerate cow's milk?

Can you think of any other ways people use cows or products from cows?

Felting Fun

HOW ARE WE CONNECTED?

EVERY SEASON



WHAT'S THE Big Idea?

Interdependence

Enduring Understandings

- All living things are connected.
- Food and fiber comes from nature: from plants and animals
- Human raise animals to provide us with food and fiber.
- Animal fiber can be used in many ways.

Objectives

- Children demonstrate the process of felting.
- Children show interest and curiosity in how wool fleece can be used.
- Children experiment with making different types of felted products.
- Children play with fleece.

At the farm, we have felted with children as young as four years old. For this age, it's important to do a dry run to set the stage for what they'll experience. They are going to turn a clump of fleece into a ball but it will take some magic! Have them relax and breathe deeply before starting, and get their hands ready for some magic work. Tell them that felting takes a soft touch. With an imaginary ball, have them practice gently, not tightly, rolling the ball around in their two hands. Warn them that when the ball is plunged into the warm, soapy water, it will fall apart unless their magic hands stay in the ball shape and gently work their magic on the fleece. With the stage set, you're ready to begin!

Directions

1. Set up several stations that each includes a towel and two water tubs or buckets: one with hot soapy water and one with cold water. The number of stations will depend on the number of children. Three to four children can fit comfortably around a tub.
2. Take a golf-ball-sized amount of clean, dry, carded wool and roll it between your two hands to shape it into a ball.
3. Take strips of clean, carded wool and wrap them one at a time around the loose ball. Keep the wool fibers flat and spread out (not twisted like strands of yarn), as you cover the entire ball. Add strips of wool until the ball is as big as you want. Keep in mind that when you place the ball in the warm water and felt it, it will shrink to about one third of the original size.
4. Now place the ball into the warm, soapy water, holding it in both hands. Take it out and hold the ball over the bin of water as you start



Materials

- *Felting for Kids: Fun Toys, Cool Accessories* by Gry Hojgaard Jacobson and Sif Hojgaard Hoverby
- *Kids' Crafternoon Felting: 25 Projects for a Crafty Afternoon* by Kathreen Ricketson
- sheep fleece (You can order clean felting batting at www.zwool.com)
- ivory soap
- wash tubs or buckets
- towels

Extensions

- Color the fleece using the natural dyes. See “Natural Dyes” in *Who Are We?*, p.62.
- Color the fleece by placing the undyed fleece in a plastic tub filled with warm water and two packages of Kool-Aid (your choice of color!) plus one tablespoon of vinegar. Leave the fleeces in the solution for several hours or until the water is clear of color. Gently squeeze out the water, hang to dry. When felting use the color fleece as the top strands of your ball. Combine colors to make a rainbow ball.

felting: gently squeeze, pat, roll, and smooth the ball. The fibers will begin to stick together. Rub and roll the ball in your hands until no fibers come undone when you rub the whole surface. Now it is completely felted.

5. Dip the newly felted ball into the cold water tub. Take out and continue rolling the ball between your two hands. Repeat several times. If the ball still feels loose, go back to the warm water tub and repeat the process several more times. If time runs out, encourage children to continue the felting process at home in the tub when they are bathing.
6. When the ball is hard, squeeze out any extra water with a towel. Let it dry and then play with it! Your cat will love it, too.
7. Process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.

Discussion Questions

- How did the wool fibers stick together?
- Can you think of some things that are made with felt?

Apples to Sauce

HOW ARE WE CONNECTED?

FALL



WHAT'S THE
Big Idea?
Cycles

Enduring Understandings

- Food comes from nature: from plants.
- Apples are a food that can be enjoyed in many ways.

Objectives

- Children show interest and curiosity in making new foods.
- Children discover that heating a food can change its texture.
- Children experiment with different apples and how they taste.

Directions

If possible, take a learning journey to an apple orchard to harvest some fresh apples for your sauce. If not, buy apples at the local supermarket.

1. Read *Apple Picking Time* by Michele Benoit Slawson. Discuss how these children helped their families pick apples. Ask children to describe ways the different ways they eat apples: plain, dried, caramelized, in a pie, or perhaps turned into applesauce.
2. Ask children what would be needed to turn apples into a sauce. How will sauce be different than the apple? How can we make this happen?
3. Have children cut apples into quarter-size pieces, using kid-safe cutting tools (you can purchase these at www.forsmallhands.com).
4. Place apples into the slow cooker with a cinnamon stick or two. Heat the apples for an hour at a high setting. Test for softness with a fork. If the fork can easily pierce the apples, place them into a food mill and have students mill the soft apples into sauce. If you are using a potato masher, peel the apples prior to cooking, and expect a slightly lumpier final product. While the apples are simmering, sing one of the apple songs included here!
5. Enjoy the applesauce warm or cold. Process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.



Materials

- **Apple Picking Time** by Michele Benoit Slawson
- apples
- child-sized cutting tools
- cutting boards
- slow cooker or cooking pot with access to a stove
- cinnamon sticks
- food mill, or potato masher

Extensions

- **Apple Pie Tree** by Zoe Hall
- **One Green Apple** by Eve Bunting
- Make applesauce again using a different type of apple. Discuss how it tasted compared to the first batch. Which batch did the students like? Graph the results.
- What other recipes can you make from apples? Create an apple recipe book.

Discussion Questions

- Where do apples come from?
- Would the apple sauce taste the same if we used a different type of apple?
- Why did the apples change their shape?
- What else beside cinnamon could we have added to the apples?



“Apples, Apples” Song

Sung to the tune of “Twinkle, Twinkle, Little Star”

Apples juicy, apples round,
On the tree or on the ground.
Apples yellow, apples red,
Applesauce and juice and bread!
Apples crunchy, apples sweet,
Apples are so good to eat.



“Apple” Song

Sung to the tune of “BINGO”

I know a fruit that grows on trees,
And apple is its name, oh!

A P P L E

A P P L E

A P P L E

and apple is its name, oh!

In summer and in early fall,
It's time to pick an apple! (repeat A-P-P-L-E)

It may be sweet or may be tart,
It's red or green or yellow! (repeat A-P-P-L-E)

A MacIntosh or Granny Smith,
A Winesap or Delicious! (repeat A-P-P-L-E)

Make applesauce or apple juice
Or apple pie with apples! (repeat A-P-P-L-E)

from VT-FEED Food, Farm & Nutrition Curriculum Units

Corn

HOW ARE WE CONNECTED?

FALL



WHAT'S THE Big Idea?

Cycles
Interdependence

Enduring Understandings

- We rely on each other and other living things to meet our needs.
 - Food comes from nature: from plants and animals.
- Sometimes people process foods so that they can eat the foods in different ways.

Objectives

- Children cultivate an understanding that food comes from nature.
- Children engage in processing food by demonstrating the use of simple machines to grind wheat.
- Children show interest and curiosity in processing raw food into finished food products.

Directions

1. Have corn stalks and ears of corn available for the children to examine. Fill the water table with loose field corn kernels for exploration. Place some field corn-on-the-cob in the table for children to remove the corn from the cob.
2. Ask the children if they like corn. If yes, how do they like to eat their corn?
3. Show the children the pictures (or the actual food) of corn-based foods available: corn bread, corn on the cob, can of corn, corn fritters, cream corn, popcorn, etc. Ask, "How does the corn from the stalk become these products?"
4. Explain that people often process food from its natural state into a different food product. Tell them that today they will get to turn corn kernels into corn meal. Demonstrate how to process the corn: Put a handful of corn kernels on the stump, cover with a piece of scrap leather, and carefully crush the corn with the rock. Let the children try it.
5. Demonstrate the correct use of the food mill, place a small handful of corn into the mill and turn the handle. Let the children try it. Collect cornmeal and save for a cooking project or to feed chickens.
6. Process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.



Materials

- log stumps (*one per station*)
- child-hand sized rocks (*one per station*)
- leather scraps (*a few per station, approximately 3" x 4"*)
- food mill (*See Lehman's at www.lehmans.com*)
- corn stalks & dried corn on the cob (*often available from holiday décor stores, nurseries, or hardware stores*)
- dried corn kernels (*available at natural food stores, you could use popcorn kernel, too*)
- field corn/feed corn (*available at hardware or feed stores*)
- pictures (or the actual items) of corn-based foods: corn bread, corn on the cob, can of corn, corn fritters, cream corn, popcorn, etc.
- water table

Extensions

- ***The Popcorn Book*** by Tomie dePaola
- ***Corn*** by Gail Gibbons
- ***I Like Corn*** by Robin Pickering
- Visit an actual corn field to examine the plants growing. If possible, play hide-and-seek among the stalks!
- Save some of the corn kernels to plant.
- Feed your schoolyard chickens the crushed corn. No chickens? Save and take on a farm visit and ask the farmer if you may feed the chickens some corn.



To make corn meal from raw corn kernels, place a handful of corn in the center of a stump, cover with a scrap piece of leather (so corn bits don't go flying!), and pound with a rock. Lift the leather every so often to check your progress and to brush larger corn bits back into the pile for more crushing.

Discussion Questions

- Where does corn come from?
- What do we do with corn?
- How do you get your corn?
- What are some the things that need to happen to have your favorite type of corn on your plate?
- What did we use to crush the corn? Where are these materials found?
- What could we use the corn we processed for?
- How else do you think people crush corn to make cornmeal?

Johnny Cakes

HOW ARE WE CONNECTED?

FALL



WHAT'S THE
Big Idea?
Cycles

Enduring Understandings

- Food comes from nature: from plants and animals.
- We can eat these plants in a variety of ways.
- Corn is a plant that can be eaten in many different ways.

Objective

- Children show interest and curiosity in making their own corn cake.
- Children discover that corn can be eaten in many different ways.
- Children experiment with crushing corn kernels into corn meal with a rock.

Directions

For over twenty years, thousands of children of all ages have been making Johnny Cakes at our annual Harvest Festival. They make corn meal by grinding a small amount of corn kernels with a rock on an old stump (*see photo on facing page*). They then add a “corn cake mix” to their corn meal, add water and honey, stir, and present it to our staff to be baked on a hot griddle stone over an open firepit. We have been perfecting the process and recipe over these many years and we share it with you here. Prior to this experience, if possible, explore a corn field and harvest any corn that remains so children can make the connection that corn meal comes from corn that grows on corn plants.

1. Discuss ways the children like to eat corn: corn on the cob, corn kernels, popcorn, creamed corn, or maybe even cornbread. Explain that some folks call cornbread “Johnny Cake.”
2. Ask the children how the corn kernels on the cob get transformed into cornbread. Show some cornmeal and explain that dried corn kernels are transformed into this meal that is used like flour in baking.
3. Ask the children if they would like to make cornmeal. Using either old tree stumps or a food mill, demonstrate how to grind corn kernels into a corn meal. Encourage children to crush those big chunks into smaller pieces. When the students have exhausted in crushing their corn, compare the cornmeal to the corn crushed by the students. In past times, coarsely crushed corn was eaten by people. Ask which might feel better on our teeth, and explain that the corn they’ve crushed can be saved and given to animals for feed.
4. Invite the children to make some Johnny Cakes. Add 2–3 tablespoons of corn cake mix (see recipe on next page), honey to taste, and enough water to make a thick batter. If you add too much water, add

Materials

- food mill
- stumps
- kid hand size rocks
- leather pieces 3 in. x 4 in.
- corn kernels (see tip)
- ingredients and equipment to make Johnny Cakes (see recipe card, next page)

TIP!

Buy corn kernels at the bulk section of grocery store or experiment with making your own dried corn kernels. Corn can be dried on the cob by placing the husked ears on a screen that is set on sawhorses so air can circulate all around the ears. Turn the corn daily for seven days. Test the kernels with your fingernail to make sure they are hard. If not, allow the cobs to dry a little more. Remove the kernels from the cob when dry. Store in an airtight container until ready to use.



more mix to thicken it up. Cook the Johnny Cakes with adult supervision on a griddle until brown on both sides.

5. Serve with a little honey, and as you enjoy your Johnny Cakes, reflect on the experience with the children by engaging in a conversation guided by the discussion questions.

Discussion Questions

- What did the corn cake taste like?
- How did the corn get from the plant to your belly?
- What would your life be like if you had to prepare all your food from “scratch”?

Johnny Cakes

Basic recipe for one cake

INGREDIENTS

2–3 spoons of Corn Cake Mix*
honey to taste
water (enough to
create a thick batter)

*Corn Cake Mix:

3 c. cornmeal (1 lb. cornmeal)
4 tsp. baking powder
1 tsp. salt

INSTRUCTIONS

Cook Johnny Cake on a hot, greased griddle. Enjoy!

Extensions

- Try making corn tortillas with your children. Buy Masa (also called Masa Harina), at the grocery store in the ethnic food aisle. Mix 1 cup Masa with a pinch of salt and $\frac{3}{4}$ cup of water. Mix, form into balls the size of golf balls, place in a tortilla press, flatten into a tortilla shape and cook on a griddle for 30–60 seconds on both sides. Enjoy.
- **Johnny Cake** by William Stobbs

Sum of the Seeds



WHAT'S THE Big Idea?

Cycles Interdependence

Enduring Understandings

- All living things are connected.
- Food comes from nature: from plants and animals
- Most plants originate from seeds.
- Fruits are the part of the plant that holds the seeds.

Objectives

- Children demonstrate an understanding of the role of seeds in the plant's life cycle.
- Children show interest and curiosity in how plants grow.
- Children discover not all fruits have the same number of seeds.
- Children experiment with estimating the number of seeds in a fruit.

Directions

1. Read *Pick, Pull, Snap! Where Once A Flower Bloomed* by Lola M. Schaefer.
2. Ask for some ideas of what fruits we eat. What is a fruit? (*the part of the plant that contains the seeds*) How many seeds are inside of a fruit? (*depends on the fruit*)
3. Hand out the tomatoes, plates, and knives to each child or team.
4. Estimate how many seeds are inside their tomato. Record these guesses on a chart with team names, leaving space to add the actual amount of seeds they find in their tomato.
5. Explain how to safely use the knife and then have students cut open their tomato and begin counting the seeds they find inside. The seeds can be put in groups of 2's, 5's or 10's if this is something you are working on in math.
6. Have everyone report their actual numbers and record them on the chart. Compare the estimates to the actual number seeds they found.
7. Process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.



counting the seeds inside a cherry tomato

Materials

- *Pick, Pull, Snap! Where Once A Flower Bloomed* by Lola M. Schaefer
- cherry tomatoes: one for each child or for a team of two
- plates
- butter knives

Extensions

- Try four or five different kinds of fruits and record the number of seeds found in each. Compare and see who has the most, least, same.
- Discuss the difference between a fruit and a vegetable, cut out pictures of fruits and vegetables and sort them into what part of the plant they are: fruit, root, stem, leaf, flower.
- What do seeds need to grow? See "The Fabulous 5," in *Who Are We?* p.75.

Discussion Questions

- Were there the same number of seeds in each tomato?
- Why are there so many seeds in each tomato?
- Would they all grow into a new tomato plant?
- What about other fruits and how many seeds they might have?



Wonderful Wheat

WHAT'S THE Big Idea? Cycles

Enduring Understandings

- We rely on each other and other living things to meet our needs.
- Food comes from nature: from plants and animals.
- People eat different parts of plants.
- Wheat is a plant that has many parts, flour is made from wheat berries.



wheat berries

Objectives

- Children cultivate an understanding of where their food originates.
- Children show interest and curiosity in processing raw food into finished food products.
- Children engage in processing food by demonstrating the use of simple machines to grind wheat.

Directions

1. Lay a sheet or drop cloth on the floor and place the wheat stalks on it. Examine the plants with the children. Challenge them to point out the stalk or stem, leaves, and the wheat head. Have them notice that the stem is hollow. This is called straw. Farmers will save the straw for bedding in their animals' stalls. Is this where the first drinking straw idea came from?
2. Invite the children to break the wheat head off and hold it in their hands. Have them roll the head between their hands to loosen the wheat berries from the chaff. Let all pieces fall to the sheet and have children pick up the loose wheat berries. All the other plant material that is left over is called the chaff.
3. Ask the children try to crush a berry between their fingers. Can they do it? It's a hard berry, not like a blueberry or strawberry. Invite the children to eat a few of the berries, crushing them between their molars. Ask, "What do they taste like?"
4. After exploring the wheat berries, demonstrate how to grind them in a grain mill using some of the wheat berries the children have harvested. Together with the children, look at the new product you have created: flour! Ask the children what flour is used for.
5. Using the bulk wheat berries to supplement your supply, let the children grind them into flour. Save the flour for use at a later time—for baking or to use to make play dough. You can let the children help decide what to make with their flour at a later time.

Did you know?

Early wheat farmers would chew a handful of wheat berries as the first chewing gum!

6. Process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.

Discussion Questions

- What is wheat?
- Where does wheat come from?
- How can we use wheat for food?
- What types of foods are made from wheat?
- How can we harvest the wheat berries to grind into flour?
- How can we use the flour we make?



Gluten-free options

You can grind rice or other grains in the mill to make gluten free flour.

Extensions

- ***Bread Comes to Life: A Garden of Wheat and a Loaf to Eat*** by George Levenson
- ***Sun Bread*** by Elisa Kleven
- ***Bread Is For Eating*** by David Gershator, Phillis Gershator, and Emma Shaw-Smith
- ***BREAD BREAD BREAD*** by Anna Morris
- ***Good Bread: A Book of Thanks*** by Brigitte Weninger
- Grow your own wheat! According to the Organic Consumer Association, a 10'x10' plot of fertile land can harvest enough wheat berries for 10–25 loaves of bread. OCA recommends planting red wheat in late September or early October as this wheat is more nutritious than spring wheat, protects the soil in the winter, and has less competition from weeds. (You can buy wheat berries at a health food store). The wheat may start to grow, be buried in by snow, and come up again in the spring. Harvest in late June when the wheat begins to turn golden but still has a few streaks of green. Tie into bundles and stand them upright, allowing the grain to fully ripen into a golden color. (from OCA, May 28, 2009)
- see “Wheat Life Cycle Cards” and “Wheat to Bread Cards” in Appendix, pp.251 & 253.



Bread, Good Bread

WHAT'S THE Big Idea?

Interdependence

Materials

- **Good Bread:** *A Book of Thanks* by Brigitte Weninger
- ingredients and equipment to make "Little Breads" (see recipe card)



Enduring Understandings

- We rely on each other and other living things to meet our needs.
- Food comes from nature: from plants and animals.
- Knowing where our food and fibers come from is important to understanding the relationship between humans and the natural world.

Objectives

- Children demonstrate awareness that food comes from plants.
- Children connect prior experiences preparing food.
- Children practice measuring.
- Children experiment with baking bread.

Directions

Consider completing "Wonderful Wheat," p.196, prior to this experience, allowing children to make the connection that the wheat berries they ground into flour is the same flour they use to make the dough.

1. Read *Good Bread: A Book of Thanks* by Brigitte Weninger with your students. Ask if anyone has ever made bread before. If yes, how did they do it?
2. Explain to the children that you will be making bread together today. Use the bread recipe below to make bread with your class. Remember to instruct children in good hygiene practices before beginning any cooking project.
3. Prepare the bread dough together. Let children take turns

Little Breads

preheat oven to 375°F

INGREDIENTS

- 1 $\frac{3}{4}$ c. warm water (wrist temperature)
- 1 tbsp. active dry yeast
- 2–3 tbsp. of sugar (or same amount of honey or maple syrup)
- 1 tsp. salt
- $\frac{1}{4}$ c. vegetable oil
- 4–5 c. flour (mix of wheat and white)

INSTRUCTIONS

1. Mix yeast, sweetener, and warm water in a large mixing bowl and let sit for about 5 minutes to allow yeast to activate.
2. Stir in a handful of flour. Stir in salt and oil.
3. Add remaining flour one cup at a time to ensure you don't make the dough too dry. Knead dough until it forms a ball.
4. Place the dough in a bowl, cover with a damp cloth, and let rise in a warm place.
5. Divide dough into dinner-roll-sized pieces, have children knead the dough into any shape, and place on a cookie sheet.
6. Bake at 375° for 10–15 minutes or until golden brown.

What is Yeast?

Yeast is a single-celled fungus. The type used in baking is called a sugar-eating fungus. Yeast cells digest sugars to grow, which is why we add sweetener to “start” the yeast. As the yeast consumes the sugar, it produces carbon dioxide and ethyl alcohol. The carbon dioxide causes the dough to rise and the ethyl alcohol adds flavor to the bread.

Source: Red Star Yeast Company: www.redstaryeast.com

measuring ingredients, and use this opportunity to discuss recipes, measuring, and the baking process. Knead the dough together. Allow each child to shape their own Little Bread. Children can fashion the dough into any shape, but be aware that skinny dough legs and arms tend to cook quicker than fatter dough bodies.

4. While the bread bakes, consider using the discussion questions to process the experience with the children or make butter to put on the warm bread.
5. Enjoy the bread together!

Discussion Questions

- Who remembers what ingredients are in our bread?
- Where do these ingredients come from?
- What other foods have you eaten recently? Do these foods come from plants or animals?
- What other foods can you think of that come from plants? From animals?
- What other kinds of foods do you like to prepare?

Playdough

INGREDIENTS

2 c. flour
1 c. salt
1 tsp. cream of tartar
2 tbsp. oil
2 c. water
food coloring (artificial, or natural, see “Natural Dyes,” p.62)

INSTRUCTIONS

1. Add food coloring to water until desired color (don’t be shy with it).
2. Mix dry ingredients in a bowl.
3. Mix colored water and dry ingredients in a saucepan on medium heat and stir together.
4. Stir until dough sticks together in a ball then remove from heat.
5. Let cool for a few minutes then knead a few times.
6. Keep in a sealed container to prevent drying out.



Extensions

- Make butter (see “Shake It, Shake It, Shake It” in *What’s Happening*, p.133) and enjoy it with the bread.
- Experiment with yeast. For example, observe if yeast reacts differently to white sugar, maple syrup and honey.
- Have children place “Wheat to Bread Cards” in the correct order (Appendix, p.251)
- **Bread is for Eating** by

David Gershator
• **Bread Comes to Life: A Garden of Wheat and a Loaf to Eat** by George Levenson
• **Make playdough!** (See recipe at left.)



Dress up a Chicken

WHAT'S THE Big Idea?

Cycles Interdependence

Materials

- **Chicks and Chickens** by Gail Gibbons
- pictures of chickens

Gather the following into a large bag:

- **feathers:** use feathers!
- **beak:** paper cone with string
- **comb:** hair comb glued on headband
- **wattles:** deflated balloons on a string
- **wings:** cardboard wings with string/ rubber band/tape for handle
- **feet:** 2 hand rakes (a claw-like hand tool for gardening). The handle is the chicken's fourth toe.

Enduring Understandings

- Food comes from nature: from plants and animals.
- All animals have certain characteristics such as how they look, what they eat and how they behave.
- Observing and learning about animal characteristics can help us better understand them, and how we all depend on one another.
- Chickens have unique body parts.

Objectives

- Children demonstrate an understanding of the food cycle.
- Children show interest and curiosity in the parts of a chicken.
- Children role play being chickens.

Directions

1. Read *Chicks and Chickens* by Gail Gibbons. Explain to the students that they are going to dress up one of their classmates as a chicken. Ask them to try to imagine what a chicken looks like and what special parts it has. Look at pictures of chickens. What makes a chicken unique?
2. Pick a volunteer from the class to be dressed up. Have him or her stand so everyone can see.
3. Ask students to suggest how to make the volunteer look more like a chicken. As they come up with ideas, pull the appropriate prop from your bag, and dress up the volunteer with the prop.
4. After you have dressed up the volunteer with all the chicken props you have, ask the students what they could add to make the student look even more like a chicken (longer



Parts of a Chicken

Feathers and Wings: Chickens have feathers for protection from weather conditions such as rain, cold, and sun. Feathers also protect the body from injuries. The color of feathers depends on the breed. There are three types of feathers: *flight* feathers, *down* feathers, and *contour* feathers.

Beak: Chickens have beaks to help them eat. A baby chick has an egg tooth on its beak to help it peck out of the egg. This “tooth” falls off when it is no longer needed, as soon as the chick cracks open its egg.

Wattles: Wattles help cool the chicken down. This happens when the blood circulates from the comb to the wattles.

Comb: The comb is a fleshy growth on the top of the chicken head. It helps the chicken to cool down. Both male and female chickens have combs, but the ones on the males are larger. Combs of different breeds may look different in shape and even in color. While most combs are red, some breeds have purple combs.

Feet: A chicken’s feet has 16 bones. If her feet are bright yellow and her comb bright red, the chicken may not be laying. If these parts are more faded in color, it may indicate the hen *is* laying: she’s using carotene (yellow coloring) in her body to color the egg yolks instead of her feet and comb!



tail for a rooster, different types of chickens, etc.)

5. Invite the children to role play being chickens.
6. Process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.

Discussion Questions

- What body parts do we have that are similar to chickens?
- How are we different?
- How do people depend on chickens?
- How do chickens depend on people?

Extensions

- **Dora’s Eggs** by Julie Sykes
- Students make multiple pairs of wings from cardboard and beaks from cardboard so they can all dress up as chickens.



Chicken Connections

WHAT'S THE Big Idea?

Cycles Interdependence

Materials

Gather the following into a large bag:

- feather duster
- recycled "chicken nuggets" box
- chicken egg (either a real one in a carton, or a fake one)
- jar of water
- jar of oyster shells
- jar of crushed corn/chicken grain
- hand rake (used for gardening)
- some fake insects (either pictures or plastic)

Enduring Understandings

- All living things have needs.
- Food comes from nature: from plants and animals.
- People depend on chickens, and chickens depend on people.

Objectives

Children demonstrate an understanding of the food cycle.

Children consider how humans use chickens to meet our needs.

Directions

1. Ask students why a farmer would want chickens on his or her farm? As they share their answers, pull the corresponding product out of the bag:

Feathers: Ask students if they have ever helped to clean with a feather duster. Have they ever used a down comforter? See if any of the students are wearing a down coat.

Meat: Ask students if they have ever eaten chicken before. What are their favorite chicken recipes?

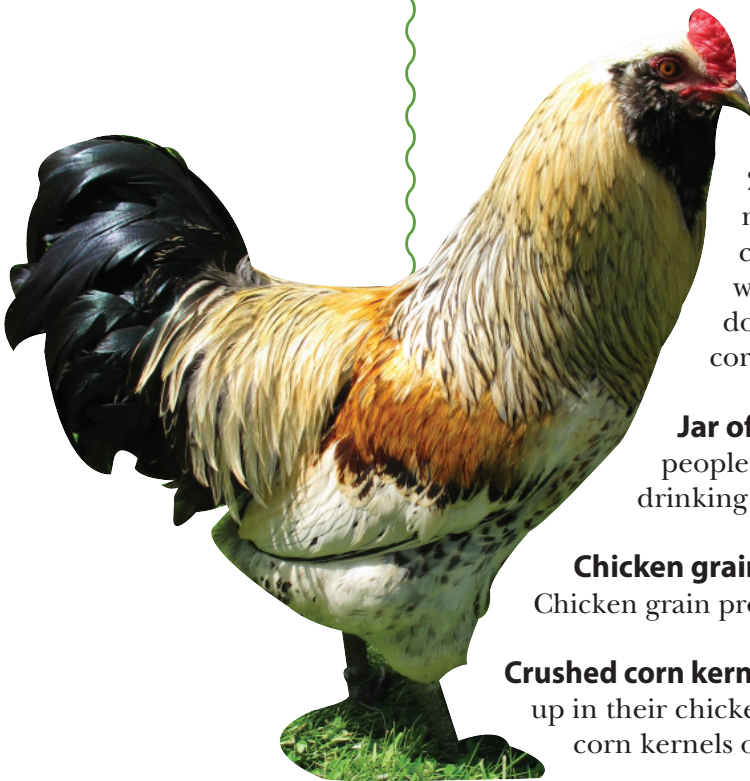
Eggs: Ask students if they've ever eaten eggs. Brainstorm what kinds of foods are prepared with eggs (cakes, cookies, quiche, some bread)

2. Ask students to brainstorm what a chicken needs to be healthy. If they have already seen chickens, what did they notice the chickens were eating? What do chickens spend their time doing? As students share their answers, pull the corresponding product out of the bag:

Jar of water: Chickens need to drink water just like people. Ask students if they have ever seen a chicken drinking water.

Chicken grain: Chickens need to eat food just like you and me. Chicken grain provides them with the nutrition they need every day.

Crushed corn kernels: Chickens love to eat corn! Usually it is crushed up in their chicken feed. (As an extension: have students grind corn kernels on a stump with a rock and feed it to chickens.)





Why do farmers raise chickens? For eggs, meat, and feathers (items at right). What do chickens need to be healthy? Water, grain, corn, and oyster shells, which have calcium for strong egg shells. Chickens also eat insects (some that can damage crops). They use their feet, represented by the hand rake, to scratch the ground for bugs. This also helps farmers aerate the soil.

Oyster shells: Chickens need vitamins and nutrients just like people. Oyster shells from the sea are fed to chickens to make their shells strong. Ask students if they have ever cracked an egg. Was it strong?

Insects: Farmers love chickens because they eat insects, many which are harmful for crops.

Hand rake: Ask students to describe a chicken's foot. Does it look similar to the rake? Chickens help the farmer to have healthy soil by "aerating" the soil with their feet as they scratch for food.

3. Process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.

Discussion Questions

- How do people depend on chickens?
- How do chickens depend on people?

School Gardening with Young Children




Danielle Pipher


Danielle Pipher, M.Ed., Education and Professional Development Coordinator, Vermont FEED/Shelburne Farms


Gardens are one of the best teaching tools for early childhood educators. They offer some of the most meaningful hands-on education experiences to curious students who can actively participate in their food system from seed to plate. Gardens provide a cornucopia of nutritional, health, developmental, and academic benefits for children of all ages. Garden-based education and learning have been demonstrated to positively improve nutrition, academic success, and empower students to make healthier choices for themselves and their community. Gardens are also an ideal place for unstructured play and discovery, and for nurturing imagination and creativity.


Garden-based education can help reinforce healthy habits and attitudes. Exposure to a “living” classroom and learning environment can be incredibly empowering for students. Through working the soil, planting the seeds, tending the crops, and harvesting the food, students develop a sense of ownership, investment, and responsibility that can translate into learning academic and life skills that are both meaningful and practical.


Here are a few key tips to keep in mind:

 **Be patient and think creatively.** There are many different paths to success. You might need to think outside of the garden box in order to make your site and plans fit your needs.


 **Build support.** The more people who buy into a school garden project, the more successful it will be. Whether it starts with teachers, parents, or community members, it cannot succeed without all the stakeholders taking part in and supporting the process. It is helpful to include food service personnel as many garden and or preserve foods. The staff can offer ideas of what produce could be easily added into the cafeteria menu.


 **Determine goals.** What will the garden be used for? How will it be connected with the curriculum, playscape, and school wellness initiatives?

 **Research and identify a safe, secure, and accessible plot** (*free from lead, heavy metals, etc.*). You’ll also want a site with adequate sunlight, water, and winter protection.


 **Student input into garden design is key!** Student involvement in planning what will grow in the garden deepens their understanding of cycles, ecology, and sense of place. The garden should include space for students and classes to work, learn, and play with clear paths, identification, seating, and

places of discovery. Remember that gardens can be a magical for a young child—think about ways to enhance that experience with arbors, trellises, and climbing vines.


 **Student involvement throughout the process is vital.** Students can start seeds in the classroom, learn about soil and compost, design garden beds, vote on themes, and brainstorm garden management plans. Most importantly, garden-based education lends itself well to spontaneous teaching moments that can be connected to most areas of academic study.


 **Plan for care of the garden.** Taking care of a garden is a great opportunity for children to learn responsibility and care for


other living things. Ask children what plants need to grow (see “The Fabulous Five,” p.75). Discuss garden maintenance with students, and make a plan together for caring for your garden. Share the work, giving children a chance to rotate through all of the garden chores.

 **Changing culture happens slowly** for schools, communities, students and faculty. Marketing and celebrating your hard work is critical to growing your program and increasing your exposure. Engaging students in taste tests of garden produce, asking for and integrating feedback, educating students about healthy choices, and using the garden as an experiential teaching tool is vital to the growth and long-term sustainability of your program.

Use Your Garden to Connect to Community:

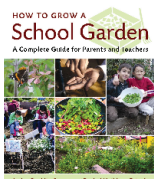
 Consider planting a “Grow A Row” to donate to the local food shelf. See www.americasgrowarow.org for more information and inspiration.

 Consider inviting a local gardener to act as a community consultant as you plan and grow your garden, or opening your garden to families or the community. Offer plots or rows.

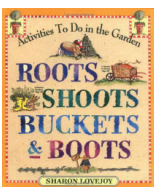
 Invite a chef to help teach students, community members and staff how to turn the garden bounty into a harvest feast!

Take Advantage of Great Resources!

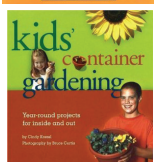
Check out these many fantastic resources that offer in-depth information on school gardens:



How to Grow A School Garden: A Complete Guide for Teachers and Parents by Arden Bucklin-Spore and Rachel Pringle. *Timber Press, 2010.*



Roots, Shoots, Buckets & Boots by Sharon Lovejoy. *Workman Publishing Co., NY, NY, 1999.*

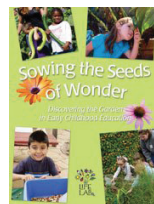


Kids' Container Gardening: Year-Round Projects for Inside and Out by Cindy Krezel. *Chicago Review Press, 2010.*

Digging Deeper: Integrating Youth Gardens Into Schools & Communities by Joseph Kiefer and Martin Kemple. *Common Roots Press, 1998.*



Sowing the Seeds of Wonder: Discovering the Garden in Early Childhood Education by Life Lab/ National Gardening Association, 2010.



Garden Adventures: Exploring Plants with Young Children by Sarah Pounders. National Gardening Association, 2010.



Websites for educators:
www.farmtoschool.org
www.farmtopreschool.org
www.kidsgardening.org



Digging In

WHAT'S THE Big Idea?

Interdependence Community Cycles

Materials

- a plot of tilled earth with soil that has been tested (soil testing kits are available online or check with your local gardening center) If you do not have the land available for gardening, use plastic containers and potting soil purchased at a local garden center or hardware store.
- kid-sized gardening tools
- seed catalogs
- seeds or transplants

Enduring Understandings

- We rely on each other and other living things to meet our needs.
- Food comes from nature: from plants and animals.
- Some of our food comes from gardens.
- Foods are harvested at different times of the growing season.

Objectives

- Children cultivate a garden.
- Children show interest and curiosity in how vegetables grow.
- Children discover the joy of growing food.
- Children experiment with planting different seeds and plants.

Directions

Gardening is a creative, expressive act, and there is not one right way to do it. If you are not a gardener, don't give up the idea. Ask for guidance from families who garden, the National Gardening Association Master Gardeners program, or other staff members at school. See p.202 for some key tips. Consider using a theme for your garden:

Pollinator Garden: Sometimes called a Butterfly Garden, this garden attracts pollinators, such as bees, bats, hummingbirds, and insects. Planting flowers that bloom throughout the growing season is ideal.

Native plants will attract native pollinators. Do some research to find out which plants are native to your area, and make selections based on the type of pollinators you want to attract. Check out www.pollinator.org as a good resource.

Pizza or Salsa Garden:

Brainstorm with children the vegetables and herbs they most like on their pizza or in their salsa, and then plant those varieties in your garden. See p.180 for more on making pizza truly from scratch—from crust, to cheese, to toppings!



Literacy Garden: Children’s literature provides many themes for your garden. There are many ways to approach a literacy garden. Using a favorite book, you can recreate fictional gardens (think *Stone Soup*, *The Secret Garden*, *The Carrot Seed*, *Sunflower House*, *The Very Hungry Caterpillar*, or *Peter Rabbit* to name a few.) Another approach is to create a StoryWalk®, where pages from a children’s book are transferred to a series of laminated pages on stakes located at stops along a walking route through the garden. (See www.vtbikeped.org/what-we-do/storywalk-project.html.) The StoryWalk® Project was created by Anne Ferguson of Montpelier, Vermont, and developed in collaboration with the Vermont Bicycle & Pedestrian Coalition and the Kellogg-Hubbard Library.

Herbal Tea Garden: Plant a variety of herbs to be used to make tea, such as mint, chamomile, lavender, or lemon balm. See “Herbal Delights,” p.215 for more on making tea.

Rainbow Garden: Select vegetables or flowers in each color of the rainbow, or select just one color. Conduct rainbow taste tests (see “Eating the Rainbow” in *Who Are We?* p.81).

Other ideas: Habitat Garden, Rain Garden, “Family” Garden (planting a variety of crops from the same plant family), “Three Sisters” Garden (a Native American companion planting of squash, beans, and corn).

Discussion Questions


- Where does food come from?
- Why do people grow gardens?
- At what time of year do we plant? Tend? Harvest?
- How is a garden a community?
- What do plants need to survive?


Summer Garden Care


Many early childhood programs run year-round, providing a great opportunity to participate in the complete growing cycle. However, some programs run only during the school year, and this leaves those school gardens in need of care over the summer. Many sites have tackled this challenge, and yielded many solutions:

 **Invite families to adopt the garden for a week.**

Ask them to weed, water, and bring home any bounty that is ripe during their week of care. It’s helpful to provide an instruction sheet on garden care, easy access to water, as well as a reminder prior to their scheduled week.

 **Connect with camps.** If your site hosts any summer time afterschool programs or camps, connect with the educators running these programs to find out if they would be interested in tending your garden while they are on site.

 **Plant crops that are harvested in the fall,** such as winter squashes, beans, and potatoes.

 **Let the garden go to seed!** A small school in northeastern Vermont solved their summer garden care problem by letting the school garden go to seed. Students planted in the spring and then the garden was left to the mercy of nature. Teachers and families occasionally watered or weeded but for the most part the garden was left to itself. When school started in late August, all grade levels helped to harvest seeds, dry them, and package them into student-made seed packets. The packets were then sold as a school fundraiser.



Paper Making

WHAT'S THE Big Idea?

Interdependence

Materials

- *From Tree to Paper* by Wendy Davis
- buckets
- wooded area with decaying trees
- rotten tree fibers (see directions for more details)
- blender that is no longer being used for food
- paper scraps
- 12" x 12" screen stapled on a wooden frame or duct taped around the edges, you can get creative and cut the screen into various shapes to make paper that is circular or diamond shaped, one per student
- plastic kitchen tubs
- newsprint
- sponges

Enduring Understandings

- Some plants provide other things besides food.
- Trees can be used to make paper.

Objectives

- Children show interest and curiosity in where paper comes from.
- Children discover that wood pulp can be turned into paper.
- Children experiment with ways to make paper.

Directions

On a hike in the woods with children (or if that is not possible go out on your own) find a dead, rotting tree. Try to crumble the inner tree with your hands. If you end up with a handful of a crumbly mass of fibers, you have the main ingredient to make paper!

1. Discuss with children where they think paper comes from. Many insist it comes from trees. Read *From Tree to Paper* and discuss the process explained in the book.
2. Invite your students to a papermaking challenge! If possible, hike into the woods where there are downed and decaying trees. Encourage students to try to scrape off handfuls of the rotting wood and collect it in buckets.
3. On returning to your classroom, soak the decomposing wood in water, just enough to cover the wood. Students should occasionally stir it with a wooden spoon or squeeze it with their hands to break down the fibers. Soak overnight for best results.
4. Once the fibers are soaked and in pieces of an inch or smaller, place two cups of this mixture into the blender along with two to three cups of water. Process the fibers and water in the blender for several seconds, reducing the fibers to a pulp with an oatmeal-like texture. The water and pulp combination is called slurry. If the slurry appears too dry, add small amounts of water to get it to runny oatmeal consistency.
5. Fill the plastic kitchen tubs $\frac{3}{4}$ full with the slurry. This is the main ingredient of paper. Have a student stir the slurry to keep the pulp particles suspended in the slurry and not sink to the bottom. Another student should lower a screen into the slurry and slowly raise it up, keeping the screen as flat as possible so it catches the pulp. If the pulp is too runny, drain off some of the water and try again. If it is too thick, dump it back into the tub, add more water and try again.
6. Hold the screen over the tub for a few seconds to allow the excess water to drip off. Take the screen and quickly and carefully flip the

screen over onto several thicknesses of newsprint.

7. Keeping everything in place, sponge off excess water from the screen until the paper feels fairly dry. The water will drain, leaving the pulp to dry into paper.
8. When the new sheet of paper is dry enough (may take several hours), it will separate readily from the screen and remain attached to the newsprint. Slowly lift one corner of the screen. If the screen and paper pulp separate, gently lift the screen from the paper. If the paper pulp and screen stick together, sponge off more water.
9. Set the new sheet of paper aside, still attached to the newsprint, in a safe place to dry.
10. While the paper is still damp, it may be covered with a piece of smooth cloth and ironed (with the assistance of an adult).
11. When the paper is fully dry, peel the newsprint off and think of ways to use your new sheet of paper!
12. Process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.

Discussion Questions

- Why is your paper the color it is?
- What other steps do you think need to happen to make paper like the paper you use in school?
- What other things can trees provide for humans?

Important clean-up note:

Do not put extra paper pulp down the drain as it will clog the drain. It can go in the compost or garbage.

Extensions

- Gather other natural objects on your hike such as wild flowers, pine needles, or leaves to use to decorate your homemade paper. Soak the natural objects overnight in a separate bucket of water. These soaked natural objects can be added to the slurry just before dipping the screen.



Shear Delights

WHAT'S THE Big Idea? Cycles

Materials

- **Charlie Needs A Cloak** by Tomie dePaola
- sheep fleece: Buy clean or dirty fleece online or from a local sheep farmer. www.pitchfork.org sells raw, dirty fleece and www.zwool.com sells clean roving for spinning or felting batt for felting projects.
- small "J hooks:" Cut metal coat hangers at the curve, leaving a 4-inch straight handle. You can get two out of one coat hanger.

Enduring Understandings

- We rely on each other and other living things to meet our needs.
- Some plants and animals provide us with products other than food.
- Sheep provide a fiber, called wool, that can be used in many ways.
- Sheep fibers are spun to make yarn.

Objectives

- Children can demonstrate how to spin wool into yarn.
- Children experiment different ways to spin wool into yarn.
- Children play with sheep fleece.

Directions



The "spinner" (left) hooks wool onto the j-hook and slowly spins the hook (always in same direction) to twist the wool fibers.



The "handler" pinches the wool with one hand and gently pulls towards her with the other to stretch the wool into just a few strands.

1. Read *Charlie Needs A Cloak* by Tomie dePaola. Discuss the process Charlie used to create a new cloak. Your students will now try turning wool into yarn. Explain they will not make enough yarn to make a cloak but they could make a bracelet or necklace.
2. Demonstrate the process with a student (explained below steps 3–10), then have each student find a partner.
3. Each pair of students must gently stretch a piece of carded fleece until the individual fibers are spread out as much as possible so they each have a piece of fleece to turn into yarn.
4. Have partners sit facing one another. One student in each pair takes an edge of the fleece, hooks it on the curved end of his wire J hook, then holds the hook by the straight end. This person is the "spinner."
5. The other partner, "the wool handler," pinches the fleece close to the wire hook, using the thumb and index fingers of her left hand. With the thumb and index fingers of her right hand, she gently pulls the rest of the wool towards her until she has stretched out a section of fleece to just a few strands thick.
6. Now the spinner starts spinning his tool, remembering to twist in the same direction and continuing to spin until the pair decides to stop.
7. The wool handler will release and slide her



pinching left hand back to meet her right hand, then pinch again. As the spinner continues to spin, the length of stretched wool should twist up and look like a piece of yarn. The key to spinning is to feed very few strands of fibers at a time to the spinner.

8. The wool handler should repeat steps 4 and 6 (pinching and sliding with the left hand, teasing and pulling with the right) until the yarn is the desired length. The students will need space to move further and further away from each other as the yarn gets longer between them.
9. As soon as the yarn has reached a desired length, the students can stop spinning and feeding. The spinner removes the newly spun yarn from the hook and holds on tightly to the end. The handler places her index finger in the middle of the length of yarn and folds the yarn over it. The spinner should take this other end and hold on tightly to both ends. The newly spun yarn should naturally wrap around itself.
10. Tie to make a bracelet or necklace. Add beads or charms if you want.
11. Process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.

Discussion Questions

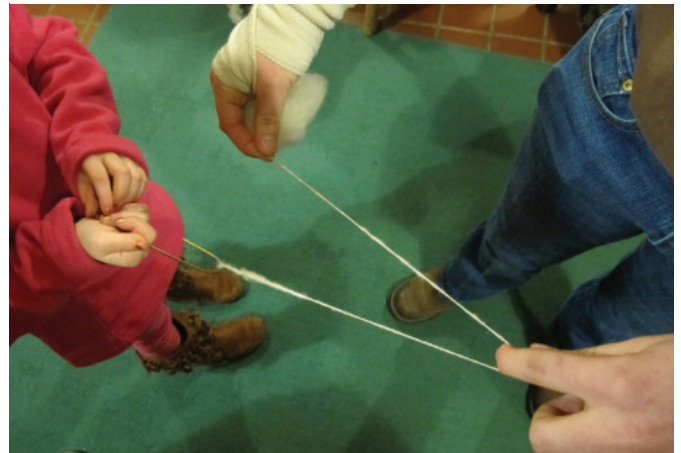
- Where does wool come from?
- What can you think of that is made of yarn?
- What are some other products we get from plants or animals that aren't food?

Extensions

- ***Pelle's New Suit*** by Elsa Beskow
- Obtain fleece from a farmer, have children feel, touch and smell it. What's on their hands after feeling the fleece? An oil, called *lanolin*, which is used in hand lotion. It helps keep the sheep dry and warm.
- Set up washing and rinsing buckets for children to wash the dirty fleece. Swish a handful of dirty fleece through warm, soapy water. Do not scrub the fleece; that will make it felt together. Swish in the rinse water, squeeze out excess water and hang to dry. We drop the wet wool into an old salad spinner and give it a few spins before hanging it on a line to dry.
- Dye the wool to create different color yarn. See "Natural Dyes" in *Who Are We?*, p.62.



As the pair spins, the stretched wool will twist into a piece of yarn and get longer, and the team will get further away from each other.



When the yarn is the desired length, the handler folds the yarn back on itself, and hands her end to the spinner.



The yarn will naturally wrap back on itself. It is now ready to be tied into a bracelet or necklace. (Add beads, too, if you want!)

Super Soil Explorations

WHAT'S THE Big Idea?

Change over Time

Materials

- *And The Good Brown Earth* by Kathy Henderson
- plastic jars with lids
- samples of dry gravel, sand, silt, and clay
- samples of plants, such as bean plants, marigolds, etc.
- planting containers

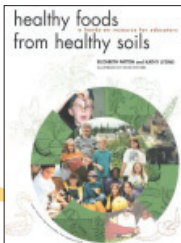
Enduring Understandings

- Soil is the upper layer of the earth in which plants can grow.
- Soil is created as rocks and minerals change over time. Therefore not all soil is the same. It depends on where it is located and what parent rocks contributed to its origin.
- The combination of the different size particles and minerals make soils unique.
- Soil is vital for all living things.

Objectives

- Children show interest and curiosity about soil.
- Children experiment with different types of soil to grow plants.
- Children play with soil.

Great Teacher Resource!



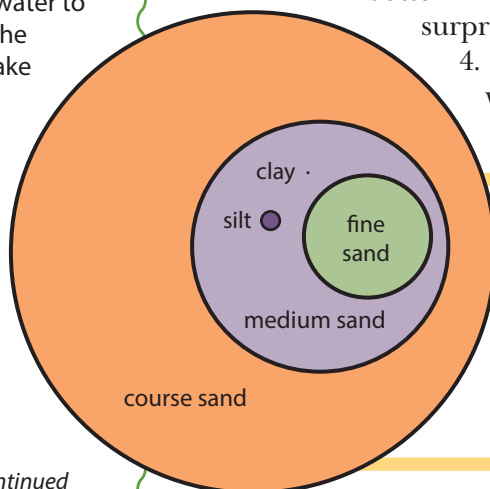
Healthy Foods from Healthy Soils by Elizabeth Patton & Kathy Lyons. *Tilbury House, Garrdiner, ME, 2003.*

Directions

1. Read *And the Good Brown Earth* by Kathy Henderson. Discuss with your students the role soil plays in their lives. (Consider connecting this experience with "Soil Recipe" in *What's Happening?* p.157.)
2. Ask children: Is all soil the same? Have students bring in samples of soil from their homes or dig up samples from various spots in the schoolyard. Examine these samples using magnifiers. Write down descriptions of the findings.
3. Have each child place a tablespoon of soil from his or her sample into a plastic jar, add water almost to the top and place the lid onto the jar. Shake the jar and record what happens. If possible, take a photo of each jar and save for the student's report. What fell to the bottom first? Is anything floating? Why? Did anything surprise you in this experiment?
4. Have students make predictions of how long it will take to have all the particles settle out of the

Extensions

- Test soil to determine how much clay is present. Collect a handful of soil and add enough water to make a ball with the soil. If you can make a ball, try to roll the ball into a snake shape. If you can make a snake shape, you'll know your soil contains clay! Fine clay particles adhere when they are moistened.



Clay, Silt, and Sand

If clay were the size of a dot on this page, this graphic shows what the comparative sizes of silt and sand would be. Clay particles are pretty tiny!

continued

water and fall to the bottom of the jar. Since clay is the smallest particle, it will take the longest to settle and the water will remain cloudy until the last clay particle has settled to the bottom.

5. Process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.



Discussion Questions

- What surprised you about the experiments?
- Why was it helpful to have a combination of particles not just all the same type?
- What are you wondering about soil now?
- Why is soil important?

- Have students take a handful of dry soil they have dug up in the schoolyard or from another location. Place it into the top layer of a soil screen sieve. Place the lid on and gently shake. Open each layer of the sieve to observe particle size. Place the contents of each layer of the sieve onto a different piece of paper or paper plate. Feel the particles, add water to the particles, how do they react? Soil sieves can be purchased from The Acorn Naturalist: www.acornnaturalist.com
- Add water to a small yogurt container of sand, dump it out to make a small sand sculpture. Add water to dry clay, stir it, dump it out to form a small clay sculpture. Predict what will happen if you let both sculptures dry. Let them dry and record the results.
- Soil is comprised of different-sized particles. Does this make a difference in how things grow? As a class or in small groups, plant the same plant, such as bean plant, in a potting container of just one of the particles, for example, all clay. Add water and keep a record of how the plant grows compared to the one planted in only sand, or gravel or silt. Water the plants at the same time with identical amounts of water. Have students make predictions of what will happen. Record findings.
- Make potting soil! See "Mix It Up: Make Potting Soil" (Appendix, p.253).



Farmers' Market Learning Journey

WHAT'S THE Big Idea?

Community Interdependence

Materials

- ***Farmers' Market*** by Paul Brett Johnson
- transportation to get to a local farmers' market

Extensions

- Set up a Farmer's Market stand in your classroom. Use the housekeeping corner, or set up a table with some baskets of plastic and real vegetables and fruits for the children to sell and eat at the market.
- ***I'm Going to Be A Farmer*** (*Read With Me/I'm Going To Be*) by Edith Kunhardt
- ***To Market, to Market*** by Nikki McClure

Discussion Questions

- What did you see, hear, and smell at the market?
- What surprised you about the market?
- What did you think was missing from the farmers' market?
- Where else do farmers sell their products?

Enduring Understandings

- We rely on each other and other living things to meet our needs.
- Food comes from nature: from plants and animals.
- Farmers provide food that comes from both plants and animals.
- Some farmers sell their products at farmers' markets.

Objectives

- Children show interest and curiosity in the different types of products a farmer grows and sells.
- Children discover that not all farmers grow the same products.
- Children play being a farmer at the farmers' market.

Directions

1. Read *Farmers' Market* by Paul Brett Johnson. Discuss how the children in this family have a job selling their family's produce at the Saturday farmers' market.
2. Ask if anyone has been to a farmers' market? What did they see? Did they buy anything?
3. Research where a farmers' market is in your community. Discuss how the students could get to the market and what they might purchase to cook in the classroom.
4. Make plans to ride a school bus, use public transportation, take private cars or walk to a local farmers' market. As a class, decide what vegetables or fruits might be available at this time of year and decide on a dish to make as a class with produce from the market.
5. Brainstorm other things your class thinks they may see, hear, or smell at the market, such as, farm animals, trucks, herbs, and of course various fruits and vegetables. Create a scavenger hunt based on their suggestions.
6. Attend a market. Give groups of children a scavenger hunt and a list of produce they need to get for the class recipe. Have plenty of chaperones so small groups will be able to go off to explore the market. Determine a meeting time and place before heading off.
7. After their exploration of the market, gather to share what they saw, smelled, and heard. Check to make sure all the ingredients were purchased for the class dish and head back to school.
8. Back at school, use the produce to create your dish or save for an upcoming day. Process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.

Ice Cream Making

HOW ARE WE CONNECTED?

SUMMER



WHAT'S THE Big Idea?

Interdependence

Enduring Understandings

- Food comes from nature: from plants and animals.
- Milk comes from cows.
- Milk can be turned into many different food products.
- Milk is used to make ice cream.

Objectives

- Children show interest and curiosity in how ice cream is made.
- Children discover the ingredients of ice cream.
- Children experiment with ways to make different flavored ice cream.

Directions

1. On a hot day, homemade ice cream can cool you off in several ways. Discuss with children their favorite flavors of ice cream... vanilla, chocolate, strawberry—the selections are endless. Discuss their ideas on how this cool, sweet treat is made.
2. Read *Ice Cream: The Full Scoop* by Gail Gibbons with students. Discuss how ice cream production has changed over time.
3. Create an ice cream recipe as a class or in teams of 2 to 3 children. Compare children's recipes to the following recipe:
 - 1 cup milk
 - ½ cup heavy cream
 - ½ teaspoon vanilla (or flavoring of your choice)
 - 1 tablespoon of sugar or honey or maple syrup
4. The class or small groups can decide on a flavor recipe they would like to try. Then help each child or group mix all of the ingredients in one of the quart-sized bags. After getting most of the air out of the bag, help them seal the bag with duct tape to ensure none of the salt water gets into the ice cream mixture. Place the quart bag into another quart bag for additional protection and seal it, again, removing most of the air, and duct tape closed. Place the double-bagged mixture into a gallon bag, fill with ice, add four tablespoons of salt, remove air, seal, apply duct tape, and begin to massage the bag. Gloves or mittens are recommended because this really gets cold!

Materials

- **Ice Cream: The Full Scoop** by Gail Gibbons
- winter mittens or gloves
- ingredients to make ice cream (see recipe card)
- supplies to make ice cream:
 - ice
 - salt
 - quart- and gallon-sized resealable plastic bags
 - duct tape

Why Add Salt?

Ice melts by absorbing heat (energy) from its environment. When you add salt to ice, it lowers the ice's "freezing point," meaning that it will take even more heat to melt the ice. The ice will take that extra heat from the ice cream ingredients, which allows the milk mixture to freeze into ice cream.

Ice Cream

INGREDIENTS

- 1 cup milk
- ½ cup heavy cream
- ½ tsp. vanilla or other flavoring such as strawberries or chocolate sauce
- 1 tbsp. of sugar or honey or maple syrup

INSTRUCTIONS

1. Mix all of the ingredients in one of the quart-sized bags.
2. After getting most of the air out of the bag, duct tape the bag closed to ensure none of the salt water gets into the mixture.
3. Place the quart bag into another quart bag for additional protection. Again, remove most of the air and duct tape it closed.
4. Place the double bagged mixture into a gallon bag, fill with ice, add 4 tbsp. salt, remove air, seal, apply duct tape and begin to massage the bag. Gloves or mittens are recommended because this really gets cold!
5. Shake, massage, and toss the gallon bag for about 10–15 minutes or until you can see and feel the mixture is getting harder. Cut off the tape, carefully pour your ice cream into a bowl and enjoy!

Extensions

- Add a dried herb, such as a mint, to the mixture to create a mint ice cream.
- If you can get a hand-cranked ice cream maker, try making a larger batch. The bags allow for a more hands on experience for all children since there is no waiting in line for a turn to crank. Check Lehman's at www.lehmans.com.
- Have children design an ad or carton for their ice cream before making it. If teams make different flavors have a taste test after the ice creams are made to determine the favorites.
- Invite parents to an ice cream social and they can help their children make ice cream as the children explain the science behind it.
- **Milk to Ice Cream** (*Welcome Books: How Things Are Made*) by Inez Snyder
- **From Cow to Ice Cream** by Bertram T. Knight

5. Shake, massage, toss the baggies for about 10–15 minutes, or until you can see and feel the mixture is getting harder. Cut off the tape from the large bag, wipe off the salt from the quart-sized bags, carefully pour your ice cream into a bowl and enjoy! Process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.

Discussion Questions

- Why did we add salt to the ice cream?
- Why is salt put on icy roads?
- How will melting ice be helpful in making ice cream?

Herbal Delights

HOW ARE WE CONNECTED?



SUMMER

WHAT'S THE Big Idea?

Interdependence Cycles

Enduring Understandings

- Food comes from nature: from plants and animals.
- Knowing where our food and fibers come from is important to understanding the relationship between humans and the natural world.
- Herbs add flavor to foods.

Objectives

- Children show interest and curiosity in trying different teas.
- Children discover that herbs add flavor to foods and teas.
- Children experiment with different herbs when making tea.

Directions

If you have grown herbs in your school garden, pick them, tie them in a bunch, and hang to dry for one to two weeks in a dry, out of the way, location. If you have not grown any herbs, ask parents if they have any they've grown that they will share. If you cannot get fresh herbs, buy dried herbs in bulk at a health food or grocery store.

1. Have the children crush the dried herbs into bowls with their fingers, using a separate bowl for each herb. Ask the children how the herbs smell, and ask if they can describe something else that might smell like that (i.e., peppermint smells like candy canes, lemon balm like lemons)
2. Ask the children for ideas on how they could use herbs. Have they ever used them at home? Seen anyone in their family use them? Discuss how when herbs are used in cooking they add flavor to our food. They can also add fragrance to soaps or candles. Or they can be used to make tea. It might be helpful to have a basket with some products that have herbs in them.
3. Explain that the children will be making tea with dried herbs. Using a resource, such as *The Complete Medicinal Herbal: A Practical Guide to the Healing Properties of Herbs* by Penelope Ody, talk about how certain herbs can help our bodies in specific ways. For example, chamomile relaxes us, peppermint helps with digestion. Encourage students to think about what herbs they would like to use and why.

Great Teacher Resources!

The Complete Medicinal Herbal: A Practical Guide to the Healing Properties of Herbs by Penelope Ody. Dorling Kindersley, Inc., NY, NY, 1993.

A Kid's Herb Book for Children of All Ages by Lesley Tierra. Author's Choice Publishing, 2000

Walking the World in Wonder: A Children's Herbal by Ellen Evert Hopman. 2000

Extensions

- Make "Sun Tea." Pick 3–4 big bunches of fresh mint and put in a big glass jar with 5–6 decaf black tea bags (optional). Place in a window in direct sunlight for several hours to brew. Herbal tea bags bought at the store can also be used to make sun tea with a large variety of flavors. Sweeten if desired, and serve it up with a fresh garnish of mint or edible flower for added herbal delight!
- Herbs can be added when making butter or ice cream.



4. Have the children scoop approximately one to two teaspoons of herbs into their tea bags. It is fun if you have a few different herbs for them to create their own special combinations! Work with each student to iron the open end of the tea bag closed.
5. Invite the children to make packages for their tea bag. Cut and fold the paper to create a package for each tea bag, stapling or taping the sides. Decorate the package, slip the bag inside and close with a sticker or tape. Children can take their tea bags home to share with their families.
6. Process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.

Discussion Questions

- Where did the herbs we used to make tea come from?
- What did they herbs smell like?
- What else have you used herbs for?