Integrated Science Book 4

A revised 4th edition for primary four students.

Easy for students to grasp science concepts.

Best seller January (2018)

This is book four in the exciting series of Comprehensive Primary School Science Books. It is specifically written for use by Primary Four pupils as a course book. It is accompanied by a revision science work book four to guide the teachers, pupils and parents who help their children in their daily different learning tasks.

Description

Product Description

One of the bestselling science books for primary 4 compiled by two of the best teaching professionals in Uganda. This is the Fourth integrated primary science course book based on the integrated Primary science Syllabus prescribed by the National Curriculum Development Center.

Product Details

Pb No: UGAK01230004

Publisher: Prof. Dan Magic and Brian Beats

Publication Date: July 13, 2020

Language: English

File Size: English

Print Length: 344 Pages

Seed Germination

An illustrative video showing and explaining the germination process.

Cyber School

Preparation of Oxygen

laboratory preparation of oxygen from hydrogen peroxide and manganese dioxide.

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Gulu - Gulu Goes to School

A story of a pet goat that follows her owner to school and sits with her in class.

1RP Publishers

Where is the baby?

A story of a baby who hides her self in a box and causes commotion to his sister and brother

MKD Publishers

Busy Hospital

An illustration of a busy hospital using wild animals as the main characters.

Germination

Topic: Types and Stages of Seed Germination

Seed: A seed is a ripened ovule, which consists of an embryo and stored food supply surrounded by protected seed coverings.

Embryo: A miniature plant within a seed, produces by the union of male and female gamete.

Germinate: To being to grow.

Germination: The process in which seed embryo starts growing, which leads to the development of seedling.

Dicots: Plants having two cotyledons in their seeds.

The Process of Seed Germination:

The activation of metabolic machinery of seed embryo is the first and foremost step to initiate the seed germination process Thus, seed germination is the process of reactivation of the metabolic activity of the seed embryo, resulting in the emergence of radical (root) and plumule (shoot), thus leading to the production of a seedling or a young plant.

Seed germination is a very complex process as it involves many biochemical, physiological and morphological changes within a seed. For germination to be initiated, three conditions must be fulfilled First, the seed must be viable i.e the embryo should be alive and capable of germination. Second, the seed should be non-dormant i.e there should not be any dormancy or any chemical barrier for germination Third, the environmental conditions like moisture, temperature, air (O2) and light must be available in appropriate amount. If all these conditions are fulfilled, the quiescent embryo in the seed will resume growth, thus initiating the process of germination. In the early stages of growth, the embryo draws nutrients from the stored food material in the cotyledons or the endosperm of Later, new shoot/leaves are developed, which produce their own photosynthetic system.

Stages of seed germination:

The process of seed germination involves several consecutive but overlapping events like:

Absorption of water,

Initiation of cell enlargement and division,

Increased enzymatic activity,

Food translocation to growing embryo,

Increase in respiration and assimilation,

Increase in cell division and enlargement and

Differentiation of cells into tissue and organs of a seedling.