**Learning Standards and Indicators**

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

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

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| **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 integrity2. Self-discipline3. Avidity for learning4.Dedication and commitment to work5. Cherishing Thai-ness6. Public-mindedness7. 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 |

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| 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 integrity2. Self-discipline3. Avidity for learning4.Dedication and commitment to work5. Cherishing Thai-ness6. Public-mindedness7. 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 |

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| 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 integrity2. Self-discipline3. Avidity for learning4.Dedication and commitment to work5. Cherishing Thai-ness6. Public-mindedness7. 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 |

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| 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 integrity2. Self-discipline3. Avidity for learning4.Dedication and commitment to work5. Cherishing Thai-ness6. Public-mindedness7. 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 |