

BENCHMARK REPORT

SCIENCE GRADE 4



DOMAIN: Science

NGSS/ Aspire Practices	OCS Code:	Standards and Benchmarks	DOK
Strand: 4. Energy: 4-PS3 Energy			
Practice 6	4-PS3-1.	Use evidence to construct an explanation relating the speed of an object to the energy of that object.	
	4-PS3-1.1a	Define non-quantitative energy and speed	1
	4-PS3-1.2b	Locate data which shows the relationship between the amount of energy in an object and its speed	2
	4-PS3-1.3c	Use data to explain the relationship between the amount of energy in an object and its speed	3
Practice 3	4-PS3-2.	Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.	
	4-PS3-2.1a	Define non-quantitative energy and energy transfer	1
	4-PS3-2.2b	Observe the strength of sound energy that is transferred between one specific location and several other locations	2
	4-PS3-2.3c	Cite evidence from observations of sound energy transfer to explain the relationship between transfer of energy and distance	3
Practice 1	4-PS3-3.	Ask questions and predict outcomes about the changes in energy that occur when objects collide.	
	4-PS3-3.1a	Recall information about the exchange of energy when objects collide	1
	4-PS3-3.2c	Formulate a question that investigates the change in speed when objects collide	3
	4-PS3-3.3c	Predict the speed of objects when they collide from different distances	3
Practice 6	4-PS3-4.	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.	
	4-PS3-4.1b	Locate information on the process by which wind motion converts to energy	2
	4-PS3-4.2b	Find examples of devices that are used to convert wind motion into energy	2
	4-PS3-4.3d	Create a plan which includes the materials and tools needed to make a device that converts wind motion to energy	4
	4-PS3-4.4d	Build a device that transfers wind motion into energy	4
Strand: 4. Energy: 4-ESS3 Earth and Human Activity			
Practice 8	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.	
	4-ESS3-1.1a	Define renewable, non-renewable energy resources, water dams, habitat	1
	4-ESS3-1.2b	Locate information on the process by which water dams create energy	2
	4-ESS3-1.3b	Find information from multiple sources about the creation of one specific water dam and the effects it has had on its local habitat	2
	4-ESS3-1.4d	Synthesize information to describe how water dams might be changed to limit their effect on a local habitat	4
Strand: 4. Waves: Waves and Information: 4-PS4 Waves and their Applications in Technologies for Information Transfer			
Practice 2	4-PS4-1.	Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.	
	4-PS4-1.1a	Define amplitude and wavelength	1
	4-PS4-1.2a	Identify the characteristics and patterns of waves	1
	4-PS4-1.3b	Find examples that show how waves cause objects to move	2
	4-PS4-1.4c	Create a diagram that shows the patterns of amplitude and wavelength	3
	4-PS4-1.5d	Create a model that shows how water waves cause objects in the water to move	4
Practice 6	4-PS4-3.	Generate and compare multiple solutions that use patterns to transfer information.	
	4-PS4-3.1a	Define sound waves and digitizing sound	1

BENCHMARK REPORT

SCIENCE GRADE 4



NGSS/ Aspire Practices	OCS Code:	Standards and Benchmarks	DOK
	4-PS4-3.2b	Outline the process that is used to transfer information by converting sound to digital codes and then back to sound	2
	4-PS4-3.3b	Find several examples of how sound waves are used to transfer information	2
	4-PS4-3.4d	Generate two or more new ideas on how to solve the problem of transferring information using sound waves	4
	4-PS4-3.5d	Evaluate the effectiveness of ideas to solve the problem of using sound waves to transfer information	4
4. Structure, Function, and Information Processing: 4-PS4 Waves and their Applications in Technologies for Information Transfer			
Practice 2	4-PS4-2.	Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.	
	4-PS4-2.1a	Define reflection of light	1
	4-PS4-2.2b	Gather information on how light reflecting from an object enters the eye	2
	4-PS4-2.3b	Locate many examples of the kinds of objects that can best be seen though the reflection of light	2
	4-PS4-2.4d	Create a diagram that models the process of how light that reflects from objects enters the eye to be seen	4
Strand: 4. Structure, Function, and Information Processing: 4-LS1 From Molecules to Organisms: Structures and Processes			
Practice 7	4-LS1-1.	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.	
	4-LS1-1.1a	Define the internal and external structures of a set of plants in which the members have similar characteristics to each other	1
	4-LS1-1.2b	Locate information on the internal and external structures of a species of plants that support growth and survival	2
	4-LS1-1.3b	Find good examples of a species of plants that use their internal structures to support growth and survival	2
	4-LS1-1.4b	Find good examples of plants that use their external functions to support growth and survival	2
	4-LS1-1.5c	Cite evidence using information and examples to support the argument that plants rely on their internal and external structures to support growth and survival	3
Practice 2	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.	
	4-LS1-2.1a	Identify the types of information that two specific animals receive through its five senses	1
	4-LS1-2.2b	Locate information on the process of receiving, processing, and responding to information coming from the five senses of two specific animals	2
	4-LS1-2.3b	Find examples of the reactions of two specific animals to danger	2
	4-LS1-2.4d	Create a model which shows the steps, beginning from time information is received through the animal's senses to the time of their response to a specific danger	4
Strand: 4. Earth's Systems: Processes that Shape the Earth: 4-ESS1 Earth's Place in the Universe			
Practice 6	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.	
	4-ESS1-1.1a	Define rock formations, rock layers, fossils, and landscape	1
	4-ESS1-1.2b	Describe the characteristics of plant fossils found in a specific area during different time periods	2
	4-ESS1-1.3b	Categorize the characteristics of plants according to the time period that a fossil was dated	2

BENCHMARK REPORT

SCIENCE GRADE 4



NGSS/ Aspire Practices	OCS Code:	Standards and Benchmarks	DOK
	4-ESS1-1.4b	Locate information about the landscape in the area during the time periods that fossils were dated	2
	4-ESS1-1.5c	Cite evidence using information to support the argument that fossils can show changes in the landscape of an area over time	3
Strand: 4. Earth's Systems: Processes that Shape the Earth: 4-ESS2 Earth's Systems			
Practice 3	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.	
	4-ESS2-1.1a	Define weathering and erosion	1
	4-ESS2-1.2d	Conduct an investigation that examines the amount of soil deposited at the bottom of a hill when different amounts of water are poured down the hill	4
	4-ESS2-1.3b	Measure the amount of soil at the bottom of a hill with different amounts of water	2
	4-ESS2-1.4b	Predict the amount of soil erosion that would occur if more and less water were poured down a hill	2
Practice 4	4-ESS2-2.	Analyze and interpret data from maps to describe patterns of Earth's features.	
	4-ESS2-2.1a	Identify the movement of tectonic plates	1
	4-ESS2-2.2b	Find maps which show the location of the tectonic plates around the world	2
	4-ESS2-2.3b	Find maps which show the location of earthquakes around the world	2
	4-ESS2-2.4d	Analyze data from maps to determine the relationship between the location of tectonic plates and the occurrence of earthquakes	4
Strand: 4. Earth's Systems: Processes that Shape the Earth: 4-ESS3 Earth and Human Activity			
Practice 6	4-ESS3-2.	Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.	
	4-ESS3-2.1a	Identify the causes of river flooding	1
	4-ESS3-2.2b	Find several examples of methods that have been developed to reduce the amount of flooding from rivers	2
	4-ESS3-2.3c	Generate two or more new ideas on how to solve the problem of river flooding	3
	4-ESS3-2.4d	Evaluate new ideas to determine which one best solves the problem of river flooding	4