NGSS and TEKS Alignment by The Science Duo
Physical Science Standards

Middle School Science

Alignment of NGSS Physical Science Standards (MS-PS) to Texas Essential Knowledge and Skills Standards (6-8th Grade)

Quick Guide Version (with product links)

Physical Science

MS-PS1 Matter and Its Interactions		
NGSS Standard	TEKS	Bundle Links in The Science Duo Shop
MS-PS1-1	6.6A, 7.6A, 7.6B, 8.6B	6.6A, 7.6A, 7.6B, 8.6B
MS-PS1-2	6.6C, 6.6B, 6.6D, 7.6B, 7.6C, 8.6B	6.6B, 6.6C, 6.6D, 7.6B, 7.6C, 8.6B
MS-PS1-3	8.11B, 8.11C	8.11B, 8.11C
MS-PS1-4	6.6A, 6.6E, 7.8A, 7.8B, 7.8C	6.6A, 6.6E, 7.8A, 7.8B, 7.8C
MS-PS1-5	6.6E, 8.6E	6.6E, 8.6E
MS-PS1-6	7.8A, 7.8B, 7.8C	7.8A, 7.8B, 7.8C

MS-PS2 Motion and Stability: Forces and Interactions		
NGSS Standard	TEKS	Bundle Links in The Science Duo Shop
MS-PS2-1	6.7A, 6.7C, 8.7B	6.7A, 6.7C, 8.7B
MS-PS2-2	6.7A, 6.7B, 7.7D, 8.7A, 8.7B	6.7A, 6.7B, 7.7D, 8.7A, 8.7B
MS-PS2-3	6.7A	6.7A
MS-PS2-4	6.7A, 6.8A, 7.9A, 7.9B	6.7A, 6.8A, 7.9A, 7.9B
MS-PS2-5	6.7A, 7.9A, 7.9B	6.7A, 7.9A, 7.9B

MS-PS3 Energy		
NGSS Standard	TEKS	Bundle Links in The Science Duo Shop
MS-PS3-1	6.8A, 7.7A, 7.7B, 7.7D, 8.7A, 8.7B	6.8A, 7.7A, 7.7B, 7.7D, 8.7A, 8.7B
MS-PS3-2	6.7A, 6.8A, 6.9B, 8.7B	6.7A, 6.8A, 6.9B, 8.7B
MS-PS3-3	7.8A, 7.8B, 7.8C	7.8A, 7.8B, 7.8C
MS-PS3-4	7.6E, 7.8A, 7.8B, 7.8C	7.6E, 7.8A, 7.8B, 7.8C
MS-PS3-5	6.8B, 6.8C, 7.7B, 7.7C, 7.7D, 7.8A, 7.8B, 7.8C, 8.7B	6.8B, 6.8C, 7.7B, 7.7C, 7.7D, 7.8A, 7.8B, 7.8C, 8.7B

MS-PS4 Waves and Their Applications in Technologies for Information Transfer		
NGSS Standard	TEKS	Bundle Links in The Science Duo Shop
MS-PS4-1	6.8C, 8.8A	6.8C, 8.8A
MS-PS4-2	6.8C, 8.8A, 8.8B	6.8C, 8.8A, 8.8B
MS-PS4-3	8.8B	8.8B

Extended Version with Standards (no links)

MS-PS1 Matter and Its Interactions

NGSS Standard	TEKS
MS-PS1-1 Develop models to describe the atomic composition of simple molecules and extended structures.	6.6A compare solids, liquids, and gases in terms of their structure, shape, volume, and kinetic energy of atoms and molecules.
	7.6A compare and contrast elements and compounds in terms of atoms and molecules, chemical symbols, and chemical formulas.
	7.6B use the periodic table to identify the atoms and the number of each kind within a chemical formula.
	8.6B use the periodic table to identify the atoms involved in chemical reactions.
MS-PS1-2 Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.	6.6B investigate the physical properties of matter to distinguish between pure substances, homogeneous mixtures (solutions), and heterogeneous mixtures.
	6.6C identify elements on the periodic table as metals, nonmetals, metalloids, and rare Earth elements based on their physical properties and importance to modern life.
	6.6D compare the density of substances relative to various fluids.
	7.6B use the periodic table to identify the atoms and the number of each kind within a chemical formula.
	7.6C distinguish between physical and chemical changes in matter.
	8.6B use the periodic table to identify the atoms involved in chemical reactions.
MS-PS1-3 Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.	8.11B use scientific evidence to describe how human activities, including the release of greenhouse gases, deforestation, and urbanization, can influence climate.
	8.11C describe the carbon cycle.

NGSS Standard	TEKS
MS-PS1-4 Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.	6.6A compare solids, liquids, and gases in terms of their structure, shape, volume, and kinetic energy of atoms and molecules.
	6.6E identify the formation of a new substance by using the evidence of a possible chemical change, including production of a gas, change in thermal energy, production of a precipitate, and color change.
	7.8A investigate methods of thermal energy transfer into and out of systems, including conduction, convection, and radiation.
	7.8B investigate how thermal energy moves in a predictable pattern from warmer to cooler until all substances within the system reach thermal equilibrium.
	7.8C explain the relationship between temperature and the kinetic energy of the particles within a substance.
MS-PS1-5 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.	6.6E identify the formation of a new substance by using the evidence of a possible chemical change, including production of a gas, change in thermal energy, production of a precipitate, and color change.
	8.6E investigate how mass is conserved in chemical reactions and relate conservation of mass to the rearrangement of atoms using chemical equations, including photosynthesis.
MS-PS1-6 Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.	7.8A investigate methods of thermal energy transfer into and out of systems, including conduction, convection, and radiation.
	7.8B investigate how thermal energy moves in a predictable pattern from warmer to cooler until all substances within the system reach thermal equilibrium.
	7.8C explain the relationship between temperature and the kinetic energy of the particles within a substance.

MS-PS2 Motion and Stability: Forces and Interactions

NGSS Standard	TEKS
MS-PS2-1 Apply Newton’s Third Law to design a solution to a problem involving the motion of two colliding objects.	6.7A identify and explain how forces act on objects, including gravity, friction, magnetism, applied forces, and normal forces, using real-world applications.
	6.7C identify simultaneous force pairs that are equal in magnitude and opposite in direction that result from the interactions between objects using Newton's Third Law of Motion.
	8.7B investigate and describe how Newton's three laws of motion act simultaneously within systems such as in vehicle restraints, sports activities, amusement park rides, Earth's tectonic activities, and rocket launches.

NGSS Standard	TEKS
MS-PS2-2 Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.	6.7A identify and explain how forces act on objects, including gravity, friction, magnetism, applied forces, and normal forces, using real-world applications.
	6.7B calculate the net force on an object in a horizontal or vertical direction using diagrams and determine if the forces are balanced or unbalanced.
	7.7D analyze the effect of balanced and unbalanced forces on the state of motion of an object using Newton's First Law of Motion.
	8.7A calculate and analyze how the acceleration of an object is dependent upon the net force acting on the object and the mass of the object using Newton's Second Law of Motion.
	8.7B investigate and describe how Newton's three laws of motion act simultaneously within systems such as in vehicle restraints, sports activities, amusement park rides, Earth's tectonic activities, and rocket launches.
MS-PS2-3 Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.	6.7A identify and explain how forces act on objects, including gravity, friction, magnetism, applied forces, and normal forces, using real-world applications.
MS-PS2-4 Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.	6.7A identify and explain how forces act on objects, including gravity, friction, magnetism, applied forces, and normal forces, using real-world applications.
	6.8A compare and contrast gravitational, elastic, and chemical potential energies with kinetic energy.
	7.9A describe the physical properties, locations, and movements of the Sun, planets, moons, meteors, asteroids, comets, Kuiper belt, and Oort cloud.
	7.9B describe how gravity governs motion within Earth's solar system.
MS-PS2-5 Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.	6.7A identify and explain how forces act on objects, including gravity, friction, magnetism, applied forces, and normal forces, using real-world applications.
	7.9A describe the physical properties, locations, and movements of the Sun, planets, moons, meteors, asteroids, comets, Kuiper belt, and Oort cloud.
	7.9B describe how gravity governs motion within Earth's solar system.

MS-PS3 Energy

NGSS Standard	TEKS
MS-PS3-1 Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.	6.8A compare and contrast gravitational, elastic, and chemical potential energies with kinetic energy.
	7.7A calculate average speed using distance and time measurements from investigations.
	7.7B distinguish between speed and velocity in linear motion in terms of distance, displacement, and direction.
	7.7D analyze the effect of balanced and unbalanced forces on the state of motion of an object using Newton's First Law of Motion.
	8.7A calculate and analyze how the acceleration of an object is dependent upon the net force acting on the object and the mass of the object using Newton's Second Law of Motion.
	8.7B investigate and describe how Newton's three laws of motion act simultaneously within systems such as in vehicle restraints, sports activities, amusement park rides, Earth's tectonic activities, and rocket launches.
MS-PS3-2 Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.	6.7A identify and explain how forces act on objects, including gravity, friction, magnetism, applied forces, and normal forces, using real-world applications.
	6.8A compare and contrast gravitational, elastic, and chemical potential energies with kinetic energy.
	6.9B describe and predict how the positions of the Earth, Sun, and Moon cause daily, spring, and neap cycles of ocean tides due to gravitational forces.
	8.7B investigate and describe how Newton's three laws of motion act simultaneously within systems such as in vehicle restraints, sports activities, amusement park rides, Earth's tectonic activities, and rocket launches.
MS-PS3-3 Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.	7.8A investigate methods of thermal energy transfer into and out of systems, including conduction, convection, and radiation.
	7.8B investigate how thermal energy moves in a predictable pattern from warmer to cooler until all substances within the system reach thermal equilibrium.
	7.8C explain the relationship between temperature and the kinetic energy of the particles within a substance.

NGSS Standard	TEKS
MS-PS3-4 Plan an investigation to 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.	7.6E investigate and model how temperature, surface area, and agitation affect the rate of dissolution of solid solutes in aqueous solutions.
	7.8A investigate methods of thermal energy transfer into and out of systems, including conduction, convection, and radiation.
	7.8B investigate how thermal energy moves in a predictable pattern from warmer to cooler until all substances within the system reach thermal equilibrium.
	7.8C explain the relationship between temperature and the kinetic energy of the particles within a substance.
MS-PS3-5 Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.	6.8B describe how energy is conserved through transfers and transformations in systems such as electrical circuits, food webs, amusement park rides, or photosynthesis.
	6.8C explain how energy is transferred through transverse and longitudinal waves.
	7.7B distinguish between speed and velocity in linear motion in terms of distance, displacement, and direction.
	7.7C measure, record, and interpret an object's motion using distance-time graphs.
	7.7D analyze the effect of balanced and unbalanced forces on the state of motion of an object using Newton's First Law of Motion.
	7.8A investigate methods of thermal energy transfer into and out of systems, including conduction, convection, and radiation.
	7.8B investigate how thermal energy moves in a predictable pattern from warmer to cooler until all substances within the system reach thermal equilibrium.
	7.8C explain the relationship between temperature and the kinetic energy of the particles within a substance.
	8.7B investigate and describe how Newton's three laws of motion act simultaneously within systems such as in vehicle restraints, sports activities, amusement park rides, Earth's tectonic activities, and rocket launches.

MS-PS4 Waves and Their Applications in Technologies for Information Transfer

NGSS Standard	TEKS
MS-PS4-1 Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.	6.8C explain how energy is transferred through transverse and longitudinal waves.
	8.8A compare the characteristics of amplitude, frequency, and wavelength in transverse waves, including the electromagnetic spectrum.
MS-PS4-2	6.8C explain how energy is transferred through transverse and longitudinal waves.
	8.8A compare the characteristics of amplitude, frequency, and wavelength in transverse waves, including the electromagnetic spectrum.
	8.8B explain the use of electromagnetic waves in applications such as radiation therapy, wireless technologies, fiber optics, microwaves, ultraviolet sterilization, astronomical observations, and X-rays.
MS-PS4-3	8.8B explain the use of electromagnetic waves in applications such as radiation therapy, wireless technologies, fiber optics, microwaves, ultraviolet sterilization, astronomical observations, and X-rays.