**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 integrity2. Self-discipline3. Avidity for learning4.Dedication and commitment to work5. Cherishing Thai-ness6. Public-mindedness7. 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 |
| **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 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 integrity2. Self-discipline3. Avidity for learning4.Dedication and commitment to work5. Cherishing Thai-ness6. Public-mindedness7. 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.
 | ExplainWrite |
| 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 |
| **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 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 integrity2. Self-discipline3. Avidity for learning4.Dedication and commitment to work5. Cherishing Thai-ness6. Public-mindedness7. Gentlemen of Assumption College |
| 1. Distinguish between ceramics, polymers and composite materials
 | Distinguish |
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