**Course Description**

**The Department of Science Level of Students: M. 1**

**Subject Code: SC20201 Subject: Universal Science 1**

**Number of Credit: 1.0 Time: 40 Periods**

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**Learning Outcomes**

1. explain the difference between science and technology
2. explain what the scientific method is
3. list the apparatus used in the laboratory
4. list the safety rules that have to be followed in a laboratory
5. describe what a cell is
6. differentiate between unicellular and multicellular organisms
7. distinguish between plant cells and animal cells
8. name the components of a cell and explain their functions
9. differentiate between prokaryotes and eukaryotes
10. explain why plants are important
11. describe the process of photosynthesis
12. explain the importance of photosynthesis towards living organisms and environment.
13. describe the process of respiration in plants
14. list the nutrients that plants need for healthy growth
15. explain and differentiate between osmosis and diffusion
16. explain transport of substances in cells using diffusion and osmosis.
17. explain cells involved in water transport in plants
18. explain the structure of food and water transport system in plants
19. describe the role of xylem and phloem
20. explain the process of sexual reproduction in flowering plants and asexual reproduction using various parts of plants for reproduction.
21. describe the various types of plant propagation
22. pose questions that specify the important point or variable for investigation, or study topics of interest inclusively and reliably.
23. set hypothesis that can be tested and plan different methods for examination.
24. choose both quantitative and qualitative techniques for examinations providing

reliable results and security using proper materials and equipment.

1. collect data and create both quantitative and qualitative information.
2. analyze and evaluate the correspondence of evidences and conclusion both

supporting and contrasting hypothesis and errors of data from the examination.

1. create the models or patterns explaining or showing the results of the examination.
2. create questions leading to the examination of related issues and apply the

knowledge to the new situations or explain the understandable concept, process, and result of the projects to other people.

1. record and explain the results from observation, exploration, and investigation. Examine and search for more information from various sources for reliable information and accept the change from ideas discovered if there is new data or arguments against the existing ideas.
2. exhibit works, write reports, and/or explain the understandable concept, process,

and results of the projects to other people.

**Learning Content**

Study foundation science on the topics of introduction to the scientific method , science and technology, laboratory apparatus, safety rules in the laboratory, the cell - unit of life and botany plant, cells, transport of substances through cells, photosynthesis, transport in plants, reproduction in plant,

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Use the process of establishing knowledge and understanding, scientific process, and skills which are observation, data investigation, and discussion to create knowledge, ideas, understanding, ability to communicate the knowledge, decision-making ability, and problem-solving ability, and get students involved in learning process by participating in various activities suitable for their learning levels, and apply the knowledge to real-life situations with responsibility, honesty, disciplines, creativity, efforts, and scientific mind.