**Learning Standards and Indicators**

**The Department of Science Level of Students: M. 3**

**Subject Code: SC20206 Subject: Universal Science 6**

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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 how we see things by reflection, refraction and dispersion of light | 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. Distinguish between the magnifying glass, binoculars , camera, microscope and telescope | Distinguish |
| 1. Explain what is meant by brightness of light and describe its relationship to eye damage | Explain,  Describe |
| 1. Explain why the planets orbit the Sun | Explain |
| 1. Explain relationships between the sun, Earth, the moon and other planets | Explain |
| 1. Explain what causes seasons on Earth | Explain |
| 1. Describe the different phases of the Moon | Describe |
| 1. Explain how moonrise, moonset and tides occur | Explain |
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| 1. Explain the importance of space 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 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. Explain what a chemical reaction is | Explain |
| 1. Explain changes of substance properties when reacted with chemicals. | Explain |
| 1. Explain and write chemical equations of various chemical reactions and apply knowledge learned. | Explain  Write |
| 1. Explain the conservation of mass | Explain |
| 1. Distinguish between endothermic and exothermic processes | Distinguish |
| 1. Explain the acid-base properties of solution | Explain |
| 1. Distinguish between acids and bases | Distinguish |
| 1. Explain some important chemical reactions such as combustion, photosynthesis, corrosion , rusting and acid rain | Explain |
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| 1. Describe how chemical reactions can help solve problems in everyday life | 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. Distinguish between ceramics, polymers and composite materials | Distinguish |
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