



Biological and Physical Sciences Learning Progressions

Standards Alignments Grouped by Disciplines

Physical Science

Grade	Standard	NGSS PE (link)
K	Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.	K-PS2-1
1	Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.	1-PS4-1
2	Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.	2-PS1-1
3	Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other	3-PS2-3
4	Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.	4-PS3-2
5	Develop a model to describe that matter is made of particles too small to be seen.	5-PS1-1



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Grade	Standard	NGSS PE (link)
Middle School 6-8	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.	MS-PS1-4
Middle School 6-8	Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.	MS-PS2-4
Middle School 6-8	Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.	MS-PS4-2



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Grade	Standard	NGSS PE (link)
High School 9-12	Use mathematical representations of <u>Newton's Law of Gravitation</u> and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.	HS-PS2-4
High School 9-12	Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.	HS-PS3-3
High School 9-12	Use mathematical representations to support a claim regarding relationships among the <u>frequency, wavelength, and speed of waves</u> traveling in various media.	HS-PS4-1
High School 9-12	Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.	HS-PS4-4



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Life Science

Grade	Standard	NGSS PE (link)
K	Use observations to describe patterns of what plants and animals (including humans) need to survive.	K-LS1-1
1	Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.	1-LS3-1
2	Plan and conduct an investigation to determine if plants need sunlight and water to grow.	2-LS2-1
3	Use evidence to support the explanation that traits can be influenced by the environment.	3-LS3-2
4	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.	4-LS1-2
5	Support an argument that plants get the materials they need for growth chiefly from air and water.	5-LS1-1



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Grade	Standard	NGSS PE (link)
Middle School 6-8	Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.	<u>MS-LS1-1</u>
Middle School 6-8	Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.	<u>MS-LS1-5</u>
Middle School 6-8	Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.	<u>MS-LS1-6</u>



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Grade	Standard	NGSS PE (link)
High School 9-12	Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.	<u>HS-LS1-1</u>
High School 9-12	Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.	<u>HS-LS1-5</u>
High School 9-12	Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.	<u>HS-LS2-3</u>
High School 9-12	Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.	<u>HS-LS3-1</u>