



Ohio Academic Standards Addressed By Zoo Program

SLIDE SHOW PRESENTATION — SAVING SPECIES WITH SCIENCE

Program description:

Learn how scientific technology is being used to conserve endangered plant and animal species. Students will experience real-life examples of how CREW scientists apply scientific technologies to local and worldwide projects to promote the health and conservation of diverse wildlife.

Ohio Science Standards addressed by this program, organized by grade band and then standard:

GRADES 6-8

Standard: Life Sciences

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.

Indicators:

6th Grade

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. Describe that in sexual reproduction an egg and sperm unite and some traits come from each parent, so that offspring is never identical to either of its parents.

Standard: Science and Technology

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

Indicator:

6th Grade

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

Standard: Scientific Inquiry

Benchmark A: Explain that there are differing sets of procedures for guiding scientific investigations and procedures are determined by the nature of the investigation, safety considerations and appropriate tools.

Indicators:

6th Grade

1. Explain that there are not fixed procedures for guiding scientific investigations; however, the nature of an investigation determines the procedures needed.

Benchmark B: Analyze and interpret data from scientific investigations using appropriate mathematical skills in order to draw valid conclusions.

Indicators:

7th Grade

5. Analyze alternative scientific explanations and predictions and recognize that there may be more than one good way to interpret a give set of data.

Standard: Scientific Ways of Knowing

Benchmark C: Give examples of how thinking scientifically is helpful in daily life.

Indicators:

7th Grade

3. Describe how the work of science requires a variety of human abilities and qualities that are helpful in daily life (e.g., reasoning, creativity, skepticism and openness).

GRADES 9-10

Standard: Life Science

Benchmark G: Describe how human activities can impact the status of natural systems.

Indicators:

10th Grade

18. Describe ways that human activities can deliberately or inadvertently alter the equilibrium in ecosystems. Explain how changes in technology/biotechnology can cause significant changes, either positive or negative, in environmental quality and carrying capacity.

Benchmark J: Summarize the historical development of scientific theories and ideas, and describe emerging issues in the study of life sciences.

Indicators:

10th Grade

28. Analyze and investigate emerging scientific issues (e.g., genetically modified food, stem cell research, genetic research and cloning).

Standard: Science and Technology

Benchmark B: Explain that science and technology are interdependent; each drives the other.

Indicators:

10th Grade

2. Describe examples of scientific advances and emerging technologies and how they may impact society.

Standard: Scientific Ways of Knowing

Benchmark A: Explain that scientific knowledge must be based on evidence, be predictive, logical, subject to modification and limited to the natural world.

Indicators:

9th Grade

1. Comprehend that many scientific investigations require the contributions of women and men from different disciplines in and out of science. These people study different disciplines in and out of science. These people study different topics, use different techniques and have different standards of evidence but share a common purpose – to better understand a portion of our universe.

3. Demonstrate that reliable scientific evidence improves the ability of scientists to offer accurate predictions.

10th Grade

3. Recognize that science is a systematic method of continuing investigation, based on observation, hypothesis testing, measurement, experimentation, and theory building, which leads to more adequate explanations of natural phenomena.

Benchmark B: Explain how scientific inquiry is guided by knowledge, observations, ideas and questions.

Indicators:

9th Grade

5. Justify that scientific theories are explanations of large bodies of information and/or observations that withstand repeated testing.

Benchmark C: Describe the ethical practices and guidelines in which science operates.

Indicators:

9th Grade

2. Illustrate that the methods and procedures used to obtain evidence must be clearly reported to enhance opportunities for further investigations.

4. Explain how support of ethical practices in science (e.g. individual observations and confirmations, accurate reporting, peer review and publication) are required to reduce bias.

10th Grade

6. Recognize that animal-based research must be conducted according to currently accepted professional standards and laws.

GRADES 11-12

Standard: Life Sciences

Benchmark B: Explain how humans are connected to and impact natural systems.

Indicators:

11th Grade

5. Investigate the impact on the structure and stability of ecosystems due to changes in their biotic and abiotic components as a result of human activity.

Benchmark F: Explain how human choices today will affect the quality and quantity of life on earth.

Indicators:

11th Grade

9. Give examples of how human activity can accelerate rates of natural change and can have unforeseen consequences.

11. Investigate issues of environmental quality at local, regional, national and global levels such as population growth, resource use, population distribution, over-consumption, the capacity of technology to solve problems, poverty, the role of economics, politics and different ways humans view the earth.

Standard: Scientific Ways of Knowing

Benchmark A: Explain how scientific evidence is used to develop and revise scientific predictions, ideas or theories.

Indicators:

11th Grade

2. Apply scientific inquiry to evaluate results of scientific investigations, observations, theoretical models and the explanations proposed by other scientists.

12th Grade

1. Give examples that show how science is a social endeavor in which scientists share their knowledge with the expectation that it will be challenged continuously by the scientific community and others.
5. Describe how individuals and teams contribute to science and engineering at different levels of complexity (e.g., an individual may conduct basic field studies, hundreds of people may work together on major scientific questions or technical problem).