

**Minnesota Academic Standards for
Dolphins & Whales 3D: Tribes of the Ocean
Science K-12**

Strand	Standard	Benchmark
Grade 2		
Life Science	Student will recognize that plants and animals have life cycles	Student will describe life cycles of plants and animals. (mammals)
Grade 3		
History and Nature of Science	Student will understand the nature of scientific investigations.	Student will ask questions about the natural world that can be investigated scientifically
Life Science	Student will recognize that plants and animals have different structures that serve various functions	Student will know that plants have different structures from animals that serve the same necessary functions in growth, survival and reproduction.
Life Science	Student will understand that an organism's patterns of behavior are related to the nature of its environment.	Student will know that changes in a habitat can be beneficial or harmful to an organism.
Grade 4		
History of Nature and Science	Student will understand how science is used to investigate interactions between people and the natural world.	1) Student will explore the uses and effects of science in our interaction with the natural world. 2) Student will discuss the responsible use of science. 3) Student will recognize the impact of scientific and technological activities on the natural world.
Earth and Space Science	Student will investigate the impact humans have on the environment.	Student will identify and investigate environmental issues and potential solutions.
Life Science	Student will know that living things can be sorted into groups in many ways according to their varied characteristics, structures and behaviors.	1) Student will classify plants and animals according to their physical characteristics. 2) Student will learn that the characteristics used for grouping depend on the purpose of the grouping. (mammals)



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Grade 5		
Life Science	Student will know that biological populations change over time.	1) Student will recognize that individuals of the same species differ in their characteristics and that sometimes the differences give the individuals an advantage in surviving and reproducing. 2) Student will recognize that extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient to allow its survival. 3) Student will compare the structure of fossils to one another and to living organisms.
Grade 7		
Life Science	Student will understand that within ecosystems, complex interactions exist between organisms and the physical environment.	1) Student will provide examples of the potentially irreversible effects of human activity on ecosystems. 2) Student will define a population as all individuals of a species that exist together at a given place and time. 3) Student will define an ecosystem as all populations living together and the physical factors with which they interact. 4) Student will explain the factors that affect the number and types of organisms an ecosystem can support, including available resources, abiotic and biotic factors and disease.
Grades 9-12		
Life Science	Student will describe how the environment and interactions between organisms can affect the number of species and the diversity of species in an ecosystem.	1) Student will describe the factors related to matter and energy in an ecosystem that both influence fluctuations in population size and determine the carrying capacity of a population. 2) Student will explain how adaptations of species and co-evolution with other species are related to success in an ecosystem. 3) Student will identify examples of mutualism, commensalism, and parasitism in a stable ecosystem. 4) Student will predict and analyze how a change in an ecosystem, resulting from natural causes, changes in climate, human activity or introduction of invasive species, can affect both the number of organisms in a population and the biodiversity of species in the ecosystem.