Let’s learn about apples today!! Apples are not native to Alaska even though there are areas along the coast with milder weather conditions than those where apples are grown in other regions of the world. Oregon crabapple (*Malus fusea*) of southeastern Alaska is the only member of the *Malus* genus indigenous to Alaska.

Early settlers in Alaska were eager to have apples in their new environment and efforts were made at the Sitka Agricultural Experiment Station in 1902 and 1903 to grow and propagate apple varieties of that era. By 1906 about 30 varieties, constituting 2716 apple trees, had been distributed, to settlers to learn if they would be productive in their now locations. Crabapples were also studied and found to be hardy and productive. Inadequate transportation made it difficult to spread the material beyond communities accessible by water. Because of this early work, a few fruits of Yellow Transparent, McIntosh, Jonathan, Northern Spy and other more recent varieties are grown in the Panhandle Region of Alaska, notably at Haines. Heavy rainfall and high humidity of this coastal region favor fungi that attack apple leaves and trunks so that fruit production there is not without its problems.

### The Roots of Apple History

- Apples have existed for the length of recorded history and are believed to have originated in the Caucasus, a mountainous area between what are now the Black and Caspian Seas.
- Through the rise of Greece, the fall of Persia and migrations to Rome and Europe, apples were cultivated and — through a process called grafting, which produces new varieties — disseminated throughout various cultures. Apples experienced surges of popularity and, at one point, some varieties were nearly lost, but were saved due to traditional orcharding by the English church.
- Apple growing arose again in 15th century Renaissance Italy. Eventually, France and England followed suit, and the fruit remained popular in Europe well into the 1800s, when European settlers brought apples with them to the Americas to share the cultivation and traditions.
- In the Auke Bay area, an old orchard of Yellow Transparent trees with trunks 6 to 10 inches in diameter was observed in the early “50’s” heavily laden with moss growth typical of that found on forest trees of that region.
- At Hope, on the south shore of Turnagain Arm where the climate is tempered considerably by the water and winds of Cook Inlet, apples have been trailing for over 30 years. Anoka and
Haralson were recognizable but these were destroyed by high tide-water following the 1964 earthquake.

- Settlers on the Kenai Peninsula at Seward, Sterling, Kenai, Ninitchik, and Homer have attempted to grow apples. Trees of Wealthy and Yellow Transparent fruited once in the Sterling area and were subsequently destroyed by moose browsing. Apple trees set in the other communities’ nave grew poorly. None have matured a crop of fruit and most trees have succumbed to unfavorable growing conditions including destruction by moose browsing, or girdling by mice and rabbits.

- In the vicinity of 3rd Avenue and Christensen Drive in Anchorage, an apple and 2 crabapple trees have been growing and fruiting for over 30 years. The fruit spurs and the bark of the apple closely resemble that of Yellow Transparent, however, the fruits are not typical of this variety as it grows in other apple producing regions. The tree could be a seedling of Yellow transparent developed during the early Work at Sitka.

- Further up Cook Inlet, at the Matanuska Research Center, testing of apple trees has been in progress since the early ‘20’s.” Apple trees have been set in other locations of Alaska, including the College Research Center, however, survival of the plantings and production of mature fruit have been rare. An extensive planting at the Matanuska Research Center in the early “30’s” was doomed to failure at setting because the root systems had become very dry during the long period in transit from nurseries in the lower latitudes.
  - In 1949, 39 named and numbered varieties of apples were set at the Matanuska Research Center in 5-tree plots to determine their response to this environment. Tops of about 25 percent were still alive and showing weak growth characteristics in June of 1952. Not one group showed vigorous growth among the groups of 5 trees set of cacti variety. It was not apparent why the apples had died or declined in vigor.

**Let’s Move into the Science of Apples**

**Pronunciation:** ãpel
**Spanish name:** manzana
**Family:** Rosaceae
**Genus:** Malus
**Species:** M. domestica

Apples are the fruit of plants of the genus Malus in the family Rosaceae (rose family). Domestic or table apples are of the species M. domestica and are one of the most widely cultivated tree fruits.

*Malus sieversii* is the wild ancestor of *M. domestica*, and its trees can still be found in the mountains of Central Asia. In fact, the former capital of Kazakhstan, *Almaty*, means “father of the apple.” Wild apples (common name for *M. sieversii*) resist many diseases and pests that affect domestic apples, and they are often researched and used in the development of new disease-resistant apples.

There are more than 7,500 known cultivars of apples, resulting in a range of desired characteristics. Different cultivars are bred for various tastes and uses, including cooking, eating raw and cider production. Trees and fruit are prone to several fungal, bacterial and pest problems, which can be controlled by a number of organic and non-organic means.
How Does an Apple Grow?

Apple trees grow in the temperate regions of the world. Apple trees are best adapted to places where the average winter temperature is near freezing for at least two months, though many varieties can withstand winter temperatures as low as -40 F.

Apple trees are deciduous. In late spring, white blossoms appear from the tiny buds on apple tree branches for about nine days and produce pollen and nectar. Bees help to cross-pollinate the blossoms, the first step in forming an apple.

The seeds are distributed among an apple’s five seed chambers, called carpels, found near the core. Seed development stimulates the apple tissue development. Apples continue to grow until late summer when they are ready to harvest and eat.

Reasons to Eat Apples

A ½ cup of sliced apples provides:

- Dietary fiber is a complex carbohydrate. There are three main types of carbohydrates: starch, fiber, and sugar.
- Eating a variety of colorful fruits and vegetables throughout the day will help you meet the recommended daily values of nutrients that your body needs to be healthy.
- Apples can be eaten in a variety of forms — as whole (fresh), unsweetened applesauce, dried apples, or 100% apple juice.

What is sugar?

- Carbohydrates are the body’s main source of energy. There are three kinds of carbohydrates: starch, fiber, and sugar.
- Sugar is found only in foods of plant origin. In food, sugar is classified as either naturally occurring or added.
- Naturally occurring sugars include lactose in milk and fructose in fruit, honey, and vegetables.
- Added sugars (white, brown, powdered, and corn syrup) are originally made from sugar beets, sugar cane, corn, and grapes.
- Naturally occurring sugars (except honey) are usually found in foods along with vitamins and minerals, while added sugars provide calories and very few vitamins and minerals. Therefore, added sugars are often called empty calories.

Some Great Apple Facts

- About 2,500 apple varieties are grown in the United States and more than 7,500 are grown worldwide.
- Apples are best when eaten with the peel, as that is where most of the fiber and antioxidants are found.
- Almost one-half of all apples consumed are not in their fresh form, but rather as applesauce, apple juice, and jellies or jams. Apples can even be used to replace fat and butter in baked goods. (Replace shortening or oils in baking with an equal volume of applesauce plus one-third of the oil called for in the recipe).
- In 1905, the U.S. Department of Agriculture published a 400-page book listing more than 14,000 distinct types of apples grown in the United States.
- The only apples native to North America are crab apples.
- Apple trees must cross-pollinate in order to produce fruit; therefore, they need to be planted within approximately 100 feet of another cultivated apple tree variety, crab apple tree, or wild apple tree.
- Johnny Appleseed’s real name was John Chapman. He started several different tree nurseries and sold apple trees to other white settlers who were heading west.
- One bushel of apples produces about 3 gallons of cider.

Let’s Eat . . .

**Apple Rhubarb Muffins**

Makes about 18 muffins

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eggs, medium sized</td>
<td>2 each</td>
</tr>
<tr>
<td>Milk</td>
<td>1 cup</td>
</tr>
<tr>
<td>Lemon juice</td>
<td>1 teaspoon</td>
</tr>
<tr>
<td>Vegetable oil</td>
<td>2 Tablespoons</td>
</tr>
<tr>
<td>Apple sauce</td>
<td>3 Tablespoons</td>
</tr>
<tr>
<td>Brown Sugar</td>
<td>1 ¼ cups, additional ¼ cup separated</td>
</tr>
<tr>
<td>Vanilla</td>
<td>1 teaspoon</td>
</tr>
<tr>
<td>Apples, diced</td>
<td>1 cup</td>
</tr>
<tr>
<td>Rhubarb, fresh or frozen, diced (drain juices if it was frozen)</td>
<td>1 cup</td>
</tr>
<tr>
<td>Flour</td>
<td>3 cups</td>
</tr>
<tr>
<td>Baking soda</td>
<td>1 teaspoon</td>
</tr>
<tr>
<td>Cinnamon, ground</td>
<td>2 teaspoons</td>
</tr>
<tr>
<td>Salt</td>
<td>½ teaspoon</td>
</tr>
</tbody>
</table>

1. Preheat oven to 350°F. Grease muffin tins or use paper liners for muffins.
2. In a large bowl, mix wet ingredients together: eggs, milk, lemon juice, vegetable oil, apple sauce, 1 ¼ cups brown sugar and vanilla.
3. In a separate bowl, whisk together flour, baking soda, cinnamon and salt.
4. Mix in the dry ingredients with the wet ingredients, just until combined. Gently fold in apple and rhubarb pieces to mixture.
5. Evenly divide mixture into the muffin tins. Bake for about 18 to 22 minutes, if using a regular sized muffin tin, or until toothpick comes out clean.

1. Once done, remove from oven. Cool slightly, then remove from tins to cool. Once cool, enjoy.
Yummy Goodness and Tasty Tips!!

- Choose apples that are firm with no bruises or soft spots.
- Color may vary depending on variety—it is not an indicator of ripeness.
- Depending on variety, apples can be sweet, tart or in between!
- Apples can be stored at room temperature for a few days or in a plastic bag in the refrigerator for a few weeks.
- Wash before eating; for the best nutritional value leave the skin on!
- To prevent browning, dip sliced apples in a mixture of lemon juice and water.
- Make a peanut butter and apple sandwich! Cut thin apple slices, spread with peanut or other nut butter and top with another apple slice!
- Sliced apples can also be added to other sandwiches & wraps. Try granny smith apple slices on a grilled cheese sandwich!
- Make your own apple dipping bar. Apple dips can include peanut butter, yogurt, caramel, a pumpkin spice mix, Nutella and fruit dip; be creative!

Digging in: Classroom or Home Learning Activities

- Creative Writing: Create Your Own Apple
  Supplies needed: Five apple varieties, knife, cutting board, plates or napkins, journal sheet for taste test observation and for describing and drawing an invented apple variety.
  Directions:
  - Explain to students that a single food can have many varieties, such as apples, carrots, kale, potatoes, and tomatoes. The have different features, including color, texture, taste, size, disease resistance, and storage length.
  - Pass out a slice of each variety to each student. Have them write down descriptive words of what they taste, such as: crisp, firm, soft, mealy, tart, sour, sweet.
  - Building upon the taste test experience, ask students to describe and draw their own apple variety.
  - Have students share one or two key features of their apple.
- Plan a meal that includes apples. The meal should be low in calories, fat, and sodium and provide at least 20% of the recommended Daily Value for iron, fiber, and calcium. Which apple recipe would you select? What other foods (grains, fruits, vegetables, meat/beans, dairy products) would you include to make a complete, balanced meal? Which vitamins are included in your meal?
- Research the history and folklore associated with Johnny Appleseed.

Library Connections...

- Elementary:
  - Apple Picking Time, by Michele Slawson
  - Applesauce Season, by Eden Ross Lipson
  - How do Apples Grow?, by Betsy Maestro
  - How to Make an Apple Pie and See the World, by Marjorie Priceman
  - Johnny Appleseed, by Steven Kellogg
  - Our Apple Tree, by Görel Kristina Näslund