

Unit 10 Classification and Biodiversity

Content Area: **Science**
Course(s): **Biology CP, Biology Honors, STEM Biology Honors**
Time Period: **September**
Length: **6 weeks**
Status: **Published**

Enduring Understandings

Big Idea: The process of evolution drives the diversity and unity of life

- The principles of evolution (including natural selection and common descent) provide a scientific explanation for the history of life on Earth as evidenced in the fossil record and in the similarities that exist within the diversity of existing organisms.
- Organisms are grouped into different taxa based on evolutionary lines of descent and the resulting similarities in structure and function.

Essential Questions

- How does the theory of evolution explain the diversity of life on Earth?
- How are organisms classified?
- What information is used to determine which domain and kingdom an organism belongs to?
- What adaptations do bacteria, protists, and fungi possess that allow them to survive and reproduce in different environments?
- What adaptations do plants and animals possess that allow them to survive and reproduce in different environments?

Content

Chapters 20 and 21(viruses, bacteria, protists & fungi), 25-29(animals). and 22-24(plants)

Vocabulary:

classification

taxonomy

taxon

prokaryote

eukaryote

binary fission

lytic cycle

lysogenic cycle

spores

hyphae

mycelium

protist

invertebrate

vertebrate

bryophytes

gymnosperms

angiosperms

Skills

- Integrating scientific information from a variety of disciplines to provide evidence for the relatedness of species on Earth (geology, comparative anatomy, biochemistry, and taxonomy)
- Explaining how the millions of different species on Earth today are related by common ancestry using evidence
- Describing modern methods for classifying organisms
- Comparing evolutionary adaptations across all kingdoms of life

Resources

Standards

LA.9-10.

LA.9-10.CCSS.ELA-Literacy.CCRA.R.4

Text Types and Purposes

Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape

	meaning or tone.
LA.9-10.CCSS.ELA-Literacy.CCRA.R.7	Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
LA.9-10.CCSS.ELA-Literacy.CCRA.W.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
LA.9-10.CCSS.ELA-Literacy.WHST.9-10.1	Write arguments focused on discipline-specific content.
LA.9-10.CCSS.ELA-Literacy.WHST.9-10.1a	Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.
LA.9-10.CCSS.ELA-Literacy.WHST.9-10.1b	Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.
LA.9-10.CCSS.ELA-Literacy.WHST.9-10.1d	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
LA.9-10.CCSS.ELA-Literacy.WHST.9-10.1e	Provide a concluding statement or section that follows from or supports the argument presented.
SCI.9-12.5.1.12	All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.
SCI.9-12.5.1.12.A.1	Refine interrelationships among concepts and patterns of evidence found in different central scientific explanations.
SCI.9-12.5.1.12.B	Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.
SCI.9-12.5.1.12.B.1	Design investigations, collect evidence, analyze data, and evaluate evidence to determine measures of central tendencies, causal/correlational relationships, and anomalous data.
SCI.9-12.5.1.12.B.3	Revise predictions and explanations using evidence, and connect explanations/arguments to established scientific knowledge, models, and theories.
SCI.9-12.5.1.12.C	Scientific knowledge builds on itself over time.
SCI.9-12.5.1.12.C.1	Reflect on and revise understandings as new evidence emerges.
SCI.9-12.5.1.12.C.2	Use data representations and new models to revise predictions and explanations.
SCI.9-12.5.1.12.D	The growth of scientific knowledge involves critique and communication, which are social practices that are governed by a core set of values and norms.
SCI.9-12.5.1.12.D.1	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
SCI.9-12.5.1.12.D.2	Represent ideas using literal representations, such as graphs, tables, journals, concept maps, and diagrams.
SCI.9-12.5.1.12.D.3	Demonstrate how to use scientific tools and instruments and knowledge of how to handle animals with respect for their safety and welfare.
SCI.9-12.5.3.12.C	All animals and most plants depend on both other organisms and their environment to meet their basic needs.
SCI.9-12.5.3.12.C.1	Analyze the interrelationships and interdependencies among different organisms, and explain how these relationships contribute to the stability of the ecosystem.
SCI.9-12.5.3.12.E	Sometimes, differences between organisms of the same kind provide advantages for surviving and reproducing in different environments. These selective differences may lead to dramatic changes in characteristics of organisms in a population over extremely long

SCI.9-12.5.3.12.E.4	periods of time.
CCSS.ELA-Literacy.RH.9-10	Account for the evolution of a species by citing specific evidence of biological mechanisms.
CCSS.ELA-Literacy.RH.9-10.2	Reading
CCSS.ELA-Literacy.RH.9-10.3	Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.
CCSS.ELA-Literacy.RH.9-10.4	Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.
CCSS.ELA-Literacy.RH.9-10.7	Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social studies.
	Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text.
	Integration of Knowledge and Ideas
	Craft and Structure