3055 BA SANGAM COLLEGE

PH: 6674003/9264117 E-mail: basangam@connect.com.fj

Worksheet 22

School: Ba Sangam College **Year:12**

Subject: Home Economics **Name: _____**

Strand	2 HEC 12.2 Food and Nutrition
Sub strand	HEC 12.2.3 Diet and Health
Content Learning Outcome	HEC 12.2.3.1 Explore the utilization of micronutrients and the effects of malconsumption by individuals.

FRUITS AND VEGETABLES

Fruits

The ripened seed-bearing part of a plant that is fleshy and edible. In other words, a "fruit" is any fleshy material covering seeds. For example, eggplant, tomato, cucumber and zucchini are referred to as fruit.

Vegetables

An herbaceous (green and leaf like in appearance or texture) plant cultivated for an edible part, as roots, stems, leaves or flowers.

EFFECTS OF: HEAT, ACID AND ALKALI

HEAT

- Cellulose is somewhat softened upon cooking but appears indigestible for humans.
- Upon boiling cellulose content is increased.
- The pectic substances in the intracellular cementing material may be hydrolyzed to a certain extent so that there is some cell separation.
- Gelatinization (swelling of starch grains upon heating in presence of water) of starch takes place.
- Loss of vitamin B and C.
- Change in color takes place.

ACID

- Prevents softening.
- Color is enhanced.
- Browning on the broken, bruised or cut surfaces is prevented.

ALKALI

- Sodium bicarbonate (baking soda) causes the hemicellulose to disintegrate, producing a soft texture in a short cooking period.
- Loss of Vitamin C.
- Oxidation (when oxygen combines and changes color/ appearance) of vitamins takes place particularly thiamine and vitamin C.

Oxidation Reaction and Enzymatic Browning

The cells of apples and other produce (e.g., pears, bananas, peaches, potatoes) containing enzyme (called polyphenol oxidase or tyrosinase) that, when contact with oxygen, catalyzes one step of the biochemical conversion of plant phenolic compounds to brown pigments known as melanin. You see the browning when the fruit is cut or bruised because these actions damage the cells in the fruit, allowing oxygen in the air to react with the enzyme and other chemicals. This reaction is known as **enzymatic browning** and occurs at warm temperatures when the pH of the plant material is between 5.0 and 7.0. the reaction is sped up by the presence of iron (such as iron or rusted knife) or copper (such as copper bowl).

Activity

1. Define fruits and vegetables with its example. (4 marks)

_____
_____
_____
_____

2. What effect does the following have on fruits and vegetables; (6 marks)
   a. Heat-

_____
_____

   b. Acid-

_____
_____

   c. Alkali-

_____
_____