

BPS Living Environment Science Demonstration and Laboratory Videos

Video	Description	Unit	Science Standards - MST	Science Standards- NYSSLS	Video Link	Student Resource
Carrot Osmosis	Demonstration video of osmosis with carrots. Carrots are submerged in saltwater and tap water for comparison.	1A	Standard 4 Science Key Idea 1 1.2g – Each cell is covered by a membrane that performs a number of important functions for the cell. These include separation from its outside environment, controlling which molecules enter and leave the cell, and the recognition of chemical signals. The processes of diffusion and active transport are important in the movement of materials in and out of cells. Key Idea 5 5.3a - Dynamic equilibrium results from detection of and response to stimuli. Organisms detect and respond to change in a variety of ways both at the cellular level and at the organismal level.	HS-LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. HS-LS1-3: Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.	Carrot Osmosis Video Link	Carrot and Egg Osmosis Student Resource
Egg Osmosis	An egg is used as a cell model to explain osmosis through a cell membrane.	1A	Standard 4 Science Key Idea 1 1.2g – Each cell is covered by a membrane that performs a number of important functions for the cell. These include separation from its outside environment, controlling which molecules enter and leave the cell, and the recognition of chemical signals. The processes of diffusion and active transport are important in the movement of materials in and out of cells. Key Idea 5 5.3a - Dynamic equilibrium results from detection of and response to stimuli. Organisms detect and respond to change in a variety of ways both at the cellular level and at the organismal level.	HS-LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. HS-LS1-3: Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.	Egg Osmosis Video Link	Carrot and Egg Osmosis Student Resource

BPS Living Environment Science Demonstration and Laboratory Videos

Steps to Using a Microscope	Microscope parts, their functions, and how to focus a specimen slide are presented.	1A 1B	Living Environment Appendix Skills Checklist: Use a compound microscope/stereoscope effectively to see specimens clearly, using different magnifications.	HS-LS1-1: 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. HS-LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.	Steps to Using a Microscope Video Link	Steps to Using a Microscope Student Resource
Cell Membrane and the Process of Diffusion	The cell membrane and the process of diffusion are modeled in this demonstration.	1A	Standard 4 Science Key Idea 1 1.2g – Each cell is covered by a membrane that performs a number of important functions for the cell. These include separation from its outside environment, controlling which molecules enter and leave the cell, and the recognition of chemical signals. The processes of diffusion and active transport are important in the movement of materials in and out of cells.	HS-LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms	Cell Membrane and the Process of Diffusion Video Link	Cell Membrane and the Process of Diffusion Student Resource
Animal Cell Organelles and Their Functions	A model of the animal cell, animal cell organelles, and the functions of the organelles are featured. This model uses food products.	1A	Standard 4 Science Key Idea 1 1.2f – Cells have particular structures that perform specific jobs. These structures perform the actual work of the cell. Just as systems are coordinated and work together, cell parts must also be coordinated and work together. 1.2i – Inside the cell a variety of specialized structures, formed from many different molecules, carry out the transport of materials (cytoplasm), extraction of energy from nutrients (mitochondria), protein building (ribosomes), waste disposal (cell membrane), storage (vacuole), and information storage (nucleus).	HS-LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms	Animal Cell Organelles and Their Functions Video Link	Animal Cell Organelles and Their Functions Student Resource

BPS Living Environment Science Demonstration and Laboratory Videos

<p>Plant Cell Organelles and Their Functions</p>	<p>A model of the plant cell, plant cell organelles, and the functions of the organelles are featured. This model uses food products.</p>	<p>1A</p>	<p>Standard 4 Science Key Idea 1 1.2f – Cells have particular structures that perform specific jobs. These structures perform the actual work of the cell. Just as systems are coordinated and work together, cell parts must also be coordinated and work together. 1.2i – Inside the cell a variety of specialized structures, formed from many different molecules, carry out the transport of materials (cytoplasm), extraction of energy from nutrients (mitochondria), protein building (ribosomes), waste disposal (cell membrane), storage (vacuole), and information storage (nucleus).</p>	<p>HS-LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms</p>	<p>Plant Cell Organelles and Their Functions Video Link</p>	<p>Plant Cell Organelles and Their Functions Student Resource</p>
--	---	-----------	---	---	---	---