

**Winslow Township School District**  
**Zoology CP (Semester Course)**

**Unit 2: Phyla Protozoa, Porifera, Cnidaria, Ctenophora, Lophotrochozoan, and Ecdysozoan**

**Overview:** This unit is designed to develop students’ understanding of the phyla Protozoa, Porifera, Cnidaria, Ctenophora, Lophotrochozoan, and Ecdysozoan. It will guide students through taxonomy and general characteristics while identifying behavioral and developmental traits for each phyla. This unit describes morphology, engaging students with pictures and videos and also lists the general characteristics for the main classes of each phyla. Animals’ traits based on evolution, nutrition, movement, and reproduction will be analyzed. Ecological importance will be emphasized for each phyla.

| Overview  | Standards for Science   | Unit Focus   | Essential Questions  |
|---|---|--|--|
| <p><a href="#">Unit 2</a></p> <p>Phyla Protozoa, Porifera, Cnidaria, and Ctenophora</p> | <ul style="list-style-type: none"> <li>• HS-LS2-1</li> <li>• HS-LS2-2</li> <li>• HS-LS2-8</li> <li>• HS-LS4-1</li> <li>• HS-LS4-5</li> <li>• WIDA 1, 4</li> </ul> | <ul style="list-style-type: none"> <li>• Describe the general characteristics of protozoans</li> <li>• Describe the body plan of a porifera</li> <li>• Explain adaptations of porifera that allow them to feed, reproduce, move etc.</li> <li>• Describe the two different body plans of Cnidarians</li> <li>• Explain the development of the three body layers of Cnidarians</li> <li>• Explain adaptations of Cnidarians that allow them to feed, reproduce, move etc.</li> <li>• Identify influences of Cnidaria on other species</li> <li>• Compare and contrast different classes of Cnidaria</li> <li>• List differences that distinguish Ctenophora from Cnidaria</li> <li>• Identify differences between worms and simpler organisms</li> <li>• Explain flatworm body plan and anatomical changes</li> <li>• Diagram simple worm anatomy</li> <li>• Compare the three classes of flatworms</li> <li>• Explain the evolution of flatworm nervous and digestive systems</li> <li>• Summarize the life cycle of a flatworm</li> <li>• Explain differences between acoelomate, pseudocoelomate, and coelomate development</li> <li>• Explain the impact of flat/round worms on human society</li> <li>• Summarize the life cycle of a roundworm</li> <li>• Predict the outcome of a parasitic infection</li> <li>• Compare and Contrast flatworms vs roundworms</li> </ul> | <ul style="list-style-type: none"> <li>• What characteristics of protozoans distinguish them from other animals?</li> <li>• How does body plan in Porifera differ from simpler animals?</li> <li>• By which methods are Porifera able to reproduce?</li> <li>• How do the three main classes of sponges differ from each other?</li> <li>• How can movement be used to classify cnidarians?</li> <li>• How do cnidarians reproduce?</li> <li>• How do cnidarians differ in development?</li> <li>• What adaptations have increased the fitness of cnidarians?</li> <li>• What is the ecological importance of the phylum Cnidaria?</li> <li>• What are the main classes of Cnidaria?</li> <li>• What characteristics of ctenophores distinguish them from other animals?</li> <li>• How does Ctenophora compare to Cnidaria in form and reproduction?</li> </ul> |

**Winslow Township School District**  
**Zoology CP (Semester Course)**

**Unit 2: Phyla Protozoa, Porifera, Cnidaria, Ctenophora, Lophotrochozoan, and Ecdysozoan**

|   |  |  |
|---|--|--|
| <p><b>Unit 2:</b><br/> <b>Enduring</b><br/> <b>Understandings</b></p> | <ul style="list-style-type: none"> <li>• The basal animal phyla include the sponges (phylum Porifera), jellyfish and anemones (phylum Cnidaria), ctenophores (phylum Ctenophora), placozoans (phylum Placozoa), and acoelomorphs (phylum Acoelomorpha). Sponges have traditionally been considered to display cellular-level organization. It is probably more accurate to think of all basal animal phyla as having tissue-level organization.</li> <li>• Animals in the phylum Porifera are the sponges. The outer body wall of a sponge is the pinacoderm and is separated from the inner choanoderm by a collagenous mesohyl. Cells of sponges are specialized to create water currents, filter food, produce gametes, form skeletal elements, and line the sponge body wall.</li> <li>• Sponges are monoecious. Eggs and sperm are usually released from a sponge and flagellated planktonic larvae develop and mature into the adult body form. Asexual reproduction can occur through the production of gemmules.</li> <li>• Members of the phylum Cnidaria are radially symmetrical and possess diploblastic, tissue-level organization. Cells are specialized for food gathering, defense, contraction, coordination, digestion, and absorption. Contractile cells in the epidermis and gastrodermis of the body wall act on water confined within the gastrovascular cavity to create a hydrostatic compartment used to accomplish support and movement.</li> <li>• Hydrozoans differ from other cnidarians in having ectodermal gametes, mesoglea without mesenchyme cells, and nematocysts only in their epidermis. Most hydrozoans have well-developed polyp and medusa stages.</li> <li>• Members of the phylum Ctenophora are biradially symmetrical and diploblastic or possibly triploblastic. They possess comb rows that are used in locomotion and tentacles with adhesive colloblasts that are used in prey capture. They are monoecious, with external fertilization resulting in the development of a ciliated larval stage.</li> <li>• Poriferans are traditionally thought of as the basal animal phylum, having close ties to the choanoflagellates within the opisthokonts. New molecular evidence suggests that ancestral ctenophorans diverged from the animal lineage separate from other animals and represent a sister group to other animals. The Porifera may have evolved from ancestral choanoflagellate protists. Within the Cnidaria, the ancient anthozoans are accepted as the stock from which modern anthozoans and other cnidarians evolved.</li> <li>• Members of the clade Lophotrochozoa are a diverse group of phyla that are united by shared molecular characteristics. Many members of these phyla possess either a trochophore larval stage or a lophophore.</li> <li>• In the Platyhelminthes, mesodermally derived parenchyma may provide support, nutrient storage, motility, reserves of regenerative cells, transport, oxygen storage, and other functions.</li> </ul> | <ul style="list-style-type: none"> <li>• How do the important characteristics of flatworms separate them from simpler animals?</li> <li>• How do acoelomate, pseudocoelomate, and coelomate body plans differ?</li> <li>• How does a worm’s digestive and nervous system allow for more complex body structures?</li> <li>• What evolutionary adaptations have led to increased fitness for flatworms?</li> <li>• What are the positive ecological impacts of roundworms?</li> <li>• What are the common types of parasitic roundworms</li> <li>• How do people become infected with roundworms? How can this be prevented?</li> <li>• What evolutionary adaptations have led to increased fitness for roundworms?</li> <li>• Why is it important to avoid parasites?</li> </ul> |
|---|--|--|

## Winslow Township School District

### Zoology CP (Semester Course)

#### Unit 2: Phyla Protozoa, Porifera, Cnidaria, Ctenophora, Lophotrochozoan, and Ecdysozoan

- Members of the class Turbellaria are free-living Platyhelminthes. Most turbellarians move entirely by cilia and muscles and are predators and scavengers. Digestion is initially extracellular and then intracellular. Protonephridia are present in many flatworms and are involved in osmoregulation. A primitive brain and nerve cords are present. Turbellarians are monoecious with the reproductive systems adapted for internal fertilization.
- The class Trematoda is divided into two subclasses (Aspidogastrea and Digenea). Digenetic flukes are internal parasites of vertebrates and include medically important species. A gut is present, and most of these flukes are monoecious. Stages in the life cycle of a fluke include eggs, miracidia, sporocysts, cercariae, and adults. The monogenetic flukes (class Monogenea) are mostly ectoparasites of fishes.
- Micrognathozoans inhabit interstitial spaces of cold-water springs of Greenland. They have a complex jaw system and cilia function in sensory perception, locomotion, and attachment. They reproduce through parthenogenesis.
- Acanthocephalans are endoparasites of vertebrates. They attach to their host intestinal wall with a spine-covered proboscis. Reproduction involves the development of larval stages within invertebrate intermediate hosts.
- Brachiopods possess a mantle, which secretes a shell comprised of dorsal and ventral valves. Brachiopods are usually attached to the substratum directly or by a pedicel. They feed using a lophophore.
- Interpretations of lophotrochozoan phylogeny lead to different conclusions. The validity of the phylum Platyhelminthes is being reevaluated. The traditional class Turbellaria is paraphyletic and probably will be abandoned as a valid taxonomic group.
- Ecdysozoans are united by molecular characteristics and in the presence of a cuticle that is molted during growth (ecdysis). Ecdysozoa is composed of Nematoda, Nematomorpha, Kinorhyncha, Priapulida, Loricifera, and the Panarthropoda (Arthropoda, Tardigrada, and Onychophora).
- Nematodes have a complete digestive tract, longitudinal body-wall muscles, and renette cells that function in excretion. The nervous system consists of an anterior neural ring and nerves that extend anteriorly and posteriorly from the ring.
- Ecdysozoa is divided into two clades: Cycloneuralia and Panarthropoda. Cycloneuralia is characterized by a neural ring that encircles the pharynx. The Nematoda and Nematomorpha are sister groups within Cycloneuralia. Kinorhyncha and Priapulida are closely related. Relationships of these phyla to Loricifera are less certain. Nematoda is composed of three clades. Taxonomy within Nematoda is controversial.

**Winslow Township School District**  
**Zoology CP (Semester Course)**

**Unit 2: Phyla Protozoa, Porifera, Cnidaria, Ctenophora, Lophotrochozoan, and Ecdysozoan**

| <b>Curriculum<br/>Unit 2</b>  | <b>Standards</b>                          |   | <b>Pacing</b> |                  |
|---|---|---|---------------|------------------|
|   |   |   | <b>Days</b>   | <b>Unit Days</b> |
| <b>Unit 2:<br/><br/>Phyla Protozoa,<br/>Porifera,<br/>Cnidaria,<br/>Ctenophora,<br/>Lophotrochozoan,<br/>and Ecdysozoan</b> | <b>HS-LS2-1</b>                           | Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.   | 2             | 11               |
|   | <b>HS-LS2-2</b>                           | Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.   | 2             |                  |
|   | <b>HS-LS2-8</b>                           | Evaluate evidence for the role of group behavior on individual and species' chances to survive and reproduce.   | 2             |                  |
|   | <b>HS-LS4-1</b>                           | Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.   | 2             |                  |
|   | <b>HS-LS4-5</b>                           | Evaluate the evidence supporting claims that changes in environmental conditions may result in (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species. | 2             |                  |
|   | <b>Assessment, Re-teach and Extension</b> |   | 1             |                  |

Winslow Township School District

Zoology CP (Semester Course)

Unit 2: Phyla Protozoa, Porifera, Cnidaria, Ctenophora, Lophotrochozoan, and Ecdysozoan

| Unit 2 - Zoology CP   |             |   |
|---|-------------|---|
| Disciplinary Core Ideas   | Indicator # | Indicator   |
| <p><b>LS2.A: Interdependent Relationships in Ecosystems</b><br/>Ecosystems have carrying capacities, which are limits to the numbers of organisms and populations they can support. These limits result from such factors as the availability of living and nonliving resources and from such challenges such as predation, competition, and disease. Organisms would have the capacity to produce populations of great size were it not for the fact that environments and resources are finite. This fundamental tension affects the abundance (number of individuals) of species in any given ecosystem. (HS-LS2-1), (HS-LS2-2)</p> <p><b>LS2.C: Ecosystem Dynamics, Functioning, and Resilience</b><br/>A complex set of interactions within an ecosystem can keep its numbers and types of organisms relatively constant over long periods of time under stable conditions. If a modest biological or physical disturbance to an ecosystem occurs, it may return to its more or less original status (i.e., the ecosystem is resilient), as opposed to becoming a very different ecosystem. Extreme fluctuations in conditions or the size of any population, however, can challenge the functioning of ecosystems in terms of resources and habitat availability. (HS-LS2-2), (HS-LS2-6)</p> <p><b>LS2.D: Social Interactions and Group Behavior</b><br/>Group behavior has evolved because membership can increase the chances of survival for individuals and their genetic relatives. (HS-LS2-8)</p> <p><b>LS4.A: Evidence of Common Ancestry and Diversity</b><br/>Genetic information provides evidence of evolution. DNA sequences vary among species, but there are many overlaps; in fact, the ongoing branching that produces multiple lines of descent can be inferred by comparing the DNA sequences of different organisms. Such information is also derivable from the similarities and differences in amino acid sequences and from anatomical and embryological evidence. (HS-LS4-1)</p> <p><b>LS4.C: Adaptation</b><br/>Changes in the physical environment, whether naturally occurring or human induced, have thus contributed to the expansion of some species, the emergence of new distinct species as populations diverge under different conditions, and the decline—and sometimes the extinction—of some species. (HS-LS4-5), (HS-LS4-6)<br/>Species become extinct because they can no longer survive and reproduce in their altered environment. If members cannot adjust to change that is too fast or drastic, the opportunity for the species' evolution is lost. (HS-LS4-5)</p> | HS-LS2-1    | Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.   |
|   | HS-LS2-2    | Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.   |
|   | HS-LS2-8    | Evaluate evidence for the role of group behavior on individual and species' chances to survive and reproduce.   |
|   | HS-LS4-1    | Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.   |
|   | HS-LS4-5    | Evaluate the evidence supporting claims that changes in environmental conditions may result in (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species. |

**Winslow Township School District**

**Zoology CP (Semester Course)**

**Unit 2: Phyla Protozoa, Porifera, Cnidaria, Ctenophora, Lophotrochozoan, and Ecdysozoan**

| Unit 2 – Zoology CP   |   |
|---|---|
| Assessment Plan   |   |
| <ul style="list-style-type: none"> <li>• Exploratory activities</li> <li>• Warm-up/Ticket Out activities</li> <li>• Class discussions</li> <li>• Student Participation</li> <li>• Teacher Observations</li> <li>• Virtual/Hands-On Labs</li> <li>• Self-Test Assessments</li> <li>• Scientist Timeline Activity</li> </ul>  | <ul style="list-style-type: none"> <li>• Quizzes and Tests (Chapters 9,10, 13 “Zoology (11<sup>th</sup> edition)” by Stephen Miller and Todd Tupper)</li> <li>• Authentic assessments and projects</li> <li>• Exploratory activities</li> <li>• Presentations</li> <li>• Lecture Notes</li> <li>• Think-Pair-Share</li> <li>• Graphic Organizers</li> <li>• Study Questions at the end of each chapter</li> <li>• Multiple Choice and Critical Thinking at the end of each chapter</li> </ul>   |
| Resources   | Activities  |
| <ul style="list-style-type: none"> <li>• Chromebooks</li> <li>• Textbook (“Zooloy, 11<sup>th</sup> edition” Miller and Tupper)</li> <li>• <a href="http://www.My.mheducation.com">www.My.mheducation.com</a></li> <li>• Web Quests</li> <li>• Virtual Field Trips</li> <li>• Video Streaming</li> <li>• <a href="#">BrainPOP</a></li> <li>• <a href="#">Puzzlemaker: Game Based Learning   Discovery Education</a></li> </ul> <p>Diversity, Equity &amp; Inclusion Educational Resources<br/> <a href="https://www.nj.gov/education/standards/dei/">https://www.nj.gov/education/standards/dei/</a></p> | <ul style="list-style-type: none"> <li>• Use various forms of expository writing-procedural writing, narrative writing, descriptive writing, labeling, as well as to create visuals, graphs, tables, diagrams and charts.</li> <li>• Use scientific argumentation with exercises on writing claims, using evidence to support your claim and explaining the reasoning behind their claim.</li> <li>• Mini-lessons</li> <li>• Independent reading</li> <li>• Films</li> <li>• Website exploration</li> <li>• Discussions, dialogues</li> <li>• Debates</li> <li>• Laboratory experiments</li> <li>• Partner or small group work</li> <li>• Student presentations, reports, journals, reflections</li> <li>• In-class assessments</li> <li>• Written reports, essays, research, and homework</li> </ul> |

## Winslow Township School District

### Zoology CP (Semester Course)

#### Unit 2: Phyla Protozoa, Porifera, Cnidaria, Ctenophora, Lophotrochozoan, and Ecdysozoan

##### Instructional Best Practices and Exemplars

- |   |  |
|---|--|
| 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

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/>

- 9.4.12.IML.2: Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources (e.g., NJLSA.W8, Social Studies Practice: Gathering and Evaluating Sources).
- 9.4.12.TL.1: Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task (e.g., W.11-12.6.).
- 9.4.12.TL.2: Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data.
- 9.4.12.TL.4: Collaborate in online learning communities or social networks or virtual worlds to analyze and propose a resolution to a real-world problem (e.g., 7.1.AL.IPERS.6).
- 9.4.12.GCA.1: Collaborate with individuals to analyze a variety of potential solutions to climate change effects and determine why some solutions (e.g., political, economic, cultural) may work better than others (e.g., SL.11-12.1., HS-ETS1-1, HS-ETS1-2, HS-ETS1-4, 6.3.12.GeoGI.1, 7.1.IH.IPERS.6, 7.1.IL.IPERS.7, 8.2.12.ETW.3).
- 9.4.12.DC.7: Evaluate the influence of digital communities on the nature, content and responsibilities of careers, and other aspects of society (e.g., 6.1.12.CivicsPD.16.a).
- 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).
- 9.4.12.CT.1: Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).
- 9.4.12.CI.2: Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).
- 9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).

## Winslow Township School District

### Zoology CP (Semester Course)

#### Unit 2: Phyla Protozoa, Porifera, Cnidaria, Ctenophora, Lophotrochozoan, and Ecdysozoan

##### 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



## Winslow Township School District

### Zoology CP (Semester Course)

#### Unit 2: Phyla Protozoa, Porifera, Cnidaria, Ctenophora, Lophotrochozoan, and Ecdysozoan

##### 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

Winslow Township School District

Zoology CP (Semester Course)

Unit 2: Phyla Protozoa, Porifera, Cnidaria, Ctenophora, Lophotrochozoan, and Ecdysozoan

| English Language Learners  | Modifications for Gifted Students  |
|--|--|
| <p>All WIDA Can Do Descriptors can be found at this link:<br/> <a href="https://wida.wisc.edu/teach/can-do/descriptors">https://wida.wisc.edu/teach/can-do/descriptors</a></p> <p><b>Grades 9-12 WIDA Can Do Descriptors...</b></p> <p><i>Listening...</i></p> <ul style="list-style-type: none"> <li>• Process <u>recounts</u> by...               <ul style="list-style-type: none"> <li>○ Categorizing perspectives of multiple speakers</li> <li>○ Identifying important information on specific event &amp; concept from lecture/presentation</li> </ul> </li> <li>• Process <u>explanations</u> by...               <ul style="list-style-type: none"> <li>○ Recognizing specific language used to enhance clarity and precision</li> <li>○ Recognizing and following language related to the same event or phenomenon throughout presentations</li> </ul> </li> <li>• Process arguments by...               <ul style="list-style-type: none"> <li>○ Identifying strengths, limitations, and potential biases from oral presentations</li> <li>○ Organizing claims and counter claims presented in debates</li> </ul> </li> </ul> <p><i>Speaking...</i></p> <ul style="list-style-type: none"> <li>• <u>Recount</u> by...               <ul style="list-style-type: none"> <li>○ Adjusting presentation style, degree of formality, word choice, tone, and information to the context and audience</li> <li>○ Presenting information that follows discipline specific organization (e.g., orientation to topic, sequence of events, conclusion)</li> </ul> </li> <li>• <u>Explain</u> by...               <ul style="list-style-type: none"> <li>○ Providing precision and accuracy in classifications, procedures, processes, and accounts using abstraction, technical language, and a variety of active/passive verb forms</li> <li>○ Following discipline-specific organization (e.g., orienting the reader, details, conclusion) and supporting presentations with graphs, formulas, quotes or other media</li> </ul> </li> <li>• <u>Argue</u> by...               <ul style="list-style-type: none"> <li>○ Organizing claims and counter claims in debates with evidence from multiple sources</li> <li>○ Negotiating differing cultural perspectives in pairs or small groups</li> </ul> </li> </ul> <p><i>Reading...</i></p> <ul style="list-style-type: none"> <li>• Process <u>recounts</u> by...               <ul style="list-style-type: none"> <li>○ Analyzing and comparing how authors use language for specific purposes and audiences</li> <li>○ Identifying how authors develop and maintain cohesion by connecting ideas or events in extended texts</li> </ul> </li> <li>• Process <u>explanations</u> by...               <ul style="list-style-type: none"> <li>○ Recognizing discipline-specific patterns (e.g., orienting the reader, part-whole classification, neutral/ authoritative tone)</li> </ul> </li> </ul> | <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"> <li>• Raise levels of intellectual demands</li> <li>• Require higher order thinking, communication, and leadership skills</li> <li>• Differentiate content, process, or product according to student’s readiness, interests, and/or learning styles</li> <li>• Provide higher level texts</li> <li>• Expand use of open-ended, abstract questions</li> <li>• Critical and creative thinking activities that provide an emphasis on research and in-depth study</li> <li>• Enrichment Activities/Project-Based Learning/ Independent Study</li> </ul> <p>Additional Strategies may be located at the links:</p> <ul style="list-style-type: none"> <li>❖ <a href="#">Gifted Programming Standards</a></li> <li>❖ <a href="#">Webb’s Depth of Knowledge Levels and/or Revised Bloom’s Taxonomy</a></li> <li>❖ <a href="#">REVISED Bloom’s Taxonomy Action Verbs</a></li> </ul> |

## Winslow Township School District

### Zoology CP (Semester Course)

#### Unit 2: Phyla Protozoa, Porifera, Cnidaria, Ctenophora, Lophotrochozoan, and Ecdysozoan

- Identifying authors' precision and accuracy in classifications, comparisons, accounts, or procedures as a result of clear language choices
- Process arguments by...
  - Evaluating word choice and nuance as tools for distinguishing facts, claims, reasoned judgment, and opinions
  - Identifying the logical connections among claims, counterclaims, reasons, and evidence

#### *Writing...*

- Recount by...
  - Summarizing content-related notes from lectures or readings
  - Producing research reports using multiple sources of information
- Explain by...
  - Developing ideas about phenomena with relevant and sufficient facts, extended descriptions, concrete details, or quotations
  - Maintaining discipline-specific patterns that bridge across key uses (e.g., explanation to argument in history, explanation to recount for information reports)
- Argue by...
  - Evaluating positive and negative implications associated with various positions (e.g., historical events, scientific discoveries, individuals)
  - Organizing information logically and coherently to represent contrasting views

#### *Oral Language...*

- Discuss by...
  - Identifying and reacting to subtle differences in speech and register (e.g., hyperbole, satire, comedy)
  - Producing coherent oral discourse appropriate to task, purpose, and audience
  - Synthesizing and sharing information from a variety of sources and perspectives

Students will be provided with accommodations and modifications that may include:

- Relate to and identify commonalities in Social Studies and science in student's home country
- Assist with organization
- Use of computer
- Emphasize/highlight key concepts
- Teacher Modeling
- Peer Modeling
- Label Classroom Materials - Word Walls

## Winslow Township School District

### Zoology CP (Semester Course)

#### Unit 2: Phyla Protozoa, Porifera, Cnidaria, Ctenophora, Lophotrochozoan, and Ecdysozoan

##### Interdisciplinary Connections

##### *English Language Arts/Literacy*

1. Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account. **RST.11-12.1** (HS-LS2-1),(HS-LS2-2),(HS-LS2-6)
2. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem. **RST.11-12.7** (HS-LS2-6)
3. Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information. **RST.11-12.8** (HS-LS2-6)
4. Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **RST.11-12.9** (HS-ETS1-1),(HS-ETS1-3)
5. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. **WHST.9-12.2** (HS-LS2-1),(HS-LS2-2)
6. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. **WHST.9-12.7** (HS-LS1-3)
7. Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation. **WHST.11-12.8** (HS-LS1-3)
8. Draw evidence from informational texts to support analysis, reflection, and research. **WHST.9-12.9** (HS-LS1-1)
9. **WIDA Standards 1** English language learners communicate for social and instructional purposes within the school setting
10. **WIDA Standards 4** English language learners communicate information, ideas, and concepts necessary for academic success in the content area of science
11. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest. **SL.11-12.5** (HS-LS1-2)

## Winslow Township School District

### Zoology CP (Semester Course)

#### Unit 2: Phyla Protozoa, Porifera, Cnidaria, Ctenophora, Lophotrochozoan, and Ecdysozoan

##### *Mathematics*

1. Reason abstractly and quantitatively. **MP.2** (HS-LS2-1),(HS-LS2-2),(HS-LS2-6)
2. Model with mathematics. **MP.4** (HS-LS2-1),(HS-LS2-2)
3. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. **HSN.Q.A.1** (HS-LS2-1),(HS-LS2-2)
4. Define appropriate quantities for the purpose of descriptive modeling. **HSN.Q.A.2** (HS-LS2-1),(HS-LS2-2)
5. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. **HSN.Q.A.3** (HS-LS2-1),(HS-LS2-2)
6. Represent data with plots on the real number line. **HSS-ID.A.1** (HS-LS2-6)
7. Understand statistics as a process for making inferences about population parameters based on a random sample from that population. **HSS-IC.A.1** (HS-LS2-6)

##### Integration of Computer Science and Design Thinking NJSL 8

- 8.2.12.EC.2: Assess the positive and negative impacts of emerging technologies on developing countries and evaluate how individuals, non-profit organizations, and governments have responded.
- 8.2.12.ETW.1: Evaluate ethical considerations regarding the sustainability of environmental resources that are used for the design, creation, and maintenance of a chosen product.
- 8.2.12.ETW.2: Synthesize and analyze data collected to monitor the effects of a technological product or system on the environment.
- 8.2.12.ETW.3: Identify a complex, global environmental or climate change issue, develop a systemic plan of investigation, and propose an innovative sustainable solution.
- 8.2.12.ED.5: Evaluate the effectiveness of a product or system based on factors that are related to its requirements, specifications, and constraints (e.g., safety, reliability, economic considerations, quality control, environmental concerns, manufacturability, maintenance and repair, ergonomics).
- 8.2.12.ED.6: Analyze the effects of changing resources when designing a specific product or system (e.g., materials, energy, tools, capital, labor).
- 8.2.12.ED.4: Design a product or system that addresses a global problem and document decisions made based on research, constraints, trade-offs, and aesthetic and ethical considerations and share this information with an appropriate audience.