YES, YOU CAN **CAN**!!!

CANNING LAB: LOCAL FRUIT JAM

Teacher Prior Knowledge: Read the information below to prepare for the canning lecture and preservation lab.

Food Preservation in History

Various methods of preserving food have been around for a long time. The processes of food drying (dehydration) and using salt and spices to prevent spoilage have been used for thousands of years. Grains and nuts were the first foods to be dried using the sun and air. Mechanical methods of drying were developed in the late 1700s. Campers, backpackers, and military personnel are a few of the people who commonly use dried foods. Dried foods are eaten by others as well because they are compact, lightweight, and last much longer than fresh foods. In contrast, irradiation of food is a much newer process. Nicolas Appert, a French chef and inventor, discovered a way to sterilize food in a sealed container. Napoleon I gave Appert 12,000 francs to make his invention public. Napoleon was highly interested in Appert's invention because of its potential to feed armies who were many miles from home. Appert published several books for canning and started the canning industry.

Food Processing

Families involved in home canning and commercial canning and food preservation endeavors must utilize procedures published by the USDA (United States Department of Agriculture), the Cooperative Extension Service, and/or the FDA (Federal Drug Administration) to avoid spoilage that could be fatal. Many companies involved in food production and preservation (such as Kerr, Ball, MCP, etc.) provide educational material to help individuals and families have a safer, better quality food supply. If individuals and families involved in food preservation at home do not work in a sanitary environment utilizing procedures established by the USDA (United States Department of Agriculture), the Cooperative Extension Service, or canning companies, the spoilage that may occur could be fatal. Salmonella, staphylococcus aureus, clostridium perfringens, trichinosis, and Clostridium Botulinum are the five most common bacteria that can cause food-borne illness. Negligence in food preparation and storage is the most frequent reason food poisoning occurs. The

symptoms vary from mild flu-like symptoms to death. Sixty five percent of persons with botulism die. This type of food poisoning can be caused by improperly home-canned food. It can also be caused from commercially canned food stored in damaged containers.

Pectin

Pectin is used to enable fruit or Fruit juice and sugar mixtures to gel in a very short period of time. Before added pectin was used, the cook boiled equal amounts of Fruit and sugar until this mixture sheeted off a spoon. Sheeting off a spoon is also addressed in the unit on Crystallization (Candy). The mixture had to be cooked over a very high heat and stirred constantly to prevent burning, scorching, or boiling over. This usually meant constant attention from the cook and a long cooking period. Pectin is a natural substance found in all fruits. Pectin is extracted from citrus rinds, chiefly lemons and oranges. Other principal sources of pectin are apples and citrus fruits. Pectin is a substance similar to gelatin, but gelatin is from animal sources. The amount of pectin present in fruits varies with the type of fruit and the degree of ripeness.

Jams and Jellies

Basically jams and jetties are similar products; jellied fruit is preserved by sugar. The type of fruit, the preparation method, and the proportions of ingredients utilized give jams and jellies their unique characteristics. Jelly is made from the juice of fruits and should be clear and firm enough to hold its shape. Jam is made from crushed or ground fruit and is less firm than jelly. Conserves are jams made from a mixture of fruits, with citrus fruits, raisins, and nuts. Marmalade is basically jelly with citrus fruit pieces evenly distributed. Preserves are whole fruits or large pieces of fruit in a very heavy syrup which is sometimes slightly jellied.

Modified from the Utah Education Network: Food Preservation Curriculum Resources