Indigenous NH
HARVEST CALENDAR

Winter Season
Pebon
About wild onions

Wild onions are very common in woodlands and fields and grow throughout New England. There are many different species of plants that are frequently called “wild onions” - including ramps, chives, wild garlic, and onion grass. All of these species are within the Allium genus, and all are easily identified due to their strong onion smell. The bulb, stem, flowers, and leaves of these different wild onion species are all edible and can be eaten either raw or cooked. It’s important to be careful if foraging for wild onions because there are inedible lookalikes - if it doesn’t smell like an onion, it’s not a wild onion!

In general, wild onions usually grow in large patches. Harvesting season for wild onions depends on what part of the plant you’re going to use - leaves are typically harvested as early as February through Spring, and bulbs are collected in the Fall. When harvesting wild onions, remember to collect the largest ones as they contain the strongest flavor. You should also be careful not to take too many - only harvest about 10% of any one patch so the plants can recover.

Resources:
“How to Harvest Wild Onions” by Hank Shaw
“Edible Wild: You Can Eat Wild Onion Grass and Wild Garlic” by Ryan Buda
“#WildEdibleWednesday 2/14 - Wild Onion” by Alexander Bryant
Nutritional benefits of wild onions

The USDA Food Composition Database report that wild onions have a high carbohydrate content and have three grams of fiber. Additionally, wild onions are known to be high in many minerals such as calcium and iron which help bone development and immune system protection. These plants are also high in Vitamins A and C.

Wild onions traditionally

Wild onions were a wonderful food resource for the Abenaki. They were easy to find, and they added a great flavor to stews and broths. In addition to their use as food, wild onions have medicinal use. Wild onions were sometimes used to help combat fevers and colds that would inevitably come with the approaching cold months. Wild onions and garlic are still used today for medicinal purposes and some people even use the leaves to cover themselves with a strong onion odor as a natural insect repellent.

There are many different types of wild onions that would have been collected and used by the Abenaki such as scallions, chives, leeks, and white onions.

The wild onions would have most likely been harvested during what we call February or March, but in the 13 Moons calendar this would be around the time of the Maple Sugar moon (Moon #4).
**Wild Onion Soup**

Ingredients
- 8 cups water
- 3 large yellow or white onions
- 8 scallions
- 4 leaks
- 16 chives
- ½ cup of dried corn (Flint corn is preferred if available)
- ¼ cup of wild rice
- 1 tablespoon of sunflower oil
- ¼ teaspoon spice bush or allspice
- Salt and Pepper to taste.

Instructions
1. In a large pot, bring the water to a boil and add salt and oil.
2. Once boiling, add the dried corn and wild rice, let cook until thickened.
3. Cut the onions the long way to create strips, chop the scallions, leeks and chives- use both the white root and the green tops of the onions.
4. Put the onions, scallions, leeks and chives into the boiling water and reduce heat to simmer.
5. Add the allspice into the pot before letting simmer for 40 to 60 minutes.
6. Once cooked, check the corn and wild rice to see that its tender. Add salt and pepper if necessary and serve.

**Ramp Pesto Pasta**

Ingredients (Serves 4)
- Kosher salt, to taste
- 4 ounces ramps, leaves separated from the stems and bulbs
- 12 ounces pasta, like rotini or penne
- 1/4 cup hazelnuts, toasted and skins removed
- 1/3 cup olive oil, plus more for drizzling
- 5 tablespoons grated Parmesan
- Freshly ground black pepper, to taste

Instructions
1. Bring a large pot of salted water to a boil. Add the ramp leaves and blanch until vibrant green, 20 seconds. Drain and squeeze out the excess water from the leaves.
2. Add the pasta to the boiling water and cook until al dente, 10 to 11 minutes.
3. In a food processor, combine the ramp stems and bulbs with the hazelnuts and salt, then pulse until coarsely chopped. Add the remaining ingredients and purée until a smooth pesto forms, then transfer to a large bowl.
4. Drain the pasta, reserving ½ cup of the cooking liquid and add both to the bowl of pesto. Toss until the pasta is evenly coated, and season with salt and pepper. Divide between bowls, garnish with more grated cheese and olive oil, then serve.

Recipe from Tasting Table
This activity is a great way to try all different kinds of onion. It allows students to make observations and use their different senses to try foods. Additionally, it helps them understand the raw taste of foods versus cooked. Students will think about how the Abenaki may have used different wild onions.

### Materials Needed:
- Leeks, Scallions, Yellow Onion, Chive
- Gardeners Notebook
- Knife to cut up onions

Students will have the opportunity to try various onions raw to see the varying taste differences. Each student will be given a piece of a scallion, a chive, a leek and a yellow onion to taste (these should be small pieces as the taste is very strong) and will be encouraged to try each one.

After each onion, the students will record in their food/gardeners notebook the observations and differing tastes of the onion. Some of the guiding questions could be as follows:

- How is the texture of the onions different?
- Which one do you prefer?
- Which onion taste the strongest?
- Why do you think the onions are different shapes? Do they taste different or similar depending on their shapes?
- Which onions do you think the Abenaki used most to put in their stews and why?

After discussing and recording the answers to these questions students can summarize which onion they liked best and why.
Foraging for Wild Onions

This activity is a great way to get students out of the classroom and exploring on their own. They can develop their mapping skills and strengthen their knowledge of nature through their foraging experience. Additionally, they will learn how to cooperate to find the food source and improve their thinking when they try to relate their experiences to how Abenaki may forage for wild onions.

Materials Needed:
- Gardeners Notebook
- Basket for collecting

This activity is an active and hands-on experience of foraging. Wild onions are a very easy thing to forage for and you can find chives and scallions naturally in most open meadows and grassy areas.

Prior to going on the forage, discuss with students how to identify an onion (its strong smell, it will be about 10 inches tall, it will be thin and the color of grass) and where it is most likely to grow (in grassy areas and around trees).

Once this discussion has been had, the class can set off on its walk and discuss foraging strategies. Some of these questions can be asked and the students as a group can decide their own foraging strategy:
- Where would we find our wild onions?
- What is the best way to look for them? Should we split into groups? Look individually?
- How can we divide up the area to know where has been checked and where hasn’t?
- How should we let people know when we find an onion?

After the strategy is decided, the students can look for the wild onions and record observations and take notes of the search. If any are found they can be picked and put into a basket to bring back into the classroom and if none are found, discuss why they may have been hard to locate.

Once the foraging trip is over, head back to the classroom and discuss foraging in relation to the Abenaki. Ask the following questions and encourage students to use their own experiences foraging as a resource:
- What strategies do you think the Abenaki used for foraging?
- Do you think they always found food when they went foraging?
- What could be some of the difficulties while foraging for food?

After the discussion, have the students decide what they want to do with any onions they found!
Dried and Smoked Foods

About preserved foods

Most fruits, meats, vegetables are able to be dehydrated, and protein sources are often smoked. These processes alter the taste of the food but also allow it to be preserved for long periods of time. Foods commonly dried can be found growing wild in many different climates and lands; however, in modern days it is very common to find dried foods in local supermarkets. Examples that students might have tried include raisins, banana chips, pineapple, apricots, beef jerky, etc.

Drying food requires extended periods of strong sunlight, if a dehydrator is not available. Meats are traditionally smoked over an open fire, but now you can buy a dedicated smoker. Drying and smoking food happens soon after harvest to preserve nutrients and taste as much as possible. Preserved foods were usually eaten during the Winter as an easily accessible food resource during cold months where animals and plants were more difficult to hunt and gather.

Nutritional benefits of preserved foods

Some important nutritional changes occur during the dehydration process. Some nutrients in the foods can be lost because of over-exposure to the heat - Vitamin A and Vitamin C are especially affected. The positive impact of dried food is that the intense heat kills bacteria within the food which benefits its preservation.
Preserved foods traditionally

Drying foods is an extremely common practice amongst the Abenaki. As food resources varied so much depending upon the season, it became important to preserve the mass quantities of seasonal foods that were harvested. One of the easiest ways to do this was by drying or dehydrating the food.

Traditional methods of drying or smoking food were very simple and effective. It was done through baking in the heat of the sun or through smoking over a fire for very long periods of time.

Dried foods were most commonly spread out in an even layer on flat rocks or mats on the ground in a very sunny, hot spot and left to dehydrate. Turning the foods to encourage even dehydration and air circulation was also important. Fruits and vegetables were commonly dried using this method.

To smoke meats and fish, flesh was cut into thinner strips to speed the process and skewered onto sticks or hung over racks near the fire. This process can take anywhere from a few hours to a few days - the key is low, indirect heat for a long period of time. Today, dried meat is often eaten as jerky.

The Abenaki also made pemmican from dried meat or fish. Pemmican was an extremely important food for the Abenaki, especially during long journeys or during harsh winter months. The Abenaki and other Indigenous peoples made pemmican by grinding meats into a powder, which was then mixed with an equal amount of melted fat, and berries were usually added too. Pemmican was a very good source of energy and stored well for months at a time.
Peppered Beef Jerky

Ingredients
• 2 pounds eye of round roast, sliced thin against the grain
• 4 cloves garlic minced
• 1 cup soy sauce
• 1/2 cup Worcestershire sauce
• 1/2 cup brown sugar
• 2 teaspoons onion powder
• 2 teaspoons red pepper flakes
• 2 Tablespoons black pepper
• 1 cup beer or beef stock

Instructions
1. In a large zip top bag, combine all ingredients for the marinade. Mix well to dissolve the sugar.
2. Add the sliced beef to your marinade and toss gently. Refrigerate 8 hours, or up to 24 hours. The longer it marinates, the saltier and stronger the flavor will be.
3. Remove the strips of marinated beef from the bag and place on paper towels. Pat dry.
4. Preheat your oven (with the door cracked) or dehydrator to 170 degrees F. Transfer the strips to the jerky

Most preserved foods would have often been eaten during the winter seasons. This most likely would have occurred during Moon 12, the freezing river moon (Mzatanos) or during Moon 13, the winter moon (Pebonkas).

Resources:
“How to preserve meat in a survival situation” by Midwest Outdoors
“10 Steps to Sun-Drying Fruits and Vegetables the Old-School Way” by Aylin Erman
“Long-Term Food Preservation Secrets Of The Native Americans” by Tammy Robinson
“Pemmican Recipes” by Alderleaf Wilderness College

The word “jerky” originates from the native Incan Quechuan language word “Ch’arki”
rack or cooking rack and season the top with additional black pepper, if desired.
5. Smoke/cook for 2-3 hours (depending on the thickness of your slices, some thicker pieces can take 4-5 hours). Check often after the first hour to be sure your jerky is drying evenly. You are looking for jerky that is firm and still slightly pliable, but not soft.
6. Place the finished jerky in a gallon zip top bag while it is still warm. The jerky will steam in the bag slightly and this step will make the jerky moist. It will last a couple of weeks in the refrigerator.

Recipe by Susie Bullock on Hey Grill Hey

**Fruit and Nut Bars**

Ingredients (Makes 18 2.5” bars)
- 1 1/2 cups chopped nuts (you can use pecans, hazelnuts, pistachios, almonds, etc.)
- 1/2 cup dried cherries, cranberries, raisins and/or currants
- 1 cup dates, figs, and/or prunes (pits removed and cut into chunks)
- 1/2 cup dried apricots, mango, and/or papaya, cut into bite size pieces
- 1/3 cup mini chocolate chips or chunks
- 1/3 cup all purpose flour
- 1/8 teaspoon baking soda
- 1/4 teaspoon salt
- 1/3 cup firmly packed light brown sugar
- 1 large egg, at room temperature
- 1/2 teaspoon pure vanilla extract

Instructions
1. Preheat your oven to 325 degrees F and place the rack in the center of the oven. Have ready an 8 inch square baking pan that has been lined across the bottom and up the two opposite sides with foil.
2. In a large bowl, combine the chopped nuts with the dried fruits and chocolate chips. Then add the flour, baking soda, salt, and sugar and stir until all the fruit and nuts are completely coated with the flour mixture. Make sure to separate any clumps of dried fruits.
3. In a separate bowl, beat (with a wire whisk or hand mixer) the egg and vanilla until light colored and thick (this will take several minutes).
4. Add the egg mixture to the fruit and nut mixture and mix until all the fruit and nut pieces are completely coated with the batter. Evenly spread into your prepared pan, pressing to compact the batter.
5. Bake for about 35 to 40 minutes, or until the batter is golden brown and is just starting to pull away from the sides of the pan.
6. Remove from oven and place on a wire rack to cool. Then lift the bars from the pan using the edges of the foil. Use a sharp knife to cut into squares or bars. Can be stored for about 10 days at room temperature or longer if refrigerated.

Recipe by Stephanie Jaworski on Joy of Baking
Dehydrating Fruit

This activity incorporates science into food preparation. Through studying the dehydrating process of food it helps students to see the affect that heat can have both on food and the bacteria and nutrients within the food. It also allows students to use the taste testing skills to help them make accurate observations and use discussion questions to guide their hypotheses and observational skills.

Activities

Materials Needed:
• Dehydrator (or a very sunny and heat trapping spot)
• Fruit or vegetables (chosen by students to dehydrate)
• Notebook for observations
• Plates/Napkins for serving food

In order to do this activity, you will need either a dehydrator or an intensely sunlit area to dehydrate the food. Prior to the actual dehydration, take a poll from the class to determine what foods are to be dried. This can be most types of vegetables or fruit, although some of the easiest and more common are blueberries, strawberries and mushrooms.

Once the poll has been taken, discuss the dehydration process and ask some pre-activity questions such as:
• Do you think the food will have the same appearance after it has been dehydrated?
• What do you think dehydrated means?
• Will it change the taste of the food?
• Have you ever tried dried or dehydrated food before?

Once these questions have been asked and students have begun to think and hypothesize about the dehydration process, the activity can begin.
If a dehydrator is used, this will be a quick process and students will be able to witness the fruit drying in less than a day. If the sunlight method is used, this could take a lot longer and students are encouraged to observe and take notes on the development of the food as it is drying.

It is important to note how the Abenaki would have dried their food and the methods that they used. Discuss how these methods can still be used today but also have been adapted because of modern technology.

Once students have seen the process and discussed it, they are encouraged to try the foods and share their opinions and observations.
The Blue Hubbard squash is an example of post-colonial agriculture, as it must be cultivated and does not occur naturally in the wild. This variety of winter squash is a member of the *Cucurbita maxima* species along with other varieties like the kabocha squash. The Blue Hubbard squash was introduced to the United States in 1854 by Seedsman James J. H. Gregory of Massachusetts. The Blue Hubbard became one of the most sought after squash varieties and rocketed Gregory to become one of the most successful seed growers in the country. The Blue Hubbard squash remains popular in New England and is sold at many New Hampshire farms in late Fall and early Winter. The taste of this squash variety is often compared to sweet potatoes with a hint of pumpkin.

The peak season to harvest Blue Hubbard squash is during late autumn to early winter. When the Blue Hubbard squash is ready to be harvested, it will be roughly 12 inches in diameter, have a blueish-gray color and will be rock hard. This unique variety of squash grows very large and ranges between 15-40 pounds!

Resource:
“Blue and Warty, the Hubbard Squash Is Scary Good” by Rebecca Rupp
Blue Hubbard squash traditionally

Squash itself is a symbolic food for Indigenous populations across North America and was considered a staple part of the diet along with the other members of the Three Sisters. Blue Hubbard squash, however, represents a post-colonial food. This variety of squash is not grown in the wild in the Northeast but was introduced and is now a favorite in New England.

Blue Hubbard squash is easily stored whole and preserved for longer periods of time, even up to 6 months! This was beneficial and allowed food resources to extend throughout harsh winters. This squash was most likely used in stews and roasts along with meats or other proteins.

Blue Hubbard is harvested during the late Autumn to mid-Winter months. Using the 13 moons calendar, this harvest would have usually occurred during Moon 13, Pebonkas (the Winter Moon).

Nutritional benefits of Blue Hubbard squash

According to the USDA Food Composition Database, the Blue Hubbard winter squash contains high levels of fiber, phosphorous, potassium, magnesium and calcium. The Blue Hubbard squash is also an excellent source of Vitamin A in the form of beta-carotene. This squash is very high in natural minerals and nutrients which makes it a very healthy option.

Resource:
“Hubbard Squash” by Precision Nutrition’s Encyclopedia of Food

If the Blue Hubbard Squash is too big, try the Baby Blue Hubbard variety which is only 3-5lbs!
Hubbard Squash Soup

Ingredients:
- 2 Tbsp unsalted butter
- 2 minced garlic cloves
- 1 diced onion
- 1 diced large apple (I used a honey crisp)
- 2 Tbsp fresh minced sage
- 8 cups cubed Blue Hubbard squash
- 4 cups vegetable broth
- 1 cup water
- ½ cup heavy whipping cream
- Salt and pepper to taste

Instructions
1. Melt butter in a large pot. Add garlic and cook for about one minute.
2. Add onions and saute for about 5 minutes. Add apples and cook for another 2 minutes.
3. Next, add squash, sage, vegetable broth, and water.
4. Bring to a boil and then simmer partially covered until squash and apples are soft. About 20-30 minutes.
5. Transfer to a blender in small batches to blend, or blend using an immersion blender.
6. Add the heavy cream, and salt and pepper to taste.

Recipe by Matt on The Domestic Specialist

Blue Hubbard Pie with Maple

Ingredients: (Makes 1 9” pie)
Crust:
- 1 ¼ cups all-purpose flour
- 1 teaspoon salt
- 1 teaspoon sugar
- 4 tablespoons cold, unsalted butter, cut into small pieces
- 3 tablespoons cold vegetable shortening
- 3 tablespoons ice water

Filling:
- 1 ½ cups Blue Hubbard squash puree
- 4 eggs, lightly beaten
- ¾ cup pure maple syrup
- ½ cup half-and-half
- ½ teaspoon salt
- 1 teaspoon ground cinnamon
- ½ teaspoon ground nutmeg

Instructions
1. Combine the flour, salt and sugar in a medium-size bowl. Cut in the butter and the shortening until the mixture resembles coarse meal. Gradually stir in the ice water, being careful not to overwork the dough. Form into a ball, flatten into a disk and wrap in plastic. Chill for 1 hour.
2. Preheat oven to 400 degrees F. Roll out the dough and fit it into a 9-inch pie pan.
3. Whisk all filling ingredients together until smooth. Scrape into the pie shell and bake for 10 minutes. Reduce the heat to 325 degrees and bake until filling sets, about 50 minutes. Let cool.

Recipe by Molly O’Neill on NY Times Cooking
This activity allows students to explore dissection using food. This is a great way to practice using sharp utensils and will develop students understanding of plant parts. Additionally, because students make diagrams, it helps with visual interpretation and spatial skills. This lesson also addresses how Abenaki may have chosen to eat their squash traditionally.

Materials Needed:
- Blue Hubbard squash
- Knives, forks, tongs etc... for dissecting
- Notebook to take note of diagrams and observations
- Napkins (for mess)
- Ziploc bags to collect squash after dissecting

This activity is to help students explore the different parts, textures and appearances of the Blue Hubbard winter squash. Prior to the activity be sure to mention that while this is considered an Indigenous food, it was introduced after colonists came over from the Europe.

Students split up into equal groups and each group gets a Blue Hubbard squash. Students are then to dissect the squash and record, diagram and label each dissection stage. Blue Hubbard squashes have a very hard, thick skin and students may need your help to crack them open. Students will label, draw and make observations as a group on the squash and how they have decided to dissect it.

Throughout this lesson, students and teachers can discuss what parts of squash were most likely used for what by the Abenaki. Once fully dissected the students can store it for later cooking purposes.
About cranberries

There are three species of wild cranberry found in New England; large (Vaccinium macrocarpon) and small (Vaccinium oxycoccos) cranberries grow in bogs while mountain cranberries grow in wet, acidic soils found in mountainous areas. Large and small cranberries are in freshwater wetlands, typically in more elevated areas and along the water’s edges. Although cranberries are grown in bogs, cranberries are not an aquatic plant. Commercial bogs are flooded to aid in harvesting.

Wild cranberries are ripe and ready to pick when red, and when you can crush the berry fairly easily. They are usually harvested in late Fall and are associated with Thanksgiving and Christmas holiday recipes. Wild berries are about the same size as commercially grown berries. Cranberries are very sour tasting, even when ripe.

Resource:
“Cranberries, in bogs and on alpine tundra” by Sue Pike

Nutritional benefits of cranberries

According to the USDA Food Composition Database, fresh cranberries are mostly water (about 87%) and carbohydrates. They contain high levels of Vitamin C and manganese, and a good amount of fiber. Cranberries are also high in polyphenols which potentially offers immune and cardiovascular benefits, although more study is needed.
Cranberries traditionally

Cranberries are one of only three fruits actually native to North America, so they have a long history among Indigenous peoples. Cranberries were not originally cultivated by Indigenous groups because cultivation of the berries is very difficult, and the wild population before colonization was plentiful.

The Abenaki used cranberries as an important food source and as a key ingredient in the making of pemmican. Pemmican was made by mixing berries, often cranberries, with crushed dried fish or meat and melted fat, then dried in cakes. Pemmican was a vitally important traveling food and provided an easily transportable form of high-quality energy. The acids in cranberries helped to preserve the dried meat even further - pemmican could last for several months. Indigenous groups in New England also made the first cranberry sauce, sweetened with maple syrup, as a condiment with meats.

Cranberries are extremely high in antioxidants, and the Abenaki also used cranberries for medicinal purposes, including as a poultice for wounds or as a treatment for indigestion and nausea. They may have also been used as a dye for decorating clothing and jewelry.

Resources:
“Native fruit: Cranberry for all seasons” by Julia Blakely
“Cranberries, a Thanksgiving Staple, Were a Native American Superfood” by Sarah Whitman-Salkin
Cranberry Apple Crumble

Ingredients: (makes 8 servings)
Filling
- 4 large apples, peeled and diced
- 2 cups fresh cranberries
- Zest of 1 orange
- 1/4 cup orange juice
- 3 tablespoons maple syrup
- 1 teaspoon vanilla extract
Oat Topping
- 1 cup rolled oats
- 1 cup flour
- 1/4 cup chopped hazelnuts
- 1 tablespoon ground cinnamon
- 1/4 teaspoon salt
- 1/4 cup coconut (melted) or canola oil
- 1/4 cup maple syrup

Instructions
1. Preheat the oven to 350F. Grease a 9x13 baking dish.
2. In a large saucepan add everything needed for the cranberry apple base. Set over medium heat and stir occasionally for about 10 minutes. After the fruit has broken down, spread the mixture in prepared baking dish and set aside.
3. Place the rolled oats, oat flour, hazelnuts, cinnamon and salt in a large bowl. Mix together. Stir in the oil and the maple syrup until you have a crumbly, but combined mixture.
4. Spread the oat mixture over the fruit and cover them evenly. Bake for 30-35 minutes until the topping browns. Let stand for 10-15 minutes to cool before serving.

Recipe by Sarah Nevins on A Saucy Kitchen

Cranberry Bruschetta

Ingredients: (Makes 16 servings)
- 1 1/2 cups fresh cranberries
- 1/4 cup granulated sugar
- 2 teaspoons red wine vinegar
- 1/2 medium red onion, thinly sliced into rings
- 2 garlic cloves, minced
- 2 teaspoons basil
- 1 teaspoon oregano
- 8 oz loaf French bread or baguette for serving

Instructions
1. Combine cranberries, sugar and red wine vinegar in a medium saucepan. Bring to a boil. Add onion and garlic, return to a boil and reduce heat. Simmer on low for 10 minutes or until cranberries pop.
2. Pour into a glass bowl. Stir in basil and oregano. Cool at room temperature.
3. Cut bread diagonally into 16 3/4-inch slices; brush both sides with oil. Broil each side for 1 to 2 minutes or until golden brown. Top each slice with cranberry mixture.

Recipe by Ocean Spray Cranberries
In this lesson, adapted from the Cape Cod Cranberry Grower’s Association, students become familiar with important events and people in the history of the cranberry bog and examine relationships within and among the people, the historical events, and the bog itself. Using a card game, students apply what they’ve learned from a story to express connections, or relationships, between key ideas. Students begin to gain a historical perspective of the cranberry bog and also strengthen their language arts competency.

Activities

Cranberry Connection Card Game

Materials:
- Ruled paper
- “The Cranberry Through Time” story printout; 1 per student
- Cranberry Connections playing board; 1 per group
- Cranberry Connections cards; 1 set per group

Introduce the lesson by telling students they are going to learn about the history of the cranberry by reading “The Cranberry through Time”. Either in pairs, small groups, or whole class, read “The Cranberry through Time”. Discuss key associations highlighted by the reading selection. For example, Indigenous groups used the cranberry to make a food called pemmican.

Tell the students that they are going to play a type of matching game with cards. Two students comprise a team. Opposing teams will share one deck of playing cards. Explain that each team will have its own playing board, and a sheet of writing paper. Show the materials and explain the directions of the game (which can be found online here).

Distribute one Connection Playing Board for each team, paper, and one deck of cards. Have students start playing.
Wrap up the lesson with a short discussion. Ask students how playing this game added to their understanding of the reading selection.

In this lesson, adapted from the Cape Cod Cranberry Grower’s Association, students get to know and appreciate cranberries. By utilizing all five senses, they explore the nature of cranberries as whole fruits—raw materials, in fact, that are later processed for many different products. Students wrap up the lesson by connecting cranberry properties to the properties of various cranberry products. This lesson creates a bridge between the cranberry itself and the themes of the curriculum, including agriculture.

Making Sense of Cranberries

Materials:
- Whole, fresh cranberries (note: these are typically sold only in the fall, but they can keep for several months, so consider purchasing ahead of time)
- Various processed cranberry products, such as cranberry sauce, juice, jam, etc.
- Plastic knife (1 per group)
- Small paper cups (3 oz., 3-7 per student)
- Water
- Spoons (1 per student)
- Can opener (if cranberry sauce is in a can)
- Paper plate or substitute (1 per student)
- Chart paper
- Cranberry Observation Chart (1 per group)

Begin the lesson with an invitation to students to get to know cranberries. Ask them to generate a list of things that come to mind when they think of cranberries. It may make sense to begin by polling the class to see who has/has not seen a cranberry before. Frame the lesson’s exploration by pointing out that often we do not have a chance to really get to know something through all of our senses, but that they will get to know cranberries in this way.
Divide the class into small groups (3-4 students). Give each group a small handful of fresh, whole cranberries with a cup of water. Invite them to explore them for a few minutes, in any way they like, so long as they keep the cranberries confined to their group area.

Guide students to explore the cranberry through each sense. Encourage them to make careful observations by asking guiding questions based on the five senses of sight, touch, smell, sound and taste. Make sure students only taste whole cranberries that have not been handled by others. Provide a few minutes for each sensory exploration and then collect student group observations on the class chart.

Introduce to students the fact that up until now, they have explored a raw, whole, fresh cranberry. Discuss with them that they may be familiar with processed cranberry products, as well. Tell students that for the rest of this lesson, you will explore the following questions:

- How are some cranberry-based, processed products similar to and different from raw, whole cranberries?
- Why might people feel it is worthwhile or valuable to process the cranberry product?

Provide each group with two cranberry products in small cups with sampling cups and serving ware so that each student can taste the item. Have students explore each product as they did the cranberry. Each group should complete a copy of Observation Chart Two, and then report out, while you record their responses on the class version of the chart.

Invite students to speculate: What might account for some of the differences in their observations? (Processing, sweetening). Processing cranberries takes time, energy, and money. Why would people bother?

Wrap up the discussion by reminding students that they have explored a raw material and some of the products that come from that material. Ask: Where does this raw material come from? This is a good time to preview the idea that cranberries grow on cranberry vines, grown on special farms—cranberry bogs.

Additional Resources:
“Cranberries” by Food$ense Utah State University
“Cranberries in the Classroom” by Ocean Spray Cranberries
The Cranberry Marketing Committee
Cape Cod Cranberry Growers’ Association