

Winslow Township School District
Grade 4 Science
Unit 1: Molecules to Organisms

Overview: In this unit the primary focus will be upon the structures that help plants and animals grow and survive. Students will learn about the structures that help plants and animals process information about their environment, how they use their senses use to receive information, and the different paths used by sensory receptors to get information to the brain. Lastly, students will study different adaptations for survival of plants and animals and the difference between physical adaptation and behavioral adaptation.

Overview	Standards for Science	Unit Focus	Essential Questions
Unit 1 Geography, Landforms, and the Holocaust	<ul style="list-style-type: none"> • 4-LS1-1 • 4-LS1-2 • WIDA 1,4 	<ul style="list-style-type: none"> • Label plant parts used for reproduction • Classify animals based on their survival adaptations • Classify plants based on their survival adaptations • Use a model to describe how animals receive information through their senses • Identify the different paths that carry information in the brain 	<ul style="list-style-type: none"> • How are growth, behavior and reproduction important to plant and animal life? • How do animals process the world around them?
<i>Unit 1: Enduring Understandings</i>	<ul style="list-style-type: none"> • Plants and animals both have internal and external structures. • The structures of plants and animals help them grow survive and reproduce. • Sense receptors give different information to animals. • Information travels through the brain on different paths. • Animals use perceptions and memories to guide actions. • Animal senses impact their survival, growth, behavior and reproduction. • Animals and plants have structures that help them survive. 	<ul style="list-style-type: none"> • How is survival for animals & plants similar/different? 	

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Curriculum Unit 1	Standards		Pacing	
			Days	Unit Days
Unit 1: Molecules to Organisms	4-LS1-1	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.	15	36
	4-LS1-2	Use a model to describe that animals receive different types of information through their sense, process the information in their brain, and respond to the information in different ways.	15	
	Assessment, Re-teach and Extension		6	

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Disciplinary Core Ideas	Indicator #	Indicator
<p>LS1.A: Structure and Function Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)</p> <p>LS1.D: Information Processing Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal’s brain. Animals are able to use their perceptions and memories to guide their actions. (4-LS1-2)</p>	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-LS1-2	Use a model to describe that animals receive different types of information through their sense, process the information in their brain, and respond to the information in different ways.

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• Assessment Plan

- Class discussions
- Independent & group work/projects
- Teacher and/or book series provided quizzes, tests, and a performance task to assess student mastery.
- Homework monitor and assess class work
- Benchmark assessments

- Short Constructed Responses
- Students will construct an argument about which plants and animals have internal and external structures that allow it to survive, grow and reproduce in a specific biome. They will also 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.

Resources

- Chromebooks
- **HSP Science Book correlations:** Chapter 2, Lesson 2; Chapter 3, Lesson 1 and Lesson 2
- StudyJams <http://studyjams.scholastic.com/studyjams/>
- Science A-Z (Subscription Service) <https://www.sciencea-z.com/>
- National Geographic for Kids <http://kids.nationalgeographic.com/>
- Plant Reproduction: How do you Grow a Giant Pumpkin? by: Cath Senker
- Reproduction in Plants by: Julie K. Lundgren
- SuperSense: Perception in the Animal World by: John Downer
- How Animals See: Other Visions of Our World by: Sandra Sinclair
- Animal Adaptations by: Julie K. Lundgren
- Classifying Plants and Animals by: Lewis Parker
- Sense and Sensibilities by: Jillyn Smith
- Sensory Exotica: A World Beyond Human Experience by: Howard Hughes Videos
- Brain Pop: Asexual Reproduction
- Youtube: Animal Adaptations
- <http://streaming.discoveryeducation.com>
- **Diversity, Equity & Inclusion Educational Resources**
<https://www.nj.gov/education/standards/dei/>

Activities

- Give students different plants and have them dissect them and label its parts. Then they must classify which parts are used for each adaptation (example thorn for survival/protection)
http://www.bbc.co.uk/schools/scienceclips/ages/5_6/growing_plants.shtml
- Observe and comparative a virtual or live dissection to examine the structures of a plant and an animal. Discuss and record how different structures of the plant or animal function to help the organism grow, survive and reproduce. (Carnations are a great flower to dissect.)
<https://faculty.washington.edu/chudler/amaze.html>
- mini-lessons
- independent reading
- films
- website exploration
- discussions, dialogues
- debates
- partner or small group work
- student presentations, reports, journals, reflections,
- in-class assessments,
- written reports, essays, research, and homework

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Instructional Best Practices and Exemplars

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|---|--|
| 1. Identifying similarities and differences | 6. Cooperative learning |
| 2. Summarizing and note taking | 7. Setting objectives and providing feedback |
| 3. Reinforcing effort and providing recognition | 8. Generating and testing hypotheses |
| 4. Homework and practice | 9. Cues, questions, and advance organizers |
| 5. Nonlinguistic representations | 10. Manage response rates |

9.1 Personal Financial Literacy, 9.2 Career Awareness, Exploration, Preparation and Training & 9.4 Life Literacies and Key Skills

9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and occupations.

9.4.5.GCA.1: Analyze how culture shapes individual and community perspectives and points of view (e.g., 1.1.5.C2a, RL.5.9, 6.1.5.HistoryCC.8).

9.4.5.TL.4: Compare and contrast artifacts produced individually to those developed collaboratively (e.g., 1.5.5.CR3a)

9.4.5.IML.2: Create a visual representation to organize information about a problem or issue (e.g., 4.MD.B.4, 8.1.5.DA.3).

9.4.5.TL.1: Compare the common uses of at least two different digital tools and identify the advantages and disadvantages of using each.

The implementation of the 21st Century skills and standards for students of the Winslow Township District is infused in an interdisciplinary format in a variety of curriculum areas that include, English language Arts, Mathematics, School Guidance, Social Studies, Technology, Visual and Performing Arts, Science, Physical Education and Health, and World Language.

Additional opportunities to address 9.1, 9.2 & 9.4:

Philadelphia Mint

<https://www.usmint.gov/learn/kids/resources/educational-standards>

Different ways to teach Financial Literacy.

<https://www.makeuseof.com/tag/10-interactive-financial-websites-teach-kids-money-management-skills/>

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Modifications for Special Education/504

Students with special needs: The students' needs will be addressed on an individual and grade level using a variety of modalities.

Accommodations will be made for those students who need extra time to complete assignment. Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Physical expectations and modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered.

- Small group instruction
- Audio books/ Text-to-speech platforms
- Leveled texts/Vocabulary Readers
- Leveled informational texts via online
- Modeling and guided practice
- Read directions aloud
- Repeat, rephrase and clarify directions
- Extended time as needed
- Break down assignments into smaller units
- Provide shortened assignments
- Modify testing format
- Repeat directions as needed
- Graphic organizers
- Study Guides, Study Aids and Re teaching as needed

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Modifications for At-Risk Students

Formative and summative data will be used to monitor student success. At first signs of failure, student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations

- Audio books and Text-to-speech platforms
- Leveled texts/Vocabulary Readers
- Leveled informational texts via online
- Extended time as needed
- Read directions aloud
- Assist with organization
- Use of computer
- Emphasize/highlight key concepts
- Recognize success
- Provide timelines for work completion
- Break down multi-step tasks into smaller chunks
- Provide copy of class notes and graphic organizer

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English Language Learners	Modifications for Gifted Students
<p>All WIDA Can Do Descriptors can be found at this link: https://wida.wisc.edu/teach/can-do/descriptors</p> <p><input type="checkbox"/> Grades 4-5 WIDA Can Do Descriptors:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Listening <input type="checkbox"/> Speaking <input type="checkbox"/> Reading <input type="checkbox"/> Writing <input type="checkbox"/> Oral Language <p>Students will be provided with accommodations and modifications that may include:</p> <ul style="list-style-type: none"> • Relate to and identify commonalities in science studies in student’s home country • Assist with organization • Use of computer • Emphasize/highlight key concepts • Teacher Modeling • Peer Modeling • Label Classroom Materials - Word Walls 	<p>Students excelling in mastery of standards will be challenged with complex, high level challenges related to the topic.</p> <ul style="list-style-type: none"> • Raise levels of intellectual demands • Require higher order thinking, communication, and leadership skills • Differentiate content, process, or product according to student’s readiness, interests, and/or learning styles • Provide higher level texts • Expand use of open-ended, abstract questions • Critical and creative thinking activities that provide an emphasis on research and in-depth study • Enrichment Activities/Project-Based Learning/ Independent Study <p>Additional Strategies may be located at the links:</p> <ul style="list-style-type: none"> ❖ Gifted Programming Standards ❖ Webb’s Depth of Knowledge Levels and/or Revised Bloom’s Taxonomy ❖ REVISED Bloom’s Taxonomy Action Verbs

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Interdisciplinary Connections

Interdisciplinary Connections:

ELA Standards:

RI.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. (4-PS3-1)

RI.4.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text. (4- PS3-1)

RI.4.9 Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably. (4- PS3-1)

W.4.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. (4-PS3-1)

W.4.7 Conduct short research projects that build knowledge through investigation of different aspects of a topic. (4-PS3-2),(4- PS3-3),(4-PS3-4)

W.4.8 Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources. (4-PS3-1),(4- PS3-2),(4-PS3-3),(4- PS3-4)

W.4.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. (4-PS3-1)

Math Standards:

4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (4- PS3-4)

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Integration of Computer Science and Design Thinking NJSL 8

8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.

Individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data.

8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data.

Many factors influence the accuracy of inferences and predictions.

8.1.5.DA.5: Propose cause and effect relationships, predict outcomes, or communicate ideas using data.

8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.

8.2.5.ED.3: Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.