OREGON HARVEST for SCHOOLS

CLASSROOM CONNECTIONS

Early Childhood and Lower Elementary:
Plant Part Pie

Connections to Standards:
Science K.3S.1, 2
English Language Arts K.W.8; K.L.5.a
Math K.MD.3

Materials:
- Strawberry rhubarb pie recipe, ingredients, and tools
- "Fruits and Seeds, Roots and Stems, Flowers and Leaves" lesson plan materials from *Eat. Think. Grow.*

Spring is a special time for delighting in more sunshine, warmth, and the first bounty from our Oregon farms and gardens. From April-June, fresh rhubarb, nicknamed the "pie plant", is one of the first harvests of the season. Check out the Rhubarb Family Newsletter for nutrition and preparation information. **Note: Rhubarb leaves are toxic.** Only the stalks should be used in food preparation.

Adapting the lesson "Fruits and Seeds, Roots and Stems, Flowers and Leaves" from *Eat. Think. Grow.*, explore the school garden to look for the various plant parts we eat. You may find rhubarb, flowering strawberry plants, the first lettuce leaves, herbs, and radishes, among others. Alternatively, you can set up a sorting game with plant part labels and pictures of various fruits and vegetables to be sorted according to the label.

Tell the students that we are making a plant part pie to celebrate spring. It will not have all six edible plant parts, but it will further discussion and plans for additional plant part-centered cooking projects. A strawberry rhubarb pie can be made with Oregon-grown rhubarb (stems), strawberries (fruit), flour (seeds), and butter. Sugar may be a root if you can confirm that it is made from sugar beets. Local strawberry and rhubarb harvests overlap around late May and early June. You can use frozen rhubarb and strawberries at other times of the year.

Coordinate with cafeteria staff to secure ingredients, to use the kitchen prep space, and the oven. Work together or in small groups to wash, measure, chop, and prepare all ingredients. When the pie is baked and cooled, work with students to figure out how to divide the pie evenly so that everyone gets a small piece to try.

Eat. Think. Grow. Fruits and Seeds, Roots and Stems, Flowers and Leaves
www.eatthinkgrow.org/wp-content/uploads/2012/04/KF31.pdf

Additional Resources:

Cultivating Joy & Wonder: Educating for Sustainability in Early Childhood Through Nature, Food, and Community

Who Are We?, "Plant Parts We Eat" lesson plan, page 69
www.shelburnefarms.org/learn/resources/cultivating-joy-wonder-educating-for-sustainability-in-early-childhood-through

Upper Elementary: Plant Parts We Don't Eat

Connections to Standards:
English Language Arts 3.W.2 a, b; 3.W.4, 5, 6, 7
4.W.2 a, b; 4.W.4, 5, 7
5.W.2 a, b; 5.W.4, 5, 7
6.W.2 a, b; 6.W.4, 5, 7

Materials:
Rhubarb is an interesting plant in many ways (see Family Newsletter for more information) that requires some culinary and botanical know-how to thoroughly enjoy. Rhubarb is the stem of a vegetable that is often cooked with fruits and a sweetener to balance its natural tartness. While the stems are edible, the leaves are toxic and must be removed prior to food preparation. The leaves contain oxalate—a toxin that can cause poisoning when large quantities of it are ingested.

Plants have many interesting aspects to them once you dig deeper. Rhubarb is not the only common garden plant with a darker side. Tomato and potato leaves and stems have been known to make some people sick. Invite students to research this—or another interesting aspect of plant parts we eat—and create a booklet, comic book, or trivia game with strange facts about common plants.

Resources:
University of Minnesota Extension Farm to School Toolkit for Food Service "Promoting Rhubarb"
www1.extension.umn.edu/food/farm-to-school/toolkit/promoting-food/promoting-rhubarb.html

Middle School: Team Rhubarb

Connections to Standards:
English Language Arts 7.W.2 b, d; 7.W.3 d;
7.W.4, 7; 7.L.3; 7.SL.1, 2
8.W. b, d; 8.W.4, 7; 8.SL.1, 2

Despite the fact that it has high nutritional value, is easy to grow, and can be delicious, rhubarb can be an underappreciated spring vegetable. Work with students to create development and marketing teams to test various rhubarb recipes that may be popular with their peers or younger children in the cafeteria. Teams can work with cafeteria staff, local farmers, chefs, and marketing professionals to create, test, and market rhubarb-based foods to students. Recipes might include yogurt parfaits with rhubarb sauce, rhubarb muffins, and strawberry rhubarb crisp.

Resources:
Jr Iron Chef Vermont www.jrironchefvt.org/

University of Minnesota Extension Farm to School Toolkit for Food Service "Promoting Rhubarb"
www1.extension.umn.edu/food/farm-to-school/toolkit/promoting-food/promoting-rhubarb.html

High School: Rates and Rhubarb Chemistr Experiment

Connections to Standards:
Science H.2P.1; H.3S.1, 2, 3

Rhubarb stalks, which contain oxalic acid, can be used to reduce and decolorize potassium manganate (VII) solution. Check out the lesson plan from the Nuffield Foundation and the Royal Society of Chemistry that can be used to show how the rate of reaction is affected by surface area or concentration using rhubarb. The leaves contain a much higher concentration of the acid, but are not recommended for use in this experiment, as there is enough acid—despite the fact that the stalks are safe to eat—in the stems.

Rates and Rhubarb
www.nuffieldfoundation.org/practical-chemistry/rates-and-rhubarb

University of Minnesota Extension Farm to School Toolkit for Food Service "Promoting Rhubarb"
www1.extension.umn.edu/food/farm-to-school/toolkit/promoting-food/promoting-rhubarb.html