

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 1

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|---------------------|-------------------------------------|-------------------|---------------------|
| Student Expectation | | | |

| | | | |
|--|--|-------------------------|---|
| Physical Science: Energy 4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object. I C M | I can use evidence to explain how the speed and energy of an object are related. | Application Analysis | Speed Energy Force Acceleration Motion Inertia |
|--|--|-------------------------|---|

Resources and Notes:

| | | | |
|--|---|-------------------------|--|
| Physical Science: Energy 4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide. I C M | I can ask questions and make predictions about what will happen when objects collide. | Application Analysis | Speed Energy Acceleration Motion Conservation of energy Velocity Collide |
|--|---|-------------------------|--|

Resources and Notes:

| | | | |
|---|---|--------------------------|---|
| Physical Science: Energy 4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. I C | I can build something that converts energy from one form to another by applying scientific ideas. | Application Synthesis | Energy transfer Forms of energy Electrical circuits Light Sound Solar Heat Motion Voltage |
|---|---|--------------------------|---|

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 1

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|---------------------|-------------------------------------|-------------------|---------------------|
| Student Expectation | | | |

| | | | |
|--|--|--|------------------|
| | | | Current Watts |
|--|--|--|------------------|

Resources and Notes:

| | | | |
|--|---|--|--|
| <p>Physical Science: Waves and their Applications in Technologies for Information Transfer</p> <p>4-PS4-1. Develop a model of waves to describe patterns in term of amplitude and wavelength and that waves can cause objects to move. ICM</p> | <p>I can describe wave patterns in terms of amplitude and explain how waves cause objects to move.</p> <p>I can develop a model to examine how waves cause objects to move.</p> | <p>Comprehension Application</p> <p>Application Analysis</p> | <p>Waves Energy Amplitude Wavelength Motion Patterns Transfer of energy Crest Trough Frequency</p> |
|--|---|--|--|

Resources and Notes:

| | | | |
|--|---|-----------------|--|
| <p>Physical Science: Energy</p> <p>4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. ICM</p> | <p>I can observe, compare and contrast the way energy can be transferred from one place to another by sound, light, heat and electric currents.</p> | <p>Analysis</p> | <p>Energy Transfer of energy Sound Light Heat Electric currents (AC/DC) Decibels Celsius Fahrenheit Amperes (Amps) Battery</p> |
|--|---|-----------------|--|

Resources and Notes:

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 1

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|---------------------|-------------------------------------|-------------------|---------------------|
| Student Expectation | | | |

| | | | |
|---|---|---------------------------------|--|
| <p>Physical Science: Waves and their Applications in Technologies for Information Transfer</p> <p>4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows object to be seen. IC</p> | <p>I can build a model to show how light reflecting allows objects to be seen by the eye.</p> | <p>Application Analysis</p> | <p>Light Visible light Electromagnetic spectrum Waves Reflection Cornea Lens Iris Retina Pupil Optic Nerve</p> |
|---|---|---------------------------------|--|

Resources and Notes:

| | | | |
|--|--|---|--|
| <p>Physical Science: Waves and their Applications in Technologies for Information Transfer</p> <p>4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information. IC</p> | <p>I can generate multiple solutions that use patterns to transfer information.</p> <p>I can compare my solutions.</p> | <p>Application Analysis Synthesis</p> <p>Analysis</p> | <p>Sound wave Morse code Binary language Vibration Energy Technology Fiber optics Satellite Transmit Antennae Wire Digital</p> |
|--|--|---|--|

Resources and Notes:

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 1

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|----------------------------|--|--------------------------|----------------------------|
| Student Expectation | | | |

| | | | |
|--|---|---------------------------------|---|
| <p>Engineering Design</p> <p>3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. I</p> | <p>I can write a simple design problem that considers cost, materials, and time to meet a need or want.</p> | <p>Synthesis Evaluation</p> | <p>Hypothesis Theory Observation Test Experiment Analyze Data Results Scientific Method Problem</p> |
|--|---|---------------------------------|---|

Resources and Notes:

| | | | |
|---|---|---------------------------------|---|
| <p>Engineering Design</p> <p>3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. I</p> | <p>I can generate multiple solutions to a problem and compare them to decide which is best for the problem.</p> | <p>Synthesis Evaluation</p> | <p>Hypothesis Theory Observation Test Experiment Analyze Data Results Scientific Method Problem</p> |
|---|---|---------------------------------|---|

Resources and Notes:

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 1

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|---|---|------------------------------------|--|
| Student Expectation | | | |
| <p>Engineering Design</p> <p>3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. I</p> | <p>I can plan an experiment with controlled variables.</p> <p>I can use the results to improve a model.</p> | <p>Synthesis</p> <p>Evaluation</p> | <p>Hypothesis</p> <p>Theory</p> <p>Observation</p> <p>Test</p> <p>Experiment</p> <p>Analyze</p> <p>Data</p> <p>Results</p> <p>Scientific method</p> <p>Problem</p> <p>Prototype</p> <p>Failure points</p> <p>Controlled variable</p> |
| Resources and Notes: | | | |

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 2

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|---------------------|-------------------------------------|-------------------|---------------------|
| Student Expectation | | | |

| | | | |
|---|--|------------------|--|
| <p>Physical Science: Energy</p> <p>4–PS3-4. Apply scientific ideas to design, test and refine a device that converts energy from one form to another. C</p> | <p>I can build something that converts energy from one form to another using scientific ideas.</p> | <p>Synthesis</p> | <p>Conservation of energy Energy transfer Forms of energy Electrical circuits Motion Light Sound Solar Heat Motion Resistance Voltage Current Ohms Watts</p> |
|---|--|------------------|--|

| |
|-----------------------------|
| Resources and Notes: |
|-----------------------------|

| | | | |
|---|---|-----------------------------|--|
| <p>Physical Science- Waves and their Applications in Technologies for Information Transfer</p> <p>4–PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. M</p> | <p>I can build a model to show how light reflecting allows objects to be seen by the eye.</p> | <p>Application Analysis</p> | <p>Light Visible light Electromagnetic spectrum Waves Reflection Cornea Lens Iris Retina</p> |
|---|---|-----------------------------|--|

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 2

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|----------------------------|-------------------------------------|-------------------|---------------------|
| Student Expectation | | | |

| | | | |
|--|--|--|----------------------|
| | | | Pupil Optic nerve |
|--|--|--|----------------------|

Resources and Notes:

| | | | |
|---|--|--|--|
| <p>Waves and their Applications in Technologies for Information Transfer</p> <p>4–PS4-3. Generate and compare multiple solutions that use patterns to transfer information. M</p> | <p>I can compare and contrast different ways information can be transferred.</p> <p>I can generate a pattern that can be used to transfer information.</p> | <p>Comprehension Analysis</p> <p>Application Synthesis</p> | <p>Sound waves Morse code Binary language Vibration Energy Technology Fiber optics Satellite Transmit Antennae Wire(s) Digital</p> |
|---|--|--|--|

Resources and Notes:

| | | | |
|---|---|--|--|
| <p>From Molecules to Organisms: Structure and Processes</p> <p>4–LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior and reproduction. I C M</p> | <p>I can prove that the structures of plants and animals support survival, growth, behavior, and reproduction through interpreting facts.</p> | <p>Analysis Synthesis Evaluation</p> | <p>Thorn Stem Root Petals Pistil Stamen Seed Ovary</p> |
|---|---|--|--|

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 2

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|---------------------|-------------------------------------|-------------------|---------------------|
| Student Expectation | | | |

| | | | |
|--|--|--|---|
| | | | Pollen Pollination Leaves Photosynthesis Cells Tissues Organ Organ system Circulatory system Reproductive system Digestive system Respiratory system Nervous system |
|--|--|--|---|

Resources and Notes:

| | | | |
|---|---|--------------------|---|
| <p>From Molecules to Organisms: Structure and Processes</p> <p>4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. ICM</p> | <p>I can show and explain how animals receive, process, and respond to information.</p> | <p>Application</p> | <p>Brain Nervous system Senses Nerve cells</p> |
|---|---|--------------------|---|

Resources and Notes:

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 2

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|---------------------|-------------------------------------|-------------------|---------------------|
| Student Expectation | | | |

| | | | |
|---|---|-------------------------------|---|
| <p>Engineering Design</p> <p>3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. C</p> | <p>I can write a simple design problem that considers cost, materials, and time to meet a need or want.</p> | <p>Analysis Synthesis</p> | <p>Hypothesis Theory Observation Test Experiment Analyze Data Results Scientific method Problem</p> |
|---|---|-------------------------------|---|

Resources and Notes:

| | | | |
|--|---|---------------------------------|---|
| <p>Engineering Design</p> <p>3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. C</p> | <p>I can generate multiple solutions to a problem and compare them to decide which is best for the problem.</p> | <p>Synthesis Evaluation</p> | <p>Hypothesis Theory Observation Test Experiment Analyze Data Results Scientific method Problem</p> |
|--|---|---------------------------------|---|

Resources and Notes:

| | | | |
|----------------------------------|--|------------------|------------------------------|
| <p>Engineering Design</p> | <p>I can plan an experiment with controlled variables.</p> | <p>Synthesis</p> | <p>Hypothesis Theory</p> |
|----------------------------------|--|------------------|------------------------------|

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 2

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|---|--|-------------------|--|
| Student Expectation | | | |
| <p>3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. C</p> | <p>I can use the results to improve a model.</p> | <p>Evaluation</p> | <p>Observation Test Experiment Analyze Data Results Scientific method Problem Prototype Controlled variable Failure points</p> |
| <p>Resources and Notes:</p> | | | |

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 3

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|---------------------|-------------------------------------|-------------------|---------------------|
| Student Expectation | | | |

| | | | |
|---|--|---------------------------------|--|
| <p>Earth Science: Earth's Place in the Universe</p> <p>4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.</p> <p>I C M</p> | <p>I can find evidence from patterns in rock formations and fossils to explain changes in a landscape over time.</p> | <p>Application Analysis</p> | <p>Rock cycle Rock formation Sedimentary Igneous Metamorphic Magma Lava Rock layer Local Regional Landform Global Canyon Marine shell fossil Plant fossil Landscape Habitat Fossil Sediment Earth forces: Earthquake Volcano</p> |
|---|--|---------------------------------|--|

| |
|-----------------------------|
| Resources and Notes: |
|-----------------------------|

| | | | |
|--|---|---|--|
| <p>Earth Science: Earth's Systems</p> <p>4-ESS2-2. Analyze and interpret data</p> | <p>I can analyze, use and talk about maps that describe patterns in Earth's features.</p> | <p>Comprehension Application Analysis</p> | <p>Plate tectonics Plate Deep ocean trench</p> |
|--|---|---|--|

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 3

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|---------------------|-------------------------------------|-------------------|---------------------|
| Student Expectation | | | |

| | | | |
|---|--|--|--|
| <p>from maps to describe patterns of Earth's features. ICM</p> | | | <p>Mariana's Trench Fault Ocean floor Volcano Magma Lava Boundary Plate boundary Convergent Divergent Transform Topography Continental drift Magnetic reversal Summit Peak</p> |
|---|--|--|--|

Resources and Notes:

| | | | |
|---|---|---|---|
| <p>Earth Science: Earth's Systems</p> <p>4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. IC</p> | <p>I can observe and measure the effects of weathering and the rate of erosion by two or more natural forces.</p> | <p>Comprehension Application Analysis</p> | <p>Weathering Erosion Vegetation Water cycle Condensation Evaporation Heat Slope Region</p> |
|---|---|---|---|

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 3

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|---------------------|-------------------------------------|-------------------|---------------------|
| Student Expectation | | | |

| | | | |
|--|--|--|---|
| | | | Rainfall Precipitation Volume Flow Deposition Relative rate of deposition Observation |
|--|--|--|---|

Resources and Notes:

| | | | |
|--|--|-------------------------|---|
| Engineering Design 3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. C | I can write a simple design problem that considers cost, materials, and time to meet a need or want. | Synthesis Evaluation | Hypothesis Theory Observation Test Experiment Analyze Data Results Scientific method Problem |
|--|--|-------------------------|---|

Resources and Notes:

| | | | |
|--|--|-------------------------|---|
| Engineering Design 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem | I can generate multiple solutions to a problem and compare them to decide which is best for the problem. | Synthesis Evaluation | Hypothesis Theory Observation Test |
|--|--|-------------------------|---|

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 3

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|---------------------|-------------------------------------|-------------------|---------------------|
| Student Expectation | | | |

| | | | |
|--|--|--|--|
| based on how well each is likely to meet the criteria and constraints of the problem. C | | | Experiment Analyze Data Results Scientific method Problem |
|--|--|--|--|

Resources and Notes:

| | | | |
|--|---|------------------------------------|--|
| <p>Engineering Design</p> <p>3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. C</p> | <p>I can plan an experiment with controlled variables.</p> <p>I can use the results to improve a model.</p> | <p>Analysis</p> <p>Analysis</p> | <p>Hypothesis Theory Observation Test Experiment Analyze Data Results Scientific Method Problem Controlled variable Failure points Prototype</p> |
|--|---|------------------------------------|--|

Resources and Notes:

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 4

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|--|--|--|--|
| Student Expectation | | | |
| <p>Earth Science: Earth and Human Activity</p> <p>4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. ICM</p> | <p>I can find and apply information to describe where energy and fuel come from and how their use affects the environment.</p> | <p>Application Analysis Evaluation</p> | <p>Energy Fuel Environment Natural resources Renewable Non-renewable Fossil fuel Biomass Dam Habitat Pollution Surface mining Wind energy Solar energy Hydroelectric energy Nuclear energy</p> |
| Resources and Notes: | | | |
| <p>Physical Science: Energy</p> <p>4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. M</p> | <p>I can build something that converts energy from one form to another using scientific ideas.</p> | <p>Synthesis Evaluation</p> | <p>Conservation of energy Energy transfer Forms of energy Electrical circuits Motion Light Sound Solar energy</p> |

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 4

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|---------------------|-------------------------------------|-------------------|---------------------|
| Student Expectation | | | |

| | | | |
|--|--|--|---|
| | | | Wind energy Hydroelectric power Heat Motion Resistance Voltage Current Ohms Amperes (Amps) Watts |
|--|--|--|---|

| |
|-----------------------------|
| Resources and Notes: |
|-----------------------------|

| | | | |
|--|---|---|--|
| <p>Earth Science: Earth's Systems</p> <p>4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. M</p> | <p>I can observe and measure the effects of weathering and the rate of erosion by two or more natural forces.</p> | <p>Comprehension Application Analysis</p> | <p>Weathering Erosion Vegetation Water cycle Condensation Evaporation Heat Slope Region Rainfall Precipitation Volume Flow Deposition</p> |
|--|---|---|--|

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 4

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|---------------------|-------------------------------------|-------------------|---------------------|
| Student Expectation | | | |

| | | | |
|--|--|--|-----------------------------|
| | | | Relative rate of deposition |
|--|--|--|-----------------------------|

Resources and Notes:

| | | | |
|--|---|--|--|
| <p>Earth Science: Earth and Human Activity</p> <p>4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.</p> <p>I C M</p> | <p>I can formulate solutions to reduce the impacts of Earth processes on humans.</p> <p>I can assess my solutions to reduce the impacts of Earth processes on humans and make changes to improve them if necessary.</p> | <p>Analysis Synthesis</p> <p>Analysis Evaluation</p> | <p>Earthquake Volcano Eruption Magma Lava Resistant Monitoring Flood Tsunami Natural processes Technology Eliminate Hazard Engineering</p> |
|--|---|--|--|

Resources and Notes:

| | | | |
|---|---|---------------------------------|--|
| <p>Engineering Design</p> <p>3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for</p> | <p>I can write a simple design problem that considers cost, materials, and time to meet a need or want.</p> | <p>Synthesis Evaluation</p> | <p>Hypothesis Theory Observation Test Experiment</p> |
|---|---|---------------------------------|--|

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 4

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|----------------------------|-------------------------------------|-------------------|---------------------|
| Student Expectation | | | |

| | | | |
|---|--|--|--|
| success and constraints on materials, time, or cost. M | | | Analyze Data Results Scientific method Problem |
|---|--|--|--|

Resources and Notes:

| | | | |
|--|---|---------------------------------|---|
| <p>Engineering Design</p> <p>3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. M</p> | <p>I can generate multiple solutions to a problem and compare them to decide which is best for the problem.</p> | <p>Synthesis Evaluation</p> | <p>Hypothesis Theory Observation Test Experiment Analyze Data Results Scientific method Problem</p> |
|--|---|---------------------------------|---|

Resources and Notes:

| | | | |
|--|---|--------------------------------------|---|
| <p>Engineering Design</p> <p>3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. M</p> | <p>I can plan an experiment with controlled variables.</p> <p>I can use the results to improve a model.</p> | <p>Synthesis Evaluation</p> | <p>Hypothesis Theory Observation Test Experiment Analyze Data</p> |
|--|---|--------------------------------------|---|

APPROVED FACILITY SCHOOLS CURRICULUM GUIDE

SUBJECT: Science

GRADE: 4

TIMELINE: Quarter 4

| Strand/Concept | Student Friendly Learning Objective | Level of Thinking | Academic Vocabulary |
|-----------------------------|-------------------------------------|-------------------|---|
| Student Expectation | | | |
| | | | Results Scientific method Problem Prototype Controlled variable Failure points |
| Resources and Notes: | | | |