**Learning Standards and Indicators**

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

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indicators** | **Key Word** **(คำสำคัญ)** **จากตัวชี้วัด** | **Learners’ Key Competencies - Activities** | **21st-Century Skill/****Local Wisdom/Thai Wisdom/** **Sufficiency Economy Philosophy /School Focus** | **Desirables** |
| 1. explain the difference between science and technology
 | Explain | - communication capability - thinking capability - problem solving capability - capability in applying life skills and - capability in technological application- 5E Model - CIPPA- Mind Maps - Group work | - Critical Thinking and Problem Solving- Communications, Information, and Media Literacy,- Computing and ICT Literacy,- Creativity and Innovation, | 1. Honesty and integrity2. Self-discipline3. Avidity for learning4.Dedication and commitment to work5. Cherishing Thai-ness6. Public-mindedness7. Gentlemen of Assumption College |
| 1. explain what the scientific method is
 | Explain |
| 1. list the apparatus used in the laboratory
 | List |
| 1. list the safety rules that have to be followed in a laboratory
 | List |
| 1. describe what a cell is
 | Describe |
| 1. differentiate between unicellular and multicellular organisms
 | Differentiate |
| 1. distinguish between plant cells and animal cells
 | Distinguish |
| 1. name the components of a cell and explain their functions
 | Name |
| **Indicators** | **Key Word** **(คำสำคัญ)****จากตัวชี้วัด** | **Learners’ Key Competencies - Activities** | **21st-Century Skill/****Local Wisdom/Thai Wisdom/** **Sufficiency Economy Philosophy /School Focus** | **Desirables** |
| 1. differentiate between prokaryotes and eukaryotes
 | Differentiate | - communication capability - thinking capability - problem solving capability - capability in applying life skills and - capability in technological application- 5E Model - CIPPA- Mind Maps - Group work | - Critical Thinking and Problem Solving- Communications, Information, and Media Literacy,- Computing and ICT Literacy,- Creativity and Innovation, | 1. Honesty and integrity2. Self-discipline3. Avidity for learning4.Dedication and commitment to work5. Cherishing Thai-ness6. Public-mindedness7. Gentlemen of Assumption College |
| 1. explain why plants are important
 | Explain |
| 1. describe the process of photosynthesis
 | Describe |
| 1. explain the importance of photosynthesis towards living organisms and environment.
 | Explain  |
| 1. describe the process of respiration in plants
 | Describe |
| 1. list the nutrients that plants need for healthy growth
 | List |
| 1. explain and differentiate between osmosis and diffusion
 | Explain |
| 1. explain transport of substances in cells using diffusion and osmosis.
 | Explain |
| 1. explain cells involved in water transport in plants
 | Explain |
| **Indicators** | **Key Word****(คำสำคัญ)****จากตัวชี้วัด** | **Learners’ Key Competencies - Activities** | **21st-Century Skill/****Local Wisdom/Thai Wisdom/** **Sufficiency Economy Philosophy /School Focus** | **Desirables** |
| 1. explain the structure of food and water transport system in plants
 | Explain | - communication capability - thinking capability - problem solving capability - capability in applying life skills and - capability in technological application- 5E Model - CIPPA- Mind Maps - Group work | - Critical Thinking and Problem Solving- Communications, Information, and Media Literacy,- Computing and ICT Literacy,- Creativity and Innovation, | 1. Honesty and integrity2. Self-discipline3. Avidity for learning4.Dedication and commitment to work5. Cherishing Thai-ness6. Public-mindedness7. Gentlemen of Assumption College |
| 1. describe the role of xylem and phloem
 | Describe |
| 1. explain the process of sexual reproduction in flowering plants and asexual reproduction using various parts of plants for reproduction
 | Explain |
| 1. describe the various types of plant propagation
 | Describe |