**Learning Standards and Indicators**

**The Department of Science Level of Students: M. 2 Subject Code: SC20204 Subject: Universal Science 4**

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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. Understand and explain quantity in physics
 | Understand 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 |
|  2. Name the different physical quantities | Name |
| 1. Understand SI measurement system and describe the units of measurement for length, time, area, volume, mass and weight
 | Understand Describe |
| 1. Name the instrument for methods of measurement for these physical quantities
 | Name |
| 1. Explain mass, weight, and density of objects.
 | Explain |
| 1. Explain the difference between mass and weight
 | Explain |
| 1. Calculating weight and density of objects and apply knowledge learned.
 | CalculatingApply |
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| 1. Explain about types of force and effects of force on the motion of an object
 | 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 static friction and kinetic friction, understand their benefits and apply the knowledge to use
 | Distinguish Understand Apply  |
| 1. Explain gravitational attraction and its effects on weight
 | Explain |
| 1. Explain electric changes electric force
 | Explain |
| 1. Describe magnetic force and magnetic field
 | Describe |
| 1. Explain hydrostatic pressure , buoyancy ,floating and sinking
 | Explain |
| 1. Explain buoyant forces acting on objects
 | Explain |
| 1. Explain and calculate pressure and apply knowledge learned
 | Explain Calculate |
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| 1. Explain torque and rotation
 | 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 about equilibrium and restoring force , apply the knowledge gained for useful purposes.
 | Explain , Apply |
| 1. Explain waves and sound , formation of sound, motion or vibration of sound, human’s hearing, its use, and noise pollution
 | Explain |
| 1. Understand and classify types of simple machines, apply the knowledge gained for useful purposes.
 | Understand Classify, Apply |
| 1. Describe the internal structure of the Earth
 | Describe |
| 1. Explain how erosion takes place on the Earth’s surface
 | Explain |
| 1. Distinguish between the different types of soil
 | Distinguish |
| 1. Describe how petroleum is formed
 | Describe |
| 1. Describe the cycle of water in the surroundings
 | Describe |