**Learning Standards and Indicators**

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

**Subject Code: SC20202 Subject: Universal Science 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indicators** | **Key Word**  **(คำสำคัญ)**  **จากตัวชี้วัด** | **Learners’ Key Competencies - Activities** | **21st-Century Skill/**  **Local Wisdom/Thai Wisdom/**  **Sufficiency Economy Philosophy /School Focus** | **Desirables** |
| 1. Explain what an element is | 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 integrity  2. Self-discipline  3. Avidity for learning  4.Dedication and commitment to work  5. Cherishing Thai-ness  6. Public-mindedness  7. Gentlemen of Assumption College |
| 1. Classify element based on physical state, chemical nature and radioactive nature | Classify |
| 1. Explain the meaning and properties of elements compounds and mixture | Explain |
| 1. Differentiate between compound , mixture and pure substances | Differentiate |
| 1. Classify matters using mixture or size of particles as the basis and explain the properties of matter in each category | Classify explain |

**Learning Standards and Indicators**

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

**Subject Code: SC20202 Subject: Universal Science 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indicators** | **Key Word**  **(คำสำคัญ)**  **จากตัวชี้วัด** | **Learners’ Key Competencies - Activities** | **21st-Century Skill/**  **Local Wisdom/Thai Wisdom/**  **Sufficiency Economy Philosophy /School Focus** | **Desirables** |
| 1. Describe atoms and molecules | Describe | - 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 integrity  2. Self-discipline  3. Avidity for learning  4.Dedication and commitment to work  5. Cherishing Thai-ness  6. Public-mindedness  7. Gentlemen of Assumption College |
| 1. State the physical properties of pure substances | State |
| 1. Explain properties and phase change of matters using the model of particle configurationof matters | Explain |
| 1. Explain the atomic and molecular structures of matter | Explain |
| 1. Describe the nature of heat | Describe |
| 1. Explain what thermal equilibrium is | Explain |
| 1. Describe the effects of heat | Describe |
| 1. Explain about heat balance and effects of heat on expansion of substances and apply the knowledge to use in real-life situation | Explain |

**Learning Standards and Indicators**

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

**Subject Code: SC20202 Subject: Universal Science 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indicators** | **Key Word**  **(คำสำคัญ)**  **จากตัวชี้วัด** | **Learners’ Key Competencies - Activities** | **21st-Century Skill/**  **Local Wisdom/Thai Wisdom/**  **Sufficiency Economy Philosophy /School Focus** | **Desirables** |
| 1. Define temperature and explain how it is measured | Define  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 integrity  2. Self-discipline  3. Avidity for learning  4.Dedication and commitment to work  5. Cherishing Thai-ness  6. Public-mindedness  7. Gentlemen of Assumption College |
| 1. Describe the mechanisms of heat transfer and apply the knowledge to use | Describe |
| 1. Explain about thermal absorption and thermal emission through radiationand apply the knowledge to use | Explain |
| 1. Describe the atmosphere and explain compositions and division of atmospheric layers covering the Earth’s surface. | Describe |
| 1. Explain relationship between temperature, humidity, air pressure and altitude affecting weather phenomena | Explain |
| 1. Describe the different kinds of storms | Describe |

**Learning Standards and Indicators**

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

**Subject Code: SC20202 Subject: Universal Science 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indicators** | **Key Word**  **(คำสำคัญ)**  **จากตัวชี้วัด** | **Learners’ Key Competencies - Activities** | **21st-Century Skill/**  **Local Wisdom/Thai Wisdom/**  **Sufficiency Economy Philosophy /School Focus** | **Desirables** |
| 1. Describe how weather is forecast and interpret data from weather forecasting | Describe Interpret | - 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 integrity  2. Self-discipline  3. Avidity for learning  4.Dedication and commitment to work  5. Cherishing Thai-ness  6. Public-mindedness  7. Gentlemen of Assumption College |
| 1. Describe the factors that affect climate and explain effects of weather on living of creatures and environment | Describe |
| 1. Describe the phenomena that cause climate change and discuss the occurrences of weather phenomena affecting human. | Describe Discuss |
| 1. Investigate, analyze, and explain environmental factors and human actions affecting   the change of global temperature, ozone hole, and  acid rain. | Investigate Explain |
| 1. Investigate, analyze, and explain effects of global warming, ozone hole, and acid rain on creatures and environment | Investigate Explain |