Pre-Show Activity: See the Vitamin C?

Vitamin C, which comes from fruits and vegetables, is a nutrient necessary for the body to complete certain blood-related chemical reactions. A lack of Vitamin C can cause the body to not heal as fast which could cause the body to bruise more easily or it can cause weak gums which could lead to teeth falling out. This sickness, known as scurvy, was more common during the times of sailing ships and pirates, where voyages could take months and food with vitamin C could not be stored for long periods of time. Luckily, several food products of today contain some Vitamin C so scurvy is somewhat rare.

Activity Objective: In this experiment, students will find out how much Vitamin C is in some forms of food. Vitamin C's molecular structure is similar to glucose, so as in the last experiment, iodine will turn purple in its presence.

This activity can be done individually or in pairs.

CAUTION: This experiment involves iodine, which could cause sickness if swallowed. Instruct students not to drink the iodine or eat apples with iodine on it.

Materials per group

- Measuring device in milliliters or cups
- Eyedropper
- Iodine
- Cornstarch
- Water
- Drinking Glasses
- Spoons
- Fruit juice (or juice strained from a fruit)
- Other food or liquid samples, such as milk or meat (but it needs to be liquefied)
- Something that can heat the mixture

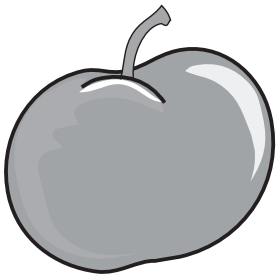
Teacher Preparation

Any whole foods will need to be cut so students can see the into the center.

To Try with Students

- Ask students may not completely understand what Vitamin C, so ask them what foods they have heard have Vitamin C and which foods have the most of it.

Check it out online:
http://californiasciencecenter.org/FunLab/DoItYourself/Nutrition/VitaminC/VitaminC.php
Includes an animated demonstration!



Activity 4: **See the Vitamin C?**

CAUTION: This experiment involves iodine, which could cause sickness if swallowed. Do not drink the iodine or eat apples with iodine on it.

What to Do:

1. Measure 1 tablespoon of cornstarch and pour into a drinking glass. Add just enough water to make it pasty.

2. Measure 250 milliliters (3 1/8 cup) of water and pour this into the same drinking glass.

3. Mix the solution until the starch dissolves. You may need to heat it in order to make it dissolve faster.

4. Measure 75 milliliters (1 cup) of water and pour into a different drinking glass. Then add ten drops of starch to the water with the eyedropper. This dilutes the iodine so that it's not as strong.

5. Then add enough iodine to this mixture that it reacts with the starch and turns a darkish blue/purple.

6. Now measure 5 milliliters (1/10 cup) of the iodine/starch mixture and pour into a separate drinking glass.

7. Add 10 drops of the fruit juice. If the mixture becomes clearer, there is Vitamin C present. Vitamin C causes iodine lose its color.

8. You can use the iodine solution to test some other drinks and foods (liquified or blended, of course!) The clearer the mixture, the more Vitamin C there is. Make sure you clean the eyedropper with water each time you use it. Write your predictions of how certain foods will reacts, then your findings in the boxes below:

Food	Prediction	Findings

6. In Conclusion...

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