

**MINISTRY OF EDUCATION**  
**SECONDARY ENGAGEMENT PROGRAMME**  
**GRADE 8**  
**INTEGRATED SCIENCE**

**Week 5**

**Lesson 2**

**Topic: Food for Plants and Animals**

**Sub-topic: Plant Storage Organs**

**Objectives:** Given pictures of plant storage organs, students will:

- briefly explain the importance of storage organ plants
- correctly list the various parts of plants that store food.
- briefly explain how tests can be conducted to test for food for starch, protein and fats.

**Content**

**Storage Structures in Plants**

Storage organs are parts of plants that store excess food. Parts of plants that store food are the root, stem, leave, seeds, and fruits.

**Storage in roots**

Storage in roots include:

- **Swollen tap root** – only the main root swells and stores food e,g carrot



- **Root tuber** –the entire root system swells and stores food e.g cassava



### Storage in Stems

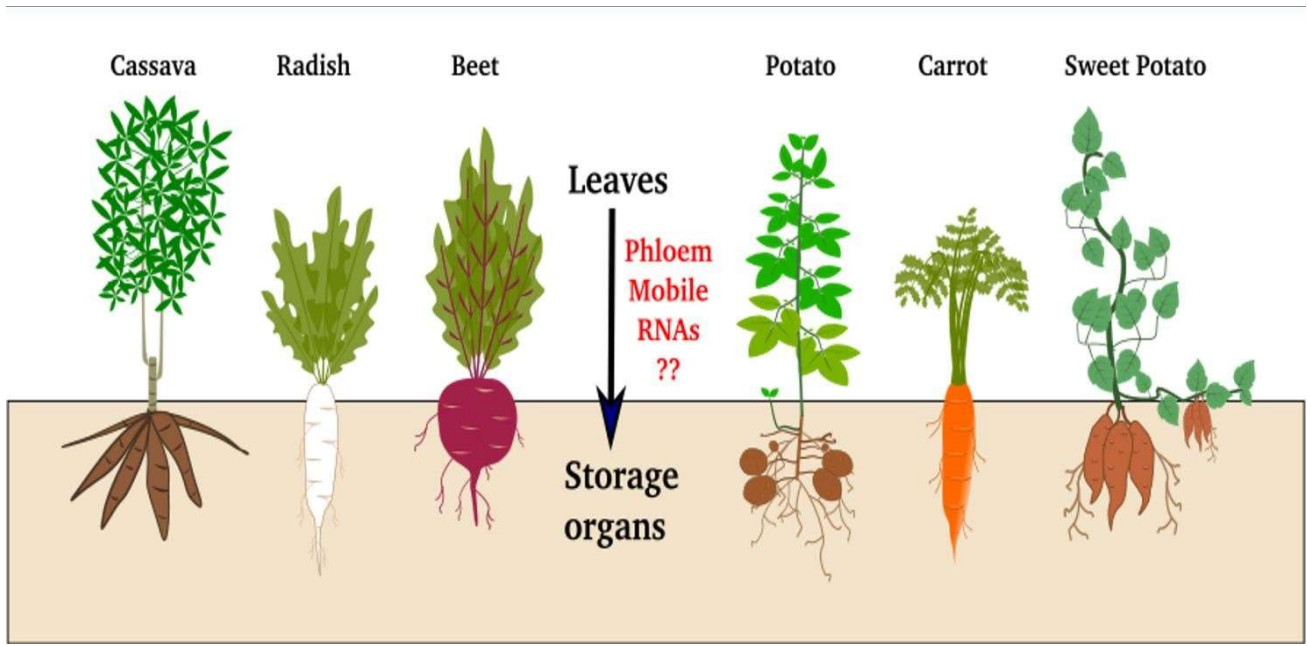
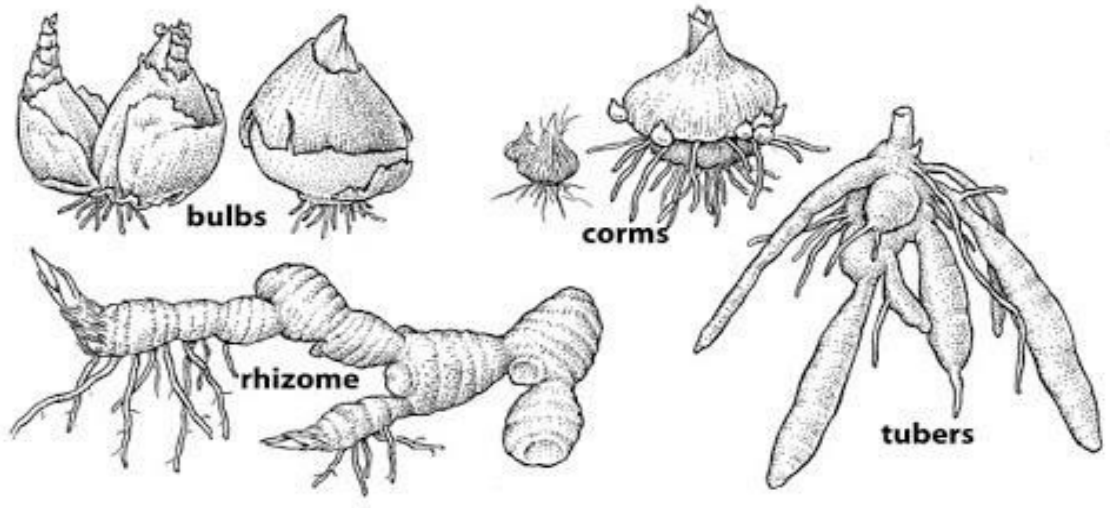
Most plant stems are found above the ground; however, some plants develop underground storage structures in their stems. These include corms, rhizomes and stem tubers.

- **Rhizomes** are underground stems that grow horizontally. They generally have a thickened stem that is used for storage. Rhizomes have eyes or buds that appear along the top and sides, which grow upward to produce new stems and foliage e.g ginger
- **A Corm** is another underground stem that is either rounded or slightly flattened at the top and have dry scale-like scales held together at the basal plate where the roots grow. An example of a corm is Eddo.
- **Tubers** are thickened terminal portions of the stem. They are usually enlarged, round and knobby and do not grow horizontally. They have eyes or buds that create new shoots which will become new plants e.g include Irish potato.

### Storage in Leaves

All plants store food temporarily in their leaves. However, some plants develop an underground storage in their leaves called bulbs.

- **Bulbs** are modified leaf bases (found as underground vertical shoots) that contain layers called scales (e.g. onions).



**Table 1.1: Showing Plant Parts, Storage Structure and Examples of Food(s) Stored**

Plant parts	Example	Food(s) stored
Seeds	Corn Coconut Peanuts	Starch, protein Fats Fats, protein
Fruits	Orange tomato	Sugar, protein, vitamin C Carotene, Vitamin K

Leaves borne on underground stem	Onion shallot	Sugar starch
Stems	Yam Irish potato Ginger eddo	Starch, vitamins Starch, vitamins Starch, vitamins Starch, vitamins
Roots	Carrot Radish	Starch, protein, carotene starch

## Testing for foods in plants

Plants make a variety of types of food. The sugar made in green leaves could be stored as sugar e.g. in onions and sugar-cane. But it could be changed into other high-energy substances like starch, for example, in corn, or like fats, for example, in peanuts. By further synthesis, proteins are manufactured.

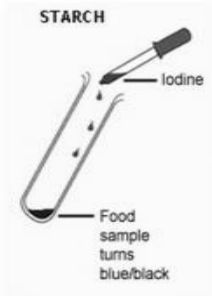
### Test the Types of Food Stored in Plants

The following illustrations show how to **test foods for starch, proteins, and fats**.

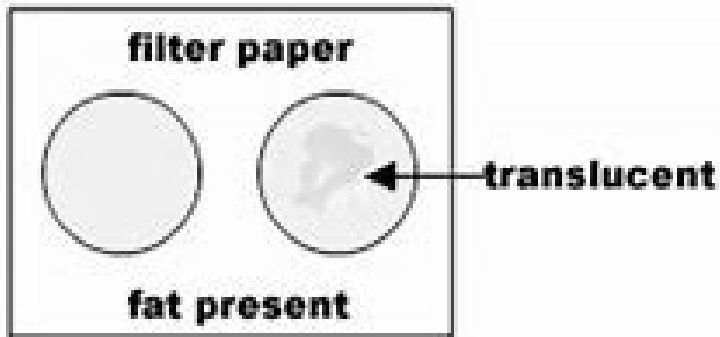
#### 1. Testing foods for starch

**Test for Starch**

- **Add a few drops of iodine solution to the solution being tested.**
- **Positive Test – solution turns blue / black colour.**

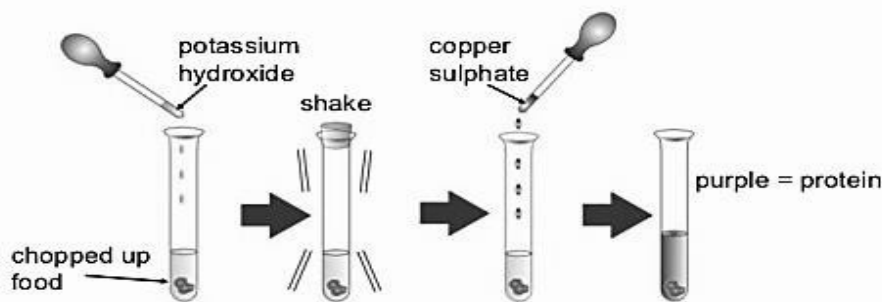


## 2. Testing foods for Fats



## 3. Testing foods for Proteins

● In the Biuret test the solution turns **purple**.



## HOMEWORK

1. Compile a list of other plant parts that store food(s) and give two examples for each.

## Reference

3. Blackman, S., Bernard, M., Dalgety, F., & Sadoo, d.s (2000) Science in Daily Life Bk.2. Georgetown, Guyana. Ministry of Education, Guyana.