

Standard Code	Standards
MS-SCI-PS.FM.01.00.0	Apply Newton's First, Second, and Third Laws to describe an object's motion.
MS-SCI-PS.FM.01.A.0	Explain and demonstrate Newton's Third Law.
MS-SCI-PS.FM.01.B.0	Label the action and reaction force in a given situation.
MS-SCI-PS.FM.01.C.0	Explain and demonstrate Newton's First and Second Law.
MS-SCI-PS.FM.01.D.0	Differentiate between a balanced and unbalanced force.
MS-SCI-PS.FM.01.E.0	Demonstrate Archimedes principle by predicting whether an object will sink or float.
MS-SCI-PS.FM.01.F.0	Understand how changes in force or mass affects the motion of an object.
MS-SCI-PS.FM.01.G.0	Describe and explain the effects of friction on the motion of an object.
MS-SCI-PS.FM.01.H.0	Differentiate between mass and weight (e.g., kg vs Newton's, spring scale vs balance).
MS-SCI-PS.FM.02.00.0	Explain how work can be done using simple machines.
MS-SCI-PS.FM.02.A.0	Identify simple machines in common tools and household items.
MS-SCI-PS.FM.02.B.0	Recognize examples of work being done on an object (force applied and distance moved in the direction of the applied force) with and without the use of simple machines.
MS-SCI-PS.FM.02.C.0	Calculate the amount of work done when a force is applied to an object over a distance ($W = F \times d$).
MS-SCI-PS.FM.02.D.0	Explain how simple machines affect the amount of effort force, distance through which a force is applied, and/or direction of force while doing work.
MS-SCI-PS.FM.02.E.0	Recognize the amount of work output is never greater than the amount of work input, with or without the use of a simple machine.
MS-SCI-PS.FM.02.F.0	Evaluate simple machine designs to determine which design requires the least amount of effort force.
MS-SCI-PS.FM.03.00.0	Determine the factors that affect the strength of electric and magnetic forces.
MS-SCI-PS.FM.03.A.0	Differentiate between static and current electricity.
MS-SCI-PS.FM.03.B.0	Classify items as electrical insulators and conductors.
MS-SCI-PS.FM.03.C.0	Build series and parallel circuits.
MS-SCI-PS.FM.03.D.0	Describe the causes of magnetism.
MS-SCI-PS.FM.03.E.0	Compare the strength of an electromagnets that differ in the number of wraps or battery size.
MS-SCI-PS.FM.03.F.0	Explain how a magnetic field could form an electric current.
MS-SCI-PS.FM.03.G.0	Explain how electric current is generated today through the process of electromagnetic induction.
MS-SCI-PS.FM.03.H.0	Describe the difference between an electric motor and an electric generator as well as their function.
MS-SCI-PS.FM.03.I.0	Demonstrate different ways forces can be exerted without contact. (e.g., magnets, charged balloons etc.)
MS-SCI-PS.FM.03.J.0	Recognize that the universe obeys the laws of physics.
MS-SCI-PS.FM.03.K.0	Apply how God created not only matter but forces as well (e.g., God as the first mover as it relates to Newton's first law.)
MS-SCI-PS.FM.03.L.0	Acknowledge that God is above the laws of physics.

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MS-SCI-PS.ME.04.00.0	Describe the characteristics of matter.
MS-SCI-PS.ME.04.A.0	Identify examples of physical properties of matter (e.g., solubility, ductility, malleability, density, thermal conductivity, and state of matter).
MS-SCI-PS.ME.04.B.0	Identify examples of chemical properties of matter (e.g., flammability, reactivity)
MS-SCI-PS.ME.04.C.0	Find and calculate density of an unknown substance.
MS-SCI-PS.ME.04.D.0	Differentiate between physical changes and chemical changes.
MS-SCI-PS.ME.04.E.0	Categorize matter as an element, compound, or mixture.
MS-SCI-PS.ME.04.F.0	Describe methods of separating parts of a mixture (e.g., iron from saw dust, salt from water, centrifuge).
MS-SCI-PS.ME.05.00.0	Describe the atomic composition of simple molecules and extended structures
MS-SCI-PS.ME.05.A.0	Explain how the atomic theory has changed over the years.
MS-SCI-PS.ME.05.B.0	Name the parts of an atom, their location, mass, and charge. (e.g., proton, neutron, electron, valence electrons etc.)
MS-SCI-PS.ME.05.C.0	Differentiate between atoms, isotopes, and ions.
MS-SCI-PS.ME.05.D.0	Describe the structure of the periodic table (e.g., metals, nonmetals, and metalloids; groups vs. periods).
MS-SCI-PS.ME.05.E.0	Describe the difference between chemical compounds CO ₂ and H ₂ O.
MS-SCI-PS.ME.05.F.0	Identify an unknown substance using an indicator (e.g., ph. paper, litmus paper, phenolphthalein)
MS-SCI-PS.ME.06.00.0	Identify the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.
MS-SCI-PS.ME.06.A.0	Identify four signs that indicate a chemical reaction has occurred (odor, temperature change, color, and production of precipitate and gas).
MS-SCI-PS.ME.06.B.0	Write and balance simple chemical equations to demonstrate the law of conservation of mass.
MS-SCI-PS.ME.06.C.0	Identify types of chemical reactions.
MS-SCI-PS.ME.07.00.0	Predict and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.
MS-SCI-PS.ME.07.A.0	Differentiate between the arrangements and movement of particles in a solid, liquid, and gas.
MS-SCI-PS.ME.07.B.0	Describe how kinetic energy is involved in changes of state.
MS-SCI-PS.ME.07.C.0	Name the changes of state, including evaporation, sublimation, boiling, condensation, freezing, melting.
MS-SCI-PS.ME.07.D.0	Differentiate between heat and temperature.
MS-SCI-PS.ME.07.E.0	Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.
MS-SCI-PS.ME.07.F.0	Acknowledge that God is the creator of all matter.
MS-SCI-PS.ME.07.G.0	Illustrate how we can respect all of God's creation starting with the smallest particle of matter.
MS-SCI-PS.ME.07.H.0	Recognize that the equation for a balanced life is to lead a life of stewardship.
MS-SCI-PS.ME.08.00.0	Describe the relationships of kinetic energy to the mass of an object and to the speed of an object.

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MS-SCI-PS.ME.08.A.0	Compare potential and kinetic energy.
MS-SCI-PS.ME.08.B.0	Demonstrate types of friction (e.g., kinetic sliding, kinetic rolling, static, air resistance)
MS-SCI-PS.ME.08.C.0	Identify the two factors that determine speed (distance and time).
MS-SCI-PS.ME.08.D.0	Design and perform an experiment demonstrating the effect of various factors that impact acceleration (mass, friction, speed, slope etc.)
MS-SCI-PS.ME.08.E.0	Describe the factors that affect friction (roughness of the surface, the weight of object, surface area, speed).
MS-SCI-PS.ME.08.F.0	Develop a model, picture, or diagram to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system. (e.g., positions on a hill, heights on shelf, charged balloon brought
MS-SCI-PS.ME.09.00.0	Determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.
MS-SCI-PS.ME.09.A.0	Explain how insulators and conductors effect thermal transfer.
MS-SCI-PS.ME.09.B.0	Differentiate between the different types of heat transfer (convection, conduction, and radiation).
MS-SCI-PS.ME.09.C.0	Define specific heat.
MS-SCI-PS.ME.09.D.0	Compare energy transfer between different types of objects.
MS-SCI-PS.ME.09.E.0	Trace the flow of energy as energy is transferred through a system.
MS-SCI-PS.ME.09.F.0	Use the law of conservation of energy to describe energy efficiency (e.g., mechanical, electric, and solar).
MS-SCI-PS.ME.09.G.0	Compare potential energy to an individual's potential to bring about the Kingdom of God.
MS-SCI-PS.ME.09.H.0	Acknowledge that God transforms us through prayer much like how energy transforms matter.
MS-SCI-PS.ME.10.00.0	Describe types of waves and their characteristics.
MS-SCI-PS.ME.10.A.0	Identify and calculate wavelength, frequency, amplitude, and speed of a wave.
MS-SCI-PS.ME.10.B.0	Demonstrate the differences between longitudinal and transverse waves.
MS-SCI-PS.ME.10.C.0	Differentiate between mechanical (ocean, earthquake, and sound) and electromagnetic waves.
MS-SCI-PS.ME.10.D.0	Describe how light waves affect light brightness, intensity, and color.
MS-SCI-PS.ME.10.E.0	Relate how the pattern of liturgical colors and seasons resembles highs and lows of wave patterns.
MS-SCI-PS.ME.10.F.0	Acknowledge that Jesus is the light of the world.
MS-SCI-PS.SI.11.00.0	Use appropriate laboratory apparatuses, technology, and techniques safely and accurately when conducting a scientific investigation.
MS-SCI-PS.SI.11.A.0	Use scientific instruments to record measurement data in appropriate metric units that reflect the precision and accuracy of each particular instrument.
MS-SCI-PS.SI.11.B.0	Conduct a scientific investigation with appropriate methods of control to test a hypothesis (including independent and dependent variables), and evaluate the designs of sample investigations.

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MS-SCI-PS.SI.11.C.0	Organize and interpret the data from a controlled scientific investigation by using (including calculations in scientific notation, formulas, and dimensional analysis), tables, models, diagrams, and/or technology.
MS-SCI-PS.SI.11.D.0	Evaluate the results of a controlled scientific investigation in terms of whether they refute or verify the hypothesis.
MS-SCI-PS.SI.11.E.0	Differentiate between qualitative and quantitative data in experimental design.
MS-SCI-PS.SI.11.F.0	Use appropriate safety procedures when conducting investigations.