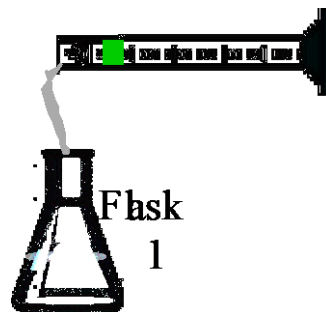




# Vitamin C

## Procedure.

1. Always wear safety goggles.
2. Rinse the two flasks and the graduated cylinder in the sink.
3. Use the graduated cylinder to measure 10 ml of starch solution and add it to Flask 1.
4. Measure 10 ml of starch solution again, and add it to flask 2.
5. Add 10 drops of vitamin C solution to Flask 2 only.
6. Add one drop of iodine solution to Flask 1. Swirl the flask to mix the solution.



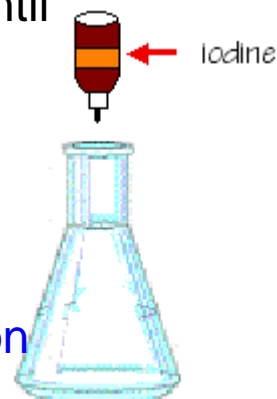
What happens?

7. Count each drop as you continue adding drops of iodine to Flask 1. Swirl the flask after each drop until the solution turns dark blue.

How many drops did you need to add to make the solution turn blue?

8. Repeat step 5, adding iodine to Flask 2.

How many drops did you need to turn the solution in Flask 2 dark blue?



9. Empty and rinse the flasks and graduated cylinders in the sink.



What is vitamin C?  
How does it work?

## A Closer Look

Vitamin C, or ascorbic acid ( $C_6H_8O_6$ ), is an antioxidant. Antioxidants are very reactive molecules that are broken down by oxygen. Antioxidants, like vitamin C, act as a first target of reactive molecules like oxygen or iodine. This protects other molecules critical to our health.

In this experiment, the iodine ( $I_2$ ) drops in Flask 1 react quickly with the starch to form a blue complex. In Flask 2, the vitamin C



prevents the iodine from reacting with the starch. Once all of the vitamin C has reacted, any additional iodine reacts with the starch to form the blue complex. Vitamin C does this in our bodies, too. It protects us by reacting

with toxic compounds before they can harm us

Vitamin C is found in many fruits and vegetables. It is oxidized by exposure to air, heat, and light. Oxidation destroys the function of vitamin C. Thus, fresh, uncooked fruits and vegetables are the best sources of vitamin C.