

Big Idea: What happens to the matter and energy that are part of each organism?								
Guiding Questions:								
Part A: Where do plants get the materials they need for growth? - Support an argument that plants get the materials they need for growth chiefly from air and water. (5-LS1-1)								
Part B: How does matter move among plants, animals, decomposers, and the environment? - Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. (5-LS2-1)								
Part C: How can energy in animals' food be traced to the sun? - Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. (5-PS3-1)								
21st Century Themes/Skills:								
DCI (Disciplinary Core Ideas)	Science and Engineering Practices	Crosscutting Concepts	Student Learning Objectives	Differentiated Activities (Consider the 5 Es)	Resources/Technology	Formative Assessments	Benchmark Assessment	
Organization for Matter and Energy Flow in Organisms - Plants acquire their material for growth chiefly from air and water. (5-LS1-1)	Engaging in Argument from Evidence - Support an argument with evidence, data, or a model.	Energy and Matter - Matter is transported into, out of, and within systems. (5-LS1-1)	Students will support an argument that plants get the materials they need for growth chiefly from air and water.	Engage students to understand it's not just soil, sunlight, and water that makes the trees mass. Air is an important role in trees obtaining matter.	https://www.youtube.com/watch?v=2KZb2_vcNTg <i>video about trees getting their matter from the air</i>			
				Students will discover matter cycles between the air and soil, and among plants, animals, and microbes as these organisms live and die.	http://betterlesson.com/lesson/633903/day-one-of-joey-s-plant-lab			
					Plants Make Food (Tabletop Photosynthesis) ~ simulation of photosynthesis that shows where mass of the plant comes from			
				Students grow grass ~ measure the amount of soil. If plants use soil, the amount should decrease over time	http://web.extension.illinois.edu/mms/downloads/8224.pdf			
Organization for Matter and Energy Flow in Organisms - Plants acquire their material for growth chiefly from air and water. (5-LS1-1)	Engaging in Argument from Evidence - Support an argument with evidence, data, or a model.	Energy and Matter - Matter is transported into, out of, and within systems. (5-LS1-1)	Students observe a variety of plants over time.	downward. Trace petri dish grid onto paper towel. Cut and place it in petri dish. Label A, B, C, D on top line of grid. Place seed below letter. Lean petri dish in rectangular bucket and let water seep into bottom of petri dish. Track daily growth of seeds. After a few days of growth, turn petri	Petri Dish Activity (activity folder)			
					http://the-science-mom.com/1027/growing-plants-do-roots-always-grow-downwards/			
				Discover how plants use the materials around them to make food.	examining-plant-growth-lab (activities folder)			
Organization for Matter and Energy Flow in Organisms - Plants acquire their material for growth chiefly from air and water. (5-LS1-1)	Engaging in Argument from Evidence - Support an argument with evidence, data, or a model.	Energy and Matter - Matter is transported into, out of, and within systems. (5-LS1-1)	Students will recognize that plants use energy from the sun to transform air and water into plant matter.	Create an environment where we can actually see the oxygen/carbon dioxide process of leaves.	http://www.kcedventures.com/blog/how-do-leaves-breathe-a-simple-science-experiment-for-kids			
				Understand cellular respiration occurs in both animals and plants. Photosynthesis and cellular respiration are in a continual cycle.	photosynthesis-cellular-respiration-lab (activities folder)			
animals eat plants for food and other animals eat the animals that eat plants. (5-LS2-1)	Developing and Using Models - Use models to describe phenomena.	Systems and System Models - A system can be described in terms of its components and their interactions. (5-LS2-1)	Students will identify the living and nonliving components of a system.	Explain the difference between the living and nonliving things	http://studyjams.scholastic.com/studyjams/jams/science/ecosystems/ecosystems.htm			
LS2.B: Cycles of Matter and Energy Transfer in Ecosystems • Matter cycles between the air and soil and among plants, animals, and microbes as these				Students will differentiate between biotic and abiotic factors.	Ecosystem notes (activity folder)			
PS3.D: Energy in Chemical Processes and Everyday Life • The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1) LS1.C: Organization for Matter and Energy Flow in Organisms • Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion. (secondary to 5-PS3-1)	Developing and Using Models - Use models to describe phenomena. (5-PS3-1)	Energy and Matter - Energy can be transferred in various ways and between objects. (5-PS3-1)	Students will develop models (such as food chains or food webs) that describe the movement of matter among plants, animals, decomposers, and the environment.	Use the following resources to understand the energy flow of matter among producer, consumer, and decomposers in an environment.	Simple food chain			
					https://mysteryscience.com/ecosystems/mystery-1/food-chains-predators-herbivores-carnivores/93?r=3426905#slide-id-0			
					https://app.discoveryeducation.com/techbook/concept/conceptGuid/9DC6FE3F-17EC-4D73-B751-4636E12E18D7/unitGuid/594A4A76-1A3C-4198-8C5D-88925782D182#/tab=engage-tab&page=1&subTab=			
					https://docs.google.com/a/seagirt.k12.nj.us/file/d/0B1-t4jECBEtoQ201MG53SUdU1TEc3eTdScE1IT3lQdw/edit			
					https://mysteryscience.com/ecosystems/ecosystems-the-food-chain/activity-prep			

Big Idea: What happens to the matter and energy that are part of each organism? Guiding Questions: Part A: Where do plants get the materials they need for growth? - Support an argument that plants get the materials they need for growth chiefly from air and water. (5-LS1-1) Part B: How does matter move among plants, animals, decomposers, and the environment? - Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. (5-LS2-1) Part C: How can energy in animals' food be traced to the sun? - Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. (5-PS3-1)							
21st Century Themes/Skills:							
DCI (Disciplinary Core Ideas)	Science and Engineering Practices	Crosscutting Concepts	Student Learning Objectives	Differentiated Activities (Consider the 5 Es)	Resources/Technology	Formative Assessments	Benchmark Assessment
				"Use the following resources to understand the energy flow of matter among producer, consumer, and decomposers in an environment." "	Energy Pyramid Popcorn Model (activity folder)		
Chemical Processes and Everyday Life • The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1) L.S1.C: Organization for Matter and Energy Flow in Organisms • Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion. (secondary to 5-PS3-1)	Developing and Using Models - Use models to describe phenomena. (5-PS3-1)	Energy and Matter - Energy can be transferred in various ways and between objects. (5-PS3-1)	Students will develop models (such as food chains or food webs) that describe the movement of matter among plants, animals, decomposers, and the environment.	Explain how the disappearance of one species can affect other species in an ecosystem.	http://classroom.synonym.com/happens-something-food-chain-goes-extinct-18214.html	http://teacher.scholastic.com/scholasticnews/indept/h/endangered_species/background/index.asp?article=endangeredspecies	
				Explain how the disappearance of one species can affect other species in an ecosystem.	http://www.nsta.org/publications/press/extras/files/adi-lifescience/Lab10Handout-Predator-PreyRelationships.pdf	http://teacher.scholastic.com/scholasticnews/indept/h/endangered_species/activities/quiz/index.asp	
				Students will demonstrate knowledge biotic, abiotic, food chains, and nitrogen-oxygen cycle to design an animal habitat.	Aquarium Habitat Design Project (see link in formative assessments)	https://docs.google.com/presentation/d/1ITetpH_hkTOypR58lc7mPBjgLsq5_AcpdvLwc6xhHfA/edit?usp=sharing	