**Know—Understand—Do Organizer (TIME Unit)**

**Grade Level: 4 Topic: Science Quarter 3**

Which Standards are students learning in this unit?

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| **Science: 4.E.1 Explain the causes of the day and night and phases of the moon.** |

By the end of this unit students will be able to…

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| **Know** | **Understand** | **Do** |
| * The Earth rotates on an axis and that this rotation causes one side of our planet to receive light rays from the sun while the other side is in darkness (day/night). This rotation occurs over a 24-hour period. * The Moon rotates and revolves around the Earth. * The moon’s appearance (phase) is determined by its position relative to the Earth and the Sun. * The appearance of the moon changes in a specific pattern and repeats this sequence over a course of approximately 28 days. * During part of this cycle, the moon’s visible portion appears to grow larger (waxes). This is followed by a period during which the moon’s visible portion appears to reduce in size (wanes). * The phases of the moon: New Moon, First Quarter, Full Moon, and Last Quarter. | **The causes of day and night and phases of the moon.** | * Identify and describe how the earth rotates on its axis in a 24-hour period. * Illustrate how the earth rotation occurs. * Diagram how the moon rotates and revolves around the earth. * Break down the revolution, time, and the rotations of the moon around the earth. * Design a calendar focusing upon the phases of the moon in a 28-day period. |

**Key Learning Statement: Over time the phases of the moon change in effect to the revolution and rotation of the earth.**

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| **Common Assessments**  How will you know students have learned? | **Culminating Projects**  How will you know students have learned? | **Resources**  What tools will you use to enhance instruction? |
| Teacher-created quizzes  Journal Entries  Illustration Assessments  Tickets Out the Door  Oral Assessments | In cooperative groups, students will create a display demonstrating the phases of the moon. | Common Core Standards  Teacher Tube (YouTube)  Discovery Education  Science Textbook  CMS Science Kits  Technology |

**Student Learning Map for Time Unit**

**Course: Science 4th Grade Team Quarter 3**

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| **Key Learning Statement: Over time the phases of the moon change in effect to the revolution and rotation of the earth.** | |
| **Unit Essential Question: 4.E.1.1 Describe the causes of day and night based upon the Earth’s rotation.**  **4.E.1.2 How does the different phases of the moon affect day and night?** | |
| **Concept:**  Cause of day and night based on the rotation of Earth on its axis. (4.E.1.1) | **Concept:**  The monthly changes in the appearance of the moon, based on the moon’s orbit around the Earth. (4.E.1.2) |
| **Lesson Essential Questions**   * How does the earth rotate (day/night) on its axis? * How does the earth affect the location of the moon? * Determine and describe day and night by the rotation of the earth in a 24-hour period. * Why does the earth tilt on its axis? * Explain the cause of day and night based on the rotation of Earth on its axis. | **Lesson Essential Questions**   * Determine and describe how the moon rotates and revolves around the earth. * How can you determine the relative position of the earth and sun based on the moon’s appearance? * Explain the appearance of the moon over a sequence of time (28 day period) * Explain how the moon’s visual portion appears to grow larger/smaller during a part of a cycle. * Determine, illustrate, and describe the different phases of the moon through list form. |
| **Vocabulary**  Rotation Revolution Planet Axis | **Vocabulary**  Phase(s) Wax Wane Sequence  Full Moon First Quarter New Moon Last Quarter |
| **Assessments**  Teacher-created quizzes  Journal Entries  Illustration Assessments  Tickets Out the Door  Oral Assessments | **Assessments**  Teacher-created quizzes  Journal Entries  Illustration Assessments  Tickets Out the Door  Oral Assessments |