

SCIENCE: INTRO TO BIOLOGY - UNIT 1

Overview			
Quarter(s): 1			
Pacing: 2 weeks			
Unit Power Standard(s) Code	Unit Power Standard(s) Description		
9-12.LS1.A.2	DEVELOP and USE a <u>model</u> to ILLUSTRATE the hierarchical <u>organization</u> of interacting <u>systems</u> that PROVIDE specific <u>functions</u> within multicellular <u>organisms</u> .		
Below Grade/Course Connected Standard(s)		Above Grade/Course Connected Standard(s)	
8th grade students were previously engaged with 6-8.LS1.A.2		N/A	
Unit Supporting Standards Code	Unit Supporting Standards Description		
9-12.LS3.B.1	COMPARE and CONTRAST asexual and sexual reproduction with regard to genetic <u>information</u> and <u>variation</u> in <u>offspring</u> .		
Unpacked Standard(s)			
Power Standard(s) Code	Power Standard(s) Description	DOK(s)	DESE Expectation(s) Unwrapped
9-12.LS1.A.2	DEVELOP and USE a model to ILLUSTRATE the hierarchical organization of interacting systems that PROVIDE specific functions within multicellular organisms.	3	SCIENCE AND ENGINEERING PRACTICES Developing and Using Models • Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system. DISCIPLINARY CORE IDEAS Structure and Function • Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level. CROSSCUTTING CONCEPTS System and System Models • Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales.
DESE Questions Examples:	<p>These examples could be added from any of these three places.</p> <p>Sample stem is not appropriate for this unit</p> <p><u>Alternatives include:</u></p> <ol style="list-style-type: none"> 1. Make a Claim about whether you think viruses are a living thing. Use three pieces of evidence to support your claim. Explain your reason as to why your evidence supports your claim. <p>Life 9-12 EOC</p>		

“Unwrapped” Content (nouns) (students need to know)	“Unwrapped” Skills (VERBS) (students need to be able to do & DOK)	“Unwrapped” Understanding (students need to understand)	
<ul style="list-style-type: none"> ● Model ● Organization ● Systems ● Functions ● Organisms ● Claim ● Evidence ● Reasoning 	<ul style="list-style-type: none"> ● Develop (3) ● Use (2) ● Illustrate (1) ● Provide (1) ● Observe (1) ● Annotate (2) ● Differentiate (2) ● Compare and Contrast (2) 	<ul style="list-style-type: none"> ● Students will develop an argument using evidence that something is biotic or abiotic. ● Students will distinguish between an observation and an inference. ● Students will use a concept map to differentiate the similarities and differences between living and nonliving things. ● Students will ask questions that arise from observations or results, to clarify and/or seek additional information. ● Students will compare and contrast viruses, bacteria and animal cells using a venn diagram to find similarities and differences based on observations they make. ● Students will annotate a reading on viruses and use the evidence they found to to create a logical argument using evidence whether something is living or nonliving. 	
New Academic Vocabulary		Scaffolded (Review) Academic Vocabulary	
<ul style="list-style-type: none"> ● Homeostasis ● Asexual reproduction ● Response ● Metabolism ● Sexual reproduction ● Stimulus ● Fertile ● prokaryote ● Positive feedback ● Species ● Eukaryote ● Negative feedback ● Evolution ● Differentiation ● Somatic 	<ul style="list-style-type: none"> ● Biology ● Atom ● Molecule ● Organ ● Tissue ● Cell ● Organ system ● Organism ● Population ● Species ● Community ● Ecosystem ● Biosphere ● Abiotic 	<ul style="list-style-type: none"> ● Biotic ● Heterotroph ● Unicellular ● Multicellular ● Autotroph ● Hypothesis ● Unicellular ● DNA ● Independent variable ● Dependent variable ● Control ● Constant 	

Assessment

Common Summative Assessment/Demonstration of Understanding

- Common Unit Assessment to be completed in the 2024-2025 School Year.

Links to student example of summative assessments/demonstration of understanding

Score 4	Score 3	Score 2	Score 1
Example	Example	Example	Example

Proficiency Scale

4	Student has mastered understanding of the entire standard(s) and make little to no errors when asked to demonstrate and apply their learning.
3	Student consistently shows understanding for most components of the standard(s) with few errors when asked to demonstrate and apply their learning.
2	Student can sometimes show understanding for some of the components of the standard(s), yet there are a few aspects that they are still learning and improving upon.
1	Student rarely shows understanding for any component of the standard(s) and are still needing significant teaching to apply their learning.

Additional Information

Professional Resource Suggestions	Instructional Resources
	Pogil Demo a Day Other Resources: <ul style="list-style-type: none"> • Interactive notebook • Intro to life video • Biotic and abiotic reading • Are viruses Alive Reading / CER
Curriculum Designer Notes:	<p>The intent of this unit should be:</p> <ul style="list-style-type: none"> • To build foundational vocabulary and science skills. • Skills to focus on include Observation / Inference, compare and contrast • Reading: Annotating and Note Taking • Writing Claim, Evidence and Reasoning <p>This seems like an insignificant unit but the groundwork laid here is an important step that students need so we can build on it. This curriculum is designed to learn in small steps and continuous scrolling back to past learned information.</p>

State Assessment Content Limits/Boundaries

Do :

Emphasis is on functions at the organism system level such as nutrient uptake, water delivery, and organism movement in response to stimuli. Similar cells work together to form tissues. Tissues work together to form organs. Organs work together to form organ systems. Organ systems interact to form an organism.

Do Not :

- Tasks should not include interactions or functions at the molecular or chemical reaction level. Any descriptions of relationships should be at the systems level.
- Tasks should not include the individual structure and function of parts of the systems