



A IS FOR APPLE, AN ACTIVE SENSORY-ADVENTURE BOOK



A learning & sensory-activity guide for students of Overbrook School for the Blind



Red, green, yellow, or speckled -- APPLES come in many COLORS, SIZES, and, VARIETIES.
The sweet, round, crunchy fruit grows on fruit trees from the *MALUS* genus and is ready for picking in late summer through fall.



EXPLORE: Teacher passes around a variety of apples in different sizes, shapes, colors for students to touch, hold, and smell.

Just as humans exist in **FAMILIES** with shared names, traditions and characteristics, plants have families too! **APPLES** belong to the **ROSE** or **ROSACEAE** botanical family which also includes fruits like **STRAWBERRIES**, **PEARS**, **CHERRIES**, and **ALMONDS**!

ROSE family plants have 5-petaled flowers, and 5 **SEPALS**!



EXPLORE: Teacher sprays rose water in the air so. Students can count the five fingers of their hands to associate with the five petals of plants of this family.

Before apples were grown to be the sweet, large fruit we have come to know and enjoy, apples were small and tart like crab apples (*Malus sylvestris*). Crab apples are still harvested and used for brewing cider or cooked with sugar or honey into apple butter. Crabapples are firm & small in size, less than 2 inches in diameter.



EXPLORE: Students can pass around crabapples and bite into them to experience sour taste. Teacher can pass around modeling clay made into 1-2” sized balls to approximate size of crabapples.

7,500 varieties of apples are grown throughout the world today! Humans have been munching apples since neolithic times! Carbonized apple remains of wild crab apples called 'wildings' were found 10,000 years ago in parts of Scandinavia.

<https://newint.org/features/1990/10/05/simply>



EXPLORE: Archeologists have used carbon-dating to discover what plants were used for food during ancient times. Students can feel dried, mummified fruit or burnt wood to experience what scientists might test.

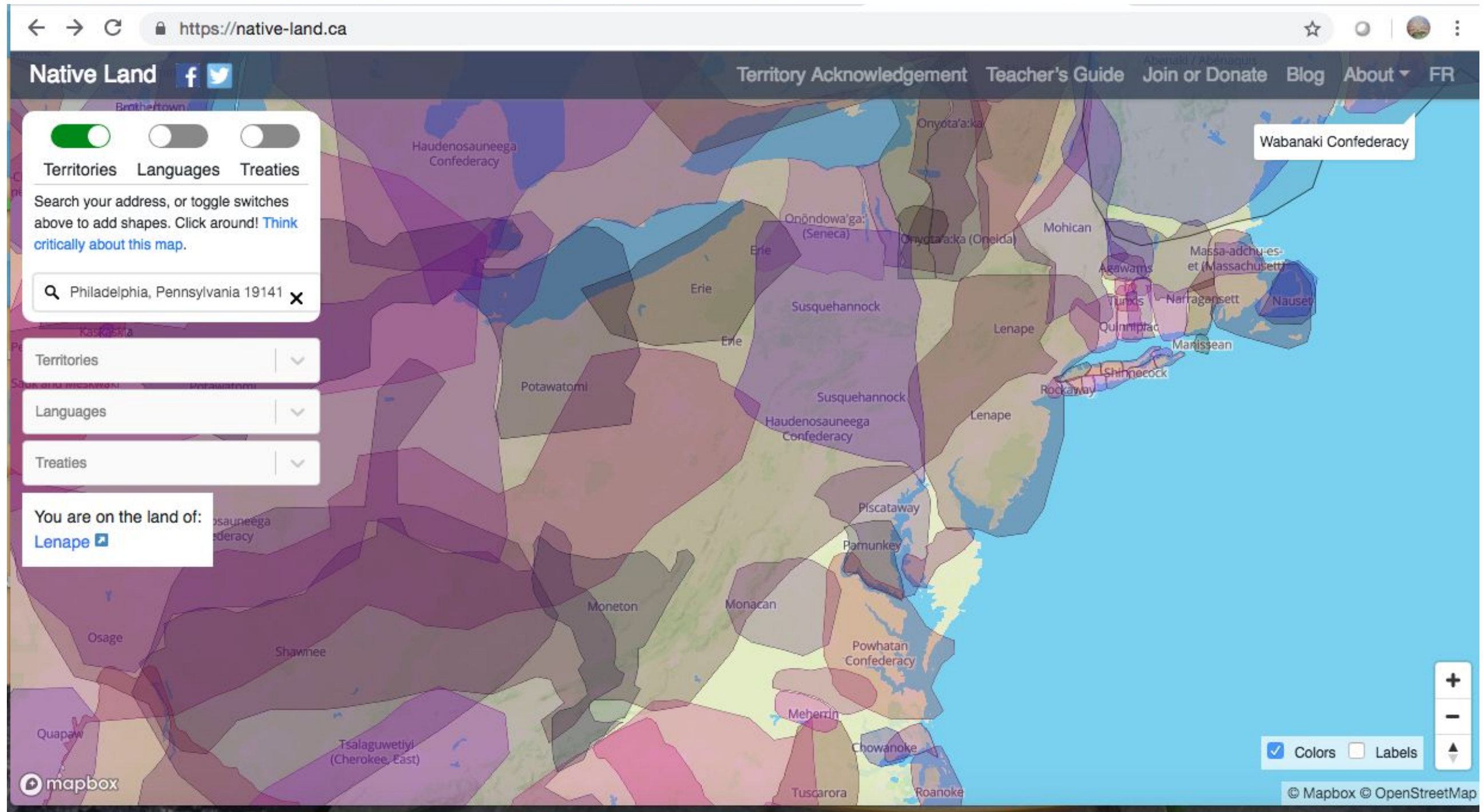
The domestic apple (*Malus domestica*) originated in Kazakhstan of the Middle East, stretching from the Gobi Desert to the Uzbek mountains in 2,000 BC. *Malus sieversii* still grows and is considered to be the great-grandparent of today's domestic apple.



EXPLORE: Teacher can ask students to locate Kazakhstan on a map or globe. Students can feel sand of the desert and rocks of the mountains.

Crab apples were common in the indigenous lands of Turtle Island which has been renamed North America. As colonial settlers came to these lands as early as 1500s, they began bringing stock from European apple varieties.

https://www.bbg.org/gardening/article/the_apple_in_north_america

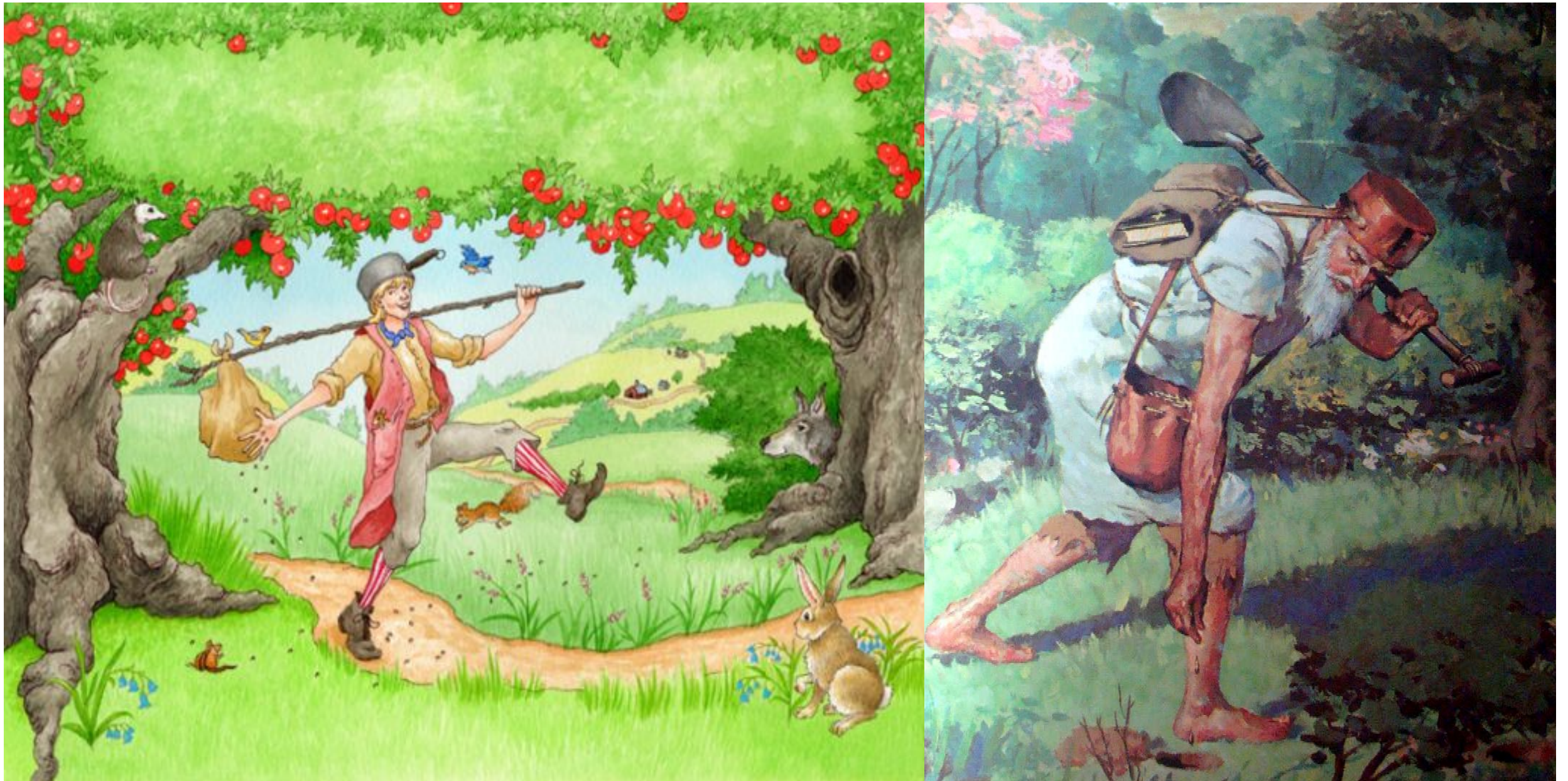


EXPLORE: Depending on student ability level, teacher can explore Native-Land.ca with students to understand indigenous territory.



Did you know -- early apples grown in America and planted by the legendary Johnny Appleseed between 1800 - 1845 weren't meant to be eaten? 'Spitters' as they were called, were small tart apples meant for making apple cider or apple jack -- alcoholic cider.

**A folktale hero, Johnny Appleseed was said to be a barefoot wanderer with a tin pot hat who planted apple trees by seed, wherever he roamed in Pennsylvania, Ohio, and Illinois!
The story was based on true-life John Chapman who earned the nickname in 1806.**

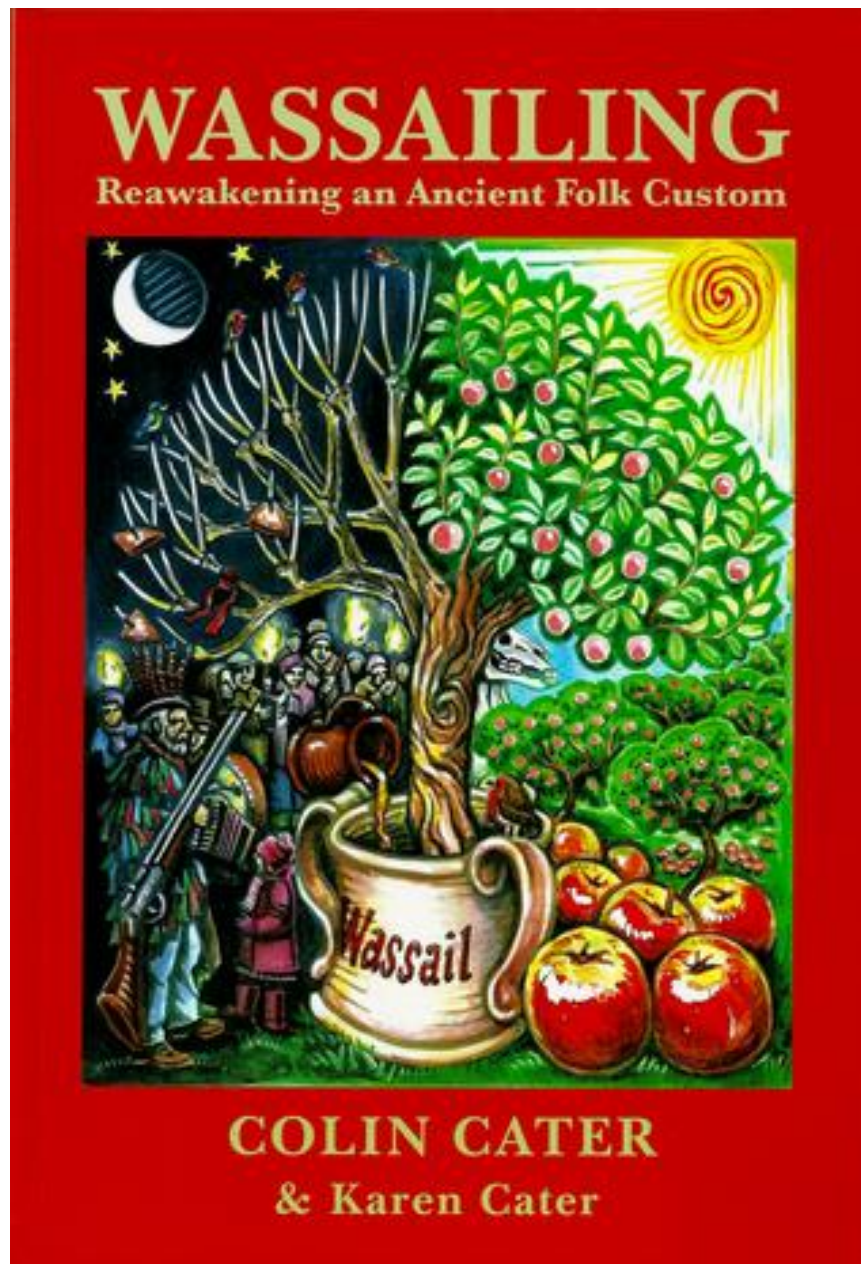


EXPLORE: Students can sample fresh apple cider, pass around seeds, or don a tin-pot hat to simulate the legend of Johnny Appleseed.



The apple is celebrated across many traditions and cultures for its rich symbolism and lore! One 11th century English tradition involving the apple is called **WASSAILING** - which means the spreading of good health and cheer for the apple trees!

Each winter when the trees are dormant or resting, communities would gather in the orchard with dancing, singing, and costumes to offer apple cider to the trees with songs and celebration to bring good spirits to the orchard to ensure a big harvest next year!

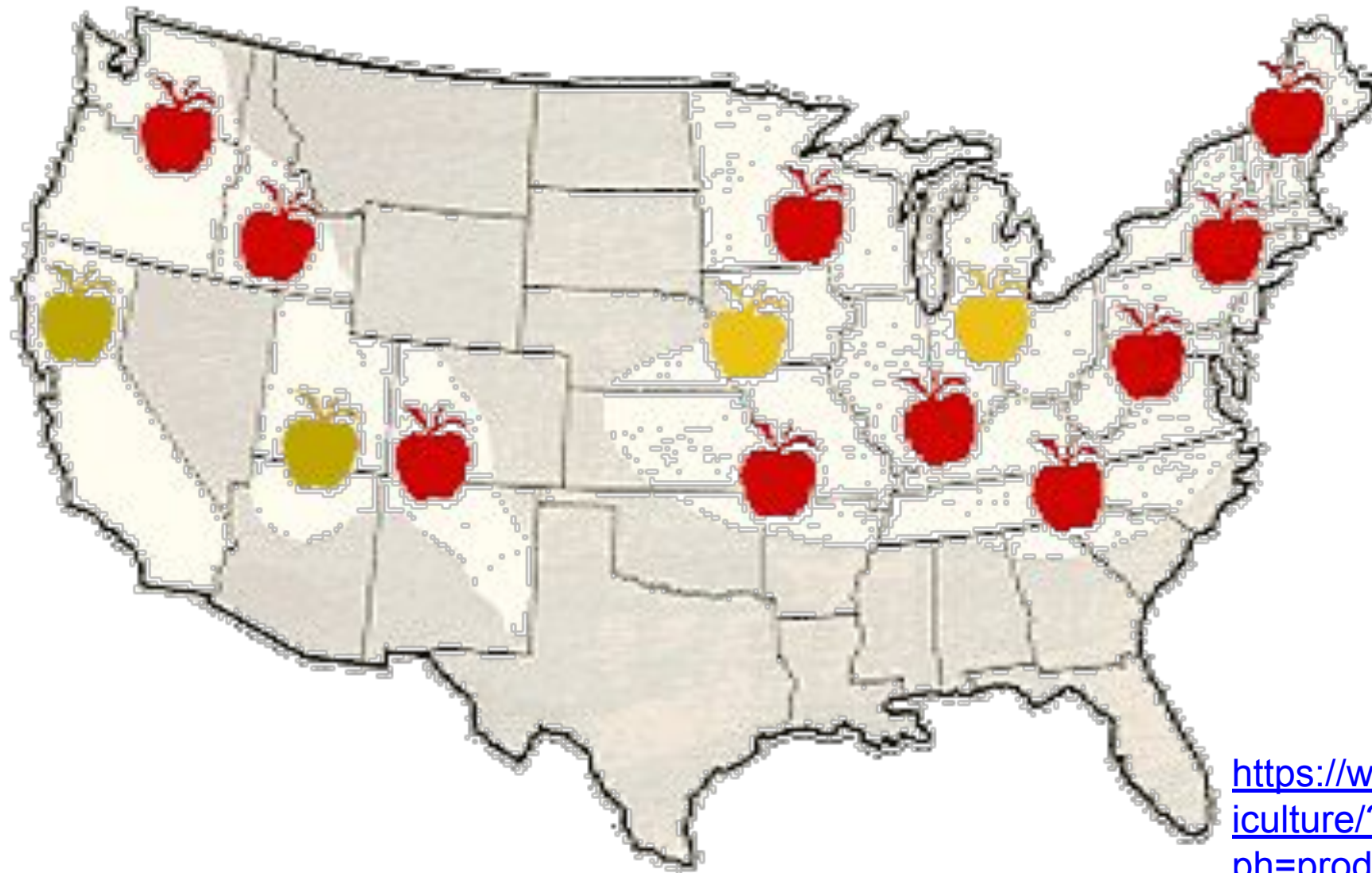


“Here’s to thee, old apple tree,
That blooms well, bears well.
Hats full, caps full,
Three bushel bags full,
An’ all under one tree.
Hurrah! Hurrah!



EXPLORE: Students can pretend to clink their imaginary drinking glasses, saying ‘cheers!’ Teacher can play audio track of wassailing song.

Apples are hardy, but grow best where there is cold in winter, moderate summer temperatures, and low to medium humidity. A particularly wet spring & summer can bring more pests and diseases!



<https://www.indexmundi.com/agriculture/?commodity=apples&graph=production&display=map>

EXPLORE: Let's explore humidity! Humidity measures the amount of tiny water droplets in the air which are called molecules. You can feel it on your skin when the air feels heavy and your skin gets sticky. Use a spray bottle to mist the room and feel the moisture on the skin. What time of the year do we have greater humidity?



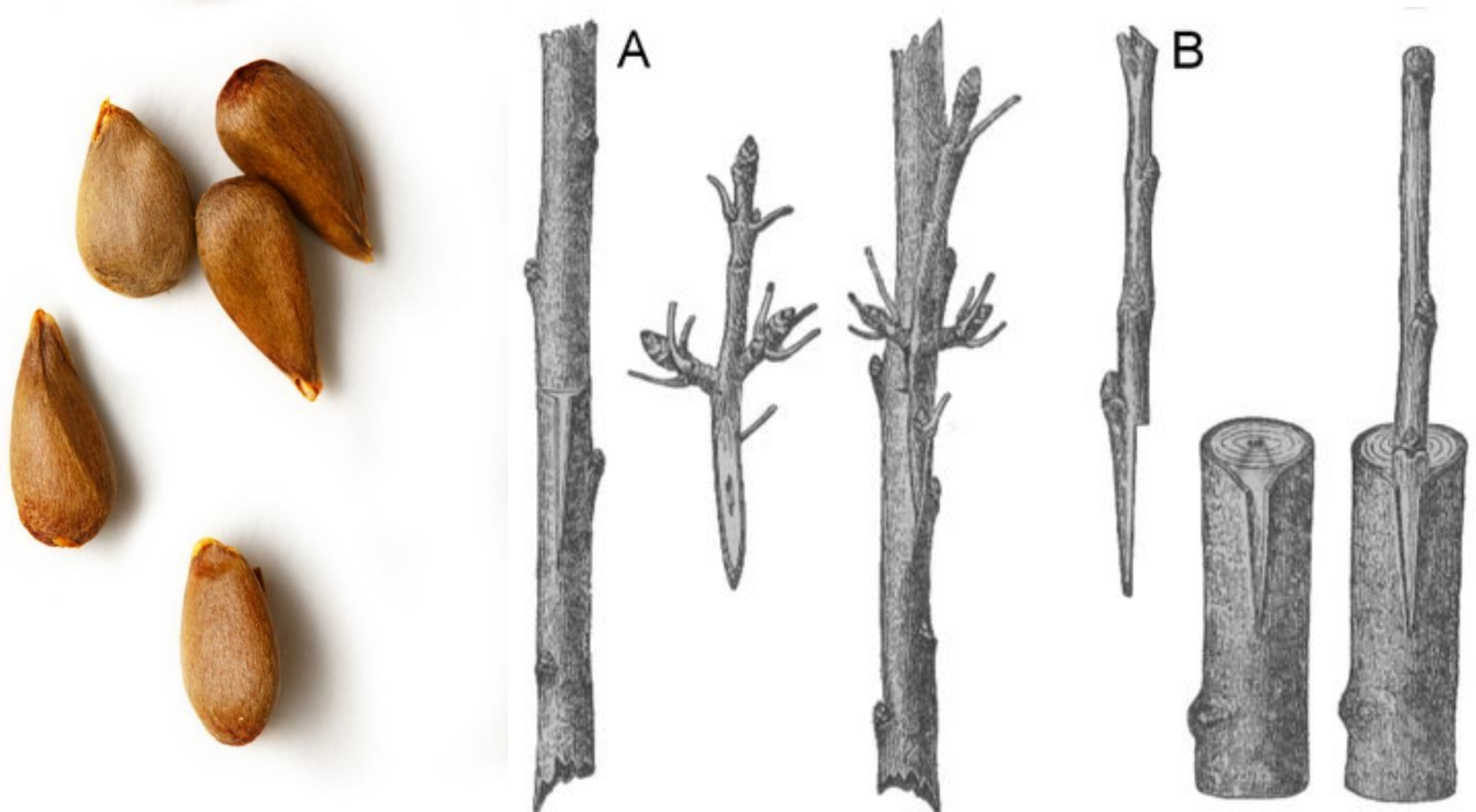
Apples are pollinated by honeybees, blue orchard bees, native bees, solitary bees, and hoverflies! You can see their beautiful blooms in the early spring.



EXPLORE: Imagine you are a bee, you smell the sweet nectar and are drawn to the apple flower. Pass around flowers to smell and feel the center of the flower where the bees go to pollinate. Listen to the sounds of the different pollinators.

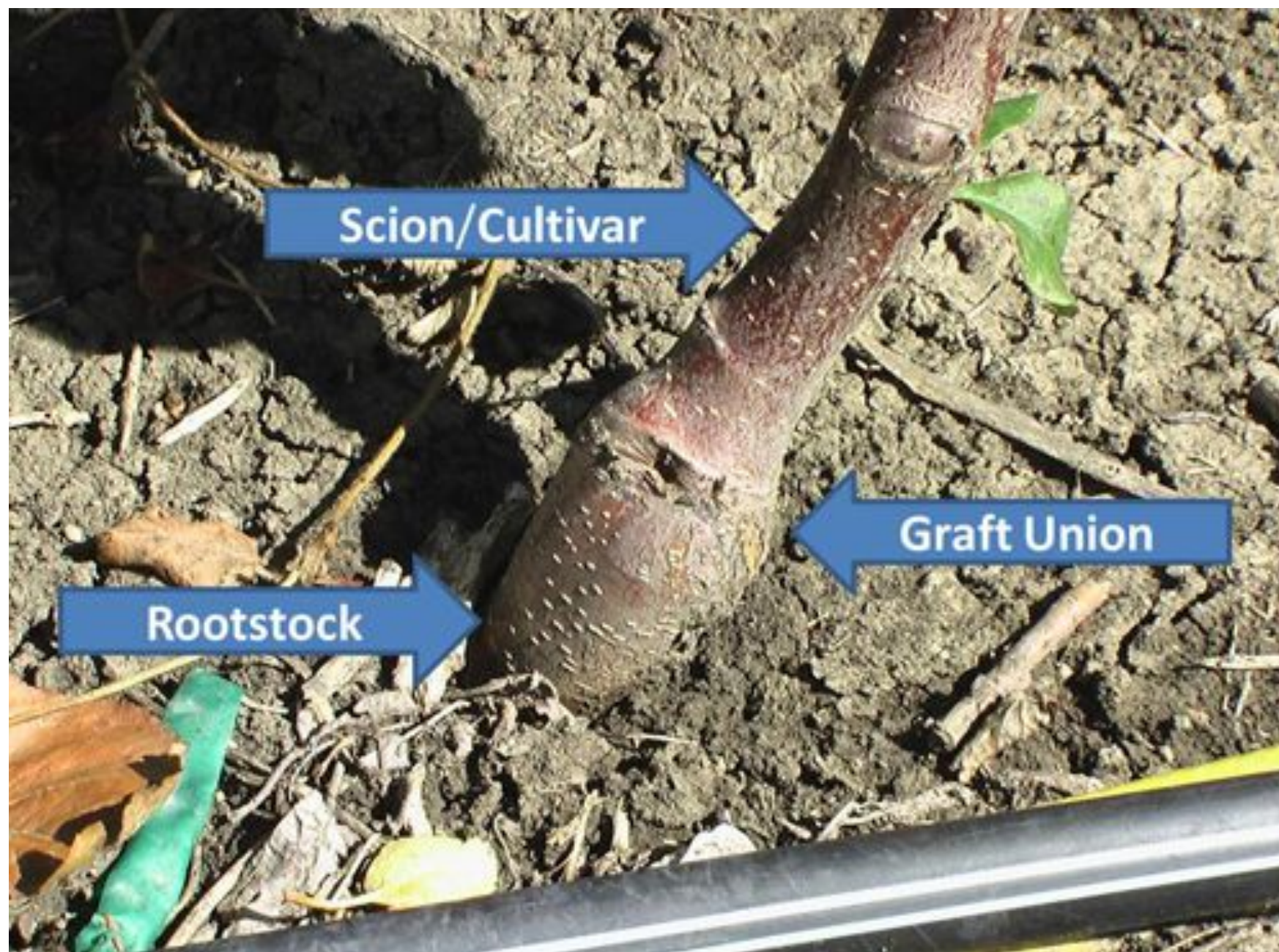


Most apples are not grown from seed anymore because the apple seeds may be very different from the apple you get them from. Instead we graft onto rootstocks! It takes 3-4 years for apples to produce fruit! The roots determine how tall apples grow which includes Dwarf: 6-10 ft tall, Semi-dwarf: 10-18 ft tall or Standard: 18-25 ft tall.



EXPLORE: Feel the seeds versus the rootstock! Why do you think we want to know what type of apple we will get? The Geneva growing group started in New York and cultivates different varieties of apples that are disease resistant.

Grafters attach the rootstock to new wood to help a new tree grow. Scion cuttings are taken in late January to mid-February.



EXPLORE: What does the graft union feel like? Now, let's try putting together your pieces the way we might graft together the rootstock and the scion or new wood.

We can find many varieties of apples which vary in texture, juiciness, sweetness, and flavor! Some of the common varieties we have in the store include Granny Smith which are green, sour, and crisp; Golden Delicious which are yellow, sweet and crisp; and McIntosh which are red, sweet, and soft.



EXPLORE: Let's taste a few of the apple varieties we brought today and discuss their differences!



Apples have many nutrients, including vitamin C. Vitamin C, also called ascorbic acid, is a common antioxidant in fruits and is an essential dietary nutrient that has many important functions in the body. Apples are also a good source of fiber! The leaves can be used as an antibacterial agent.

Nutrition Facts	
Serving Size 1 large apple (242g / 8 oz.)	
Amount Per Serving	
Calories 130	Calories from Fat 0
	% Daily Value**
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	0%
Cholesterol 0mg	0%
Sodium 0mg	0%
Potassium 260mg	7%
Total Carbohydrate 34g	11%
Dietary Fiber 5g	20%
Sugars 25g	
Protein 1g	
Vitamin A 2% • Vitamin C 8%	
Calcium 2% • Iron 2%	
* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:	
Calories per gram: Fat 9 • Carbohydrate 4 • Protein 4	



EXPLORE: Let's think more about how fiber helps our bodies! Fiber from the apples we eat acts like a broom, helping to clean out our intestines. Sweep your hands back and forth like a broom!

How many ways have you tried eating and enjoying apples? Let us count the ways! Apple juice, cider, pie, apple butter, and chips are just a few! Did you know it takes 36 apples to make one gallon of cider?



EXPLORE: Students can share the ways they enjoy apples, and sample different preparations!

APPLES TO EAT, APPLES IN ART!



INGREDIENTS

2 tsp lemon juice

1 cup shredded or chopped apple (*approximately 2 medium apples*)

1/2 cup fat (coconut oil or butter, or a combination of both)

3/4 cup brown sugar

1/2 tsp salt

1 tsp cinnamon

1/4 tsp nutmeg

1 tsp vanilla

2 1/2 cups oat flour

Big Chef's: Measure lemon juice and apples into a large bowl. Melt fat in a saucepan. Add remaining ingredients, except for the oat flour, and bring to a low simmer. Cook for one minute, while stirring constantly. Allow to cool to just warmer than room temperature.

Little Chef's: Measure oat flour into the bowl with the apples. When the butter/sugar mixture has cooled, pour over the apples and stir well with a spatula. Shape into "cookies" and cool in the fridge for at least 30 minutes to retain their shape, or eat immediately.

EXPLORE: Teachers can add hands-on component - doing apple taste-test, making no-bake apple cookies or making art!

MATERIALS PHOTO:





MATERIALS LIST FOR SENSORY COMPONENT:

PAGE 1: variety of apples

PAGE 2: wild rose, rose water spray

PAGE 3: crabapple, modeling clay

PAGE 4: mummified fruit (fig or comparable), piece of burnt wood

PAGE 5: map or globe, sand / rocks

PAGE 6: website or printed maps <https://native-land.ca/>

PAGE 7: apple cider, cups, tin pot

PAGE 8: cued Wassail song: <https://www.youtube.com/watch?v=7XO5Zs-qlx4>

PAGE 9: spray bottle filled with water

PAGE 10: assortment of flowers, cued pollinator

sounds: <https://www.youtube.com/watch?v=vKEUJaQcPrg>

PAGE 11: apple seeds, rootstock, branches

PAGE 12: grafted branch, graft union

PAGE 13: same variety of apples, knife for cutting, cutting board

PAGE 14: broom

PAGE 15: small cups / plates / spoons - apple cider, dried apple chips, apple butter

PAGE 16: construction paper, paint, paint brushes, or cooking ingredients - mixing bowls, muffin pan, etc.



PHOTO CREDITS BY SLIDE:

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P. 1 <https://www.philippinesfuneralflower.com/sympathy-food-and-fruit-baskets/apple-basket/>

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P. 3: <https://www.wildlifegroup.com/shop-for-crabapples/> <https://www.mailordertrees.co.uk/products/malus-gorgeous-crab-apple-tree>

P. 4:

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P. 6: <https://native-land.ca/>

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P. 9: <https://www.indexmundi.com/agriculture/?commodity=apples&graph=production&display=map>

P. 10: <http://treefruit.wsu.edu/orchard-management/pollination/honey-bees/>

P. 11: <http://www.fruit.usask.ca/rootstock.html> <https://www.medicalnewstoday.com/articles/318706.php>,

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P. 12: <http://treefruit.wsu.edu/varieties-breeding/cultivar-guide/>

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