



HARVEST OF THE MONTH

APPLES

ACTIVITIES

Apple Lifecycle Activities:

Apple Dance (K-2nd)

Lead students through the apple lifecycle through movement (see below for more information on the apple lifecycle). First, winter arrives and the apples rest. Students stand still, just like the apples. Then, spring arrives and students are bees and move around in search of flowers. Summer arrives and the apples grow bigger. Students stand and open their arms above their heads to show how big the apples are getting. Finally, it is fall and the students act out the role of the farm workers and reach up high and gather invisible apples. You may add additional steps if you like (e.g. the apples are delivered to a store or farmers market).

Picture Books: Apple Tree Throughout the Seasons (3rd-6th)

Ask students to read the information below and create a picture book that explains the life cycle of an apple tree.

Information: Apple Orchard Throughout the Seasons

Winter

Winter is the slowest season of the year in the orchard, but it's also one of the most important. The apple tree rests and there are only buds on the branches. The trees need rest to produce flowers and fruit each year. It takes about 900 to 1,000 hours below 45 degrees to prepare the trees and fruit buds for the next season.

While the trees are resting, farmers prune them and prepare them for the next growing season. Workers use loppers and saws to cut extra wood out of trees. By pruning, plenty of light can reach the leaves and fruit. This helps keep the tree healthy, and allows tasty fruit with good color to grow.

Spring

In the spring, orchard work picks up pace quickly. All of the limbs that have been removed during pruning are raked up and mulched with the tractor and a mower. With warmer spring weather, the leaf buds unfold and flower buds begin to grow on the ends of the twigs. Beehives are brought into the orchard to make sure that the blossoms are pollinated. Honeybees are attracted to the apple flowers by nectar and the scent of the petals. As the bee collects nectar, it also picks up pollen. When the bee lands on a flower on another tree, it brushes against the pistil of the flower, leaving pollen grains on the sticky stigma. The pollen grains travel by tubes down through the styles. Then pollen moves through the filament, and can reach the ovules that are in the ovary. The fertilized ovules will become seeds.

Once the bees have done their job, the flowers will grow into apples. The outer wall of the ovary develops into the fleshy white part of the apple. The inner wall of the ovary becomes the apple core around the seeds.

When the trees are blooming, sometimes the orchards must be protected from frost which can kill the flowers. Wind machines, which are huge fans mounted on towers within the orchard, move the cold air out of the orchard while bringing warm air down from above to raise the temperature.

Summer

Throughout the summer, apples grow in the orchard. When the apples get as big as a golf ball, farmers thin them by hand. Small, misshapen apples are removed so that only the best fruit will mature for harvest. Summer sun helps the fruit develop sweetness and beautiful color.

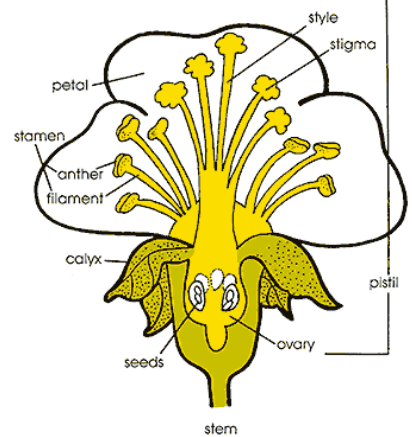
Fall

Most people know that apples are harvested in the fall. But, not many people know how much work it takes. Apples must be harvested by hand. When it's time to pick, the orchard is busy with tractors hauling 900-pound bins full of fruit, workers gently plucking apples from the tree and ladders being moved from limb to limb. When the bins are filled, they are loaded on the truck and hauled to the warehouse. From there, apples are packed and kept cool until they are ready to be sold.

Plant Anatomy Activities:

The flowers have many parts that are crucial to the formation of apples:

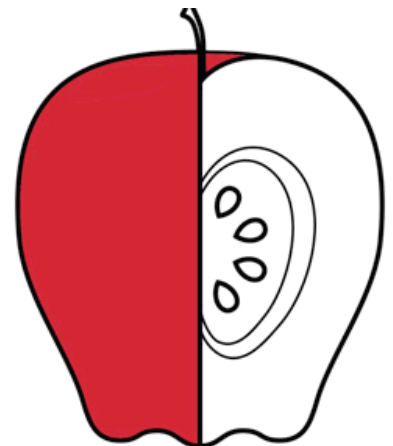
- **Sepals** - five green, leaf-like structures that make up a flower's calyx
- **Petals** - the part of a flower that attracts insects by their color and scent
- **Stamens** - the male reproductive part made up of an anther and filament
- **Anther** - the part of the stamen that produces pollen
- **Filament** - the stalk of the stamen
- **Pistil** - female part of the flower, made up of a stigma, style, and an ovary
- **Stigma** - the top of a flower's pistil
- **Style** - the part of a pistil that connects the stigma and the ovary
- **Ovary** - the rounded base of the pistil, inside of which are five compartments each containing two ovules, female reproductive cells that can become seeds.



K-2nd

The Apple and its Uses

Cut an apple in half and show students where the seeds are and discuss why apples have seeds. For enrichment, you can discuss Johnny Appleseed and how he helped people (see the story below for this information).



Group Poetry

Discuss the five senses and how the senses can be used to describe apples. Create a poem using a word

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describing the apple in regards to each of the six senses. This is a great activity to do before and after tasting the apple! (adapted from Downey USD HOTM curriculum, available from lapublichealth.org).

3rd-6th Grades

Apple Halves Experiment

The teacher will conduct this scientific experiment and students will observe. Reserve four slices of an apple. On the first slice, pour one tablespoon of lemon juice. On the second slice, pour one tablespoon of water. On the third piece, pour one tablespoon of apple juice. Do not pour anything on the fourth apple half. Display the apple halves in the classroom. In an hour, students will observe any changes in the apple halves. This experiment demonstrates oxidation, which is observed through the browning of the apples. Apples brown when the atoms in the apple come into contact with the air and lose electrons. A scientific explanation of oxidation is available at: <http://sciencera.com/chemistry/the-oxidation-of-an-apple/> . The vitamin C in lemon juice intercepts the oxygen and prevents the oxygen from changing the properties of the apple surface.

Diagrams

Students may draw detailed diagrams of the parts of the flower of the apple tree and label it to show what happens during pollination.

http://urbanext.illinois.edu/apples/edu-projects_4B.html

Other Activities:

Create a Timeline - Apple History: The Story of Johnny Appleseed

Present information about the history of apples to students. Look at "Great Moments in Apple History" at the website:

<http://www.hort.purdue.edu/newcrop/maia/history.html>. You can also limit the timeline assignment to the life story of Johnny Appleseed if you choose.

For upper grades, reserve some time at the library so they can do their own research on the history of apples. Brainstorm with students about how to create a timeline that shows the important information relevant to apples' history.

Make a timeline on the chalkboard, or with string and index cards. You can also have the class create apple cut outs from construction paper to be used for writing the descriptions of the dates.

