Topic: Nutrition
Sub-topic: Food Tests
Objectives: After observing pictures and reading the information, students will:
- describe the process of testing for reducing sugars and non-reducing sugars correctly.
- correctly identify the reagent used in testing for reducing and non-reducing sugars.
- briefly explain what is meant by dehydration synthesis.

Content
- Sugars can be classified as either Reducing or Non-Reducing.
- Monosaccharides and some disaccharides are reducing sugars.
- Examples of reducing sugars are glucose, fructose and lactose.
- An example of a non-reducing sugar is sucrose.
- Sucrose is an example of a disaccharide.
- Sucrose exists naturally in foods and breaks down in the body in the same way as glucose. All the sugar you have in your pantries, such as caster sugar, icing sugar and Demerara gold, is a manufactured form of sucrose.
- Dehydration synthesis refers to the formation of larger molecules from smaller reactants, accompanied by the loss of a water molecule.
- A disaccharide, also called a double sugar, is a molecule formed by two monosaccharides, or simple sugars.

Testing for reducing sugar
Benedict’s solution is used to test for simple sugars, such as glucose. It is a clear blue solution of sodium and copper salts. In the presence of simple sugars, the blue solution changes color to green, yellow, and brick-red, depending on the amount of sugar.

Procedure for conducting the Benedict’s test

- Heat the test sample with Benedict’s Reagent.
- Observe the colour change.
- A brick-red precipitate indicates the presence of reducing sugar.

![Image showing color changes from none to high]

**Testing for non-reducing sugar**

Benedict's Test for non-reducing Sugars is a test that determines the presence of non-reducing sugars in a test solution. The test for non-reducing sugars is often conducted on a food sample that tested negative for reducing sugar.

If reducing sugars are present, a heavier precipitate is often observed when the test for non-reducing sugar is conducted.

Procedure for testing for non-reducing sugar

- Boil the sample with hydrochloric acid
- This will hydrolyze any disaccharide into 2 monosaccharides (glucose and fructose)
- Cool solution and neutralize with sodium hydrogen carbonate
- Add Benedict's Reagent and heat
- Observe colour change

**References**