|  |  |
| --- | --- |
| **DATE TAUGHT** | **STANDARD** |
|  | **Science as Inquiry****Designing an Investigation** |
|  | * Identify testable questions, questions that guide investigations/experiments, and questions to consider during an investigation
 |
|  | * Identify problems in an investigation
 |
|  | * Identify the components of an investigation
 |
|  | * Use multiple sources to answer questions
 |
|  | * Select appropriate experimental design or setup
 |
|  | * Predict outcomes of an investigation
 |
|  | * Identify correct procedure in an investigation
 |
|  | * Identify independent variable, dependent variable, and variables that should be controlled/constant
 |
|  | * Select appropriate tools, equipment, and technology to use in an investigation
 |
|  | * Measure using appropriate or accurate units of the metric system
 |
|  | * Identify appropriate safety tools and procedures
 |
|  | * Identify correct setup between varying investigations
 |
|  | * Identify ways to improve the investigation
* Identify mistakes in procedures
* Identify alternate methods for investigation using the same tools
 |
|  | **Communication** |
|  |  |
|  | * Understand and be able to identify the difference between a description and an explanation
 |
|  | * Understand and be able to identify the difference between an observation and an inference
 |
| **DATE TAUGHT** | **STANDARD** |
|  | * Identify patterns in data
 |
|  | * Use models to explain natural phenomena or conclusions from investigations
 |
|  | * Communicate results of investigations
 |
|  | * Use multiple ways to interpret data that may result in alternate explanations
 |
|  | * Identify statements not supported by data/faulty reasoning
 |
|  | * Predict trends supported by data
 |
|  | * Identify statements that explain data
 |
|  | **Technology and the Work of Scientists** |
|  | * Recognize that scientists use logical processes to solve problems
 |
|  | * Review other scientists’ work before beginning an investigation
 |
|  | * Recognize that technology expands the human senses
 |
|  | * Recognize that present technology limits answering all questions
 |
|  | * Understand that there is an acceptable range of variation in collected data
 |
|  | * Identify mean, median, mode, and range from a given set of data
 |
|  | * Identify problems in models, experimental design
 |
|  | * Understand how scientists communicate about investigations in progress and findings
 |
|  | * Describe how/why scientific theories change
 |
|  | * Verify experiments through multiple investigation/trials
 |
|  | * Solve problems and form new ideas as a result of scientific investigations
 |
|  | * Identify ways technology has changed human life
 |
|  |  |
| **DATE TAUGHT** | **STANDARD** |
|  | **Physical Science****Matter – Properties of Matter** |
|  | * Identify physical properties and chemical properties of substances
 |
|  | * Determine physical and chemical changes
 |
|  | * Describe the movement of atoms in solid, liquid, and gaseous states
 |
|  | * Make comparisons about the temperature at which water changes phases (freezing point, melting point, and boiling point)
 |
|  |  |
|  | * Calculate density from a given set of data
 |
|  | **Matter – Chemical Changes of Matter** |
|  | * Describe the products of chemical reactions
 |
|  | * Describe the properties of reactants
 |
|  | * Identify atomic mass of a given element
 |
|  | * Identify the mass of reactants and products in a given chemical reaction
 |
|  | * Identify how particle size of the same reactant affects the rate of chemical reactions
 |
|  | * Identify elements and compounds from a variety of sources
 |
|  | **Forces and Motion**  |
|  | * Analyze motion graphs and predict future movement
 |
|  | * Identify that velocity is speed and direction.
 |
|  | * Differentiate velocity from speed.
 |
|  | * Identify acceleration, deceleration, and constant speed graphs
 |
|  | * Identify forces acting on objects
 |
|  | * Recognize balanced and unbalanced forces
 |
|  | * Explain net force
 |
|  | * Explain that an object will remain at rest or in a constant motion unless an unbalanced force acts upon it
 |
|  | * Give examples of forces
 |
|  | * Describe friction
 |
|  | * Describe gravity
 |
|  | * Describe how resistance of materials affects electrical flow
 |
|  | * Identify objects with potential and kinetic energy
 |
|  | **Energy** |
|  | * Identify forms of energy (light, heat, sound, electrical, nuclear, mechanical)
 |
|  | * Explain transmission, reflection, absorption of sound, light, and heat energy
 |
|  | * Explain the law of conservation of energy
 |
|  | * Describe energy transformations in a simple system
 |
|  | * Understand simple machines (relationship of work input to work output)
 |
|  | * Recognize and compare heat transfer (conduction, convection, and radiation)
 |
|  | * Recognize that heat energy flows from a system of higher energy to a system of lower energy
 |
|  |  |
|  | * Explain that electricity is produced from other types of energy (magnetism, solar, mechanical)
 |
|  | * Identify exothermic and endothermic reactions
 |
|  | * Identify wave characteristics (wavelength, frequency, amplitude)
 |
|  | * Predict direction of refracted light waves when passing through transparent materials
 |
|  | * Apply the law of reflection and law of refraction in common objects
 |
|  | * Using experimentation, determine whether light is reflected, transmitted, and/or absorbed
 |
|  | * Explain how humans see an object’s color based on the wavelength of light transmitted to the viewer’s eye
 |
|  | **Science and the Environment****Energy and Resources** |
|  | * Identify and classify energy as renewable, nonrenewable, and inexhaustible
 |
|  | * Compare pollutions amounts/capabilities of different energy sources
 |
|  | * Describe how inexhaustible energy is harnessed for energy production
 |
|  | * Identify methods for sustaining renewable resources
 |
|  | * Identify ways to reuse, recycle, and reduce
 |
|  | * Describe how technology influences resource use in an ecosystem (forestry, fishing, and soil conservation)
 |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |