



Surrounded by Sharks

Ohio Academic Standards (Grades 3-8)

Below is a list of Ohio Academic Standards discussed during the teaching of **Surrounded by Sharks**.

Life Sciences

3-5 Benchmark B: Analyze plant and animal structures and functions needed for survival and describe the flow of energy through a system that all organisms use to survive.

3.2 Relate animal structures to their specific survival functions (e.g., obtaining food, escaping or hiding from enemies).

3.3 Classify animals according to their characteristics (e.g., body coverings and body structure).

3-5 Benchmark C: Compare changes in an organism's ecosystem/habitat that affect its survival.

3.4 Use examples to explain that extinct organisms may resemble organisms that are alive today.

3.6 Explain how changes in an organism's habitat are sometimes beneficial and sometimes harmful.

5.4 Summarize that organisms can only survive in ecosystems in which their needs can be met (e.g., food, water, shelter, air, carrying capacity and waste disposal). The world has different ecosystems and distinct ecosystems support the lives of different types of organisms.

5.5 Support how an organism's patterns of behavior are related to the nature of that organism's ecosystem, including the kinds and numbers of other organisms present, the availability of food and resources, and the changing physical characteristics of the ecosystem.

5.6 Analyze how all organisms, including humans, cause changes in their ecosystems and how these changes can be beneficial, neutral or detrimental (e.g., beaver ponds, earthworm burrows, grasshoppers eating plants, people planting and cutting trees and people introducing a new species).



6-8 Benchmark B: Describe the characteristics of an organism in terms of a combination of inherited traits and recognize reproduction as a characteristic of living organisms essential to the continuation of the species.

- 6.4 Recognize that an individual organism does not live forever; therefore reproduction is necessary for the continuation of every species and traits are passed on to the next generation through reproduction.
- 6.7 Recognize that likenesses between parents and offspring (e.g., eye color, flower color) are inherited. Other likenesses, such as table manners are learned.
- 7.8 Investigate the great diversity among organisms.
- 8.3 Explain how variations in structure, behavior or physiology allow some organisms to enhance their reproductive success and survival in a particular environment.

Benchmark C: Explain how energy entering the ecosystems as sunlight supports the life of organisms through photosynthesis and the transfer of energy through the interactions of organisms and the environment.

- 6.8 Describe how organisms may interact with one another.
- 7.2 Investigate how organisms or populations may interact with one another through symbiotic relationships and how some species have become so adapted to each other that neither could survive without the other (e.g., predator-prey, parasitism, mutualism and commensalism).
- 7.3 Explain how the number of organisms an ecosystem can support depends on adequate biotic (living) resources (e.g., plants, animals) and abiotic (non-living) resources (e.g., light, water and soil).
- 7.6 Summarize the ways that natural occurrences and human activity affect the transfer of energy in Earth's ecosystems (e.g., fire, hurricanes, roads and oil spills).

6-8 Benchmark D: Explain how extinction of a species occurs when the environment changes and its adaptive characteristics are insufficient to allow survival (as seen in evidence of the fossil record).

- 7.4 Investigate how overpopulation impacts an ecosystem.



- 7.5 Explain that some environmental changes occur slowly while others occur rapidly (e.g., forest and pond succession, fires and decomposition).
- 7.6 Explain that diversity of species is developed through gradual processes over many generations (e.g., fossil record).
- 8.5 Investigate how an organism adapted to a particular environment may become extinct if the environment, as shown by fossil record, changes.

Science and Technology

3-5 Benchmark A: Describe how technology affects human life.

- 5.1 Investigate positive and negative impacts of human activity and technology on the environment.

6-8 Benchmark A: Give examples of how technological advances, influenced by scientific knowledge, affect the quality of life.

- 6.2 Explain how decisions about the use of products and systems can result in desirable or undesirable consequences (e.g., social and environmental).

Scientific Inquiry

3-5 Benchmark B: Organize and evaluate observations, measurements and other data to formulate inferences and conclusions.

- 3.3 Read and interpret simple tables and graphs produced by self/others.

- 3.5 Record and organize observations (e.g., journals, charts and tables).

- 5.3 Use evidence and observations to explain and communicate the results of investigations.

Scientific Ways of Knowing

3-5 Benchmark A: Distinguish between fact and opinion and explain how ideas and conclusions change as new knowledge is gained.

- 4.1 Differentiate fact from opinion and explain that scientists do not rely on claims or conclusions unless they are backed by observations that can be confirmed.



History

3-5 Benchmark A: Construct time lines to demonstrate an understanding of units of time and chronological order.

5.1 Create time lines and identify possible relationships between events.

Citizenship Rights and Responsibilities

3-5 Benchmark A: Explain how citizens take part in civic life in order to promote the common good.

3.1 Describe how people help to make the community a better place in which to live including:

- a. Working to preserve the environment;
- d. Supporting education.

3.2 Demonstrate effective citizenship traits including:

- c. Volunteerism;
- e. Compassion;
- g. Civic-mindedness.

4.1 Describe the ways in which citizens can promote the common good and influence their government including:

- a. Voting;
- b. Communicating with officials;
- c. Participating in civic and service organizations;
- d. Performing voluntary service.