



Celebrating Science: Doctor, I feel a little Horse!
Curriculum Resource
Grades 9-12

Overview

Explore the relationship between humans and animals through the eyes of a veterinarian! Students will visit a veterinary clinic and hear from a veterinarian about what it means to specialize in animal medicine. Students will gain insight into the general environment of a veterinary clinic by observing Dr. Clark heal a wounded paw. Students will also understand the education and training process required to become a veterinarian and the skills and knowledge essential for success. Perhaps most valuable for students, Dr. Clark shares his reflections on his 45 years of experience, highlighting the daily joys and challenges of the profession. Your students will find Dr. Clark's passion and enthusiasm for his profession inspiring.

After enjoying the video, students will participate in a live discussion with a veterinarian, providing them with opportunities to explore individual areas of interest. Throughout the learning experience, the special human-animal bond is celebrated.

Biography of Expert



DR. REXANNE STRUVE

Born and raised near Chicago, IL, Dr. Rexanne Struve spent much of her childhood outdoors where she enjoyed activities with her siblings and their animals. Upon graduation from high school, she studied pre-veterinary medicine at Kansas State University where she earned a BS in animal science in 1974 and a DVM degree in 1976.

She was recruited to come to Manning, IA, to practice with Dr. Robert Dappen. She purchased the veterinary practice from Dr. Dappen in 1978 and in 1981 purchased the Specific Pathogen Free (SPF) laboratory of Dr. Boyd Merrick of Manilla, IA. The laboratory moved to Manning in 1990 when a new, state-of-the-art facility was constructed for Struve Labs near the Struve's farm home.

Dr. Struve is invited to speak at many colleges and pre-veterinary clubs because of her longevity in rural practice and her expertise with the SPF program. She is also involved in mentoring veterinary students attending state universities in Iowa, Kansas and Oklahoma.

At the request of the U.S. Feed Grains Council, Dr. Struve traveled to Taiwan to advise the country's swine producers on the implementation of the SPF program in large corporate facilities. Based on her reputation as a practitioner, wife and mother, she was asked by the Animal Industry Foundation to participate in an ad campaign promoting America's farmers and livestock producers. Consequently, she was featured in *Time*, *Newsweek*, and *Better Homes and Gardens* magazines in the early 1990s.

Dr. Struve operates her full-time practice, Veterinary Associates of Manning, in conjunction with operation of the SPF pig rearing laboratory, Struve Labs, Inc. She is the immediate past president of the Iowa Veterinary Medicine Association.

Dr. Struve's husband, Curt, is a fourth generation farmer at Manning. The couple are the parents of three grown children.

Learning Objectives

Topic: Excursion Location	Learning Objective(s)
Veterinarians: Vet	Students will acquire knowledge of: <ul style="list-style-type: none"> • a veterinarian’s scope of work; • the general environment of a veterinary clinic; • the academic knowledge and skills used in the profession; • the joys and challenges of the profession; • the education and training process required to become a veterinarian; • the passion and enthusiasm that may be found with a suitable profession.

National Standards Addressed

The following are National Standards addressed through basic participation in the journey. Engagement and participation in additional pre- and post-activities (provided below) will expand the scope of standards addressed.

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Science: National Academies of Science
<ul style="list-style-type: none"> • Science and technology: students will develop an understanding of science and technology in society • History and nature of science: students will develop an understanding of science as a human endeavor and the nature of scientific knowledge
Language Arts: National Council of Teachers of English
<ul style="list-style-type: none"> • Communication skills: students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes. Evaluating data: students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience. • Developing research skills: students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge. • Applying language skills: students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).

Technology: National Educational Technology Standards

- Students use technology tools to enhance learning, increase productivity, and promote creativity.
- Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.
- Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

Preparation for the Journey

To ensure the most meaningful learning experience for your students, it is recommended that students investigate the resources provided and engage in activities prior to the excursion. The video resources provide students with a context for the virtual excursion. The additional resources and activities offer opportunities for curricular connections and integration within your larger unit of study. The excursion is intended to complement a comprehensive unit. During the excursion, classes will be asked to share their response to the challenge question and the expert will provide feedback. It is recommended that your students decide as a class on *one* response to the challenge question.

Video Resources

Experience a day in the life of Dr. Rexanne Struve, our featured veterinarian. This engaging video developed by PBS highlights Dr. Struve's interesting career as a large animal veterinarian.

http://www.careers.iptv.org/enhanced/1163/ec_dayinthelife.cfm

Learn about the veterinary profession through the eyes of Dr. Clark, a veterinarian. Dr. Clark's passion and enthusiasm for his profession is inspiring!

http://easylink.playstream.com/21_CenturyLearning/occupations/Vet_46_256k.rm

Challenge Question

How do veterinarians protect humans?

Answer

Veterinarians not only treat sick and injured animals but also prevent the transmission of animal diseases to people. Veterinarians also ensure a safe food supply by maintaining the health of food animals.

Activities

Ask students to visit the website and apply their critical thinking and problem-solving skills to solve the challenge developed by Dr. Struve! The challenge will offer students the opportunity to address a scenario Dr. Struve's may face on any given day.

http://www.careers.iptv.org/enhanced/1163/ec_dayinthelife.cfm

Ask students to visit the resources below and create a PowerPoint presentation on a profession in animal medicine. Challenge students to present the way the profession has changed over time with advances in medicine and technology. Perhaps students can interview local professionals in the animal medicine field to gain perspective.

Developed by ASPCA Humane Education, the lesson plans and worksheets provided focus on careers involving animals. For example, the "Career – So you Love Animals" lesson is specifically designed for students in grades nine through twelve.

http://www.aspca.org/site/PageServer?pagename=al_lessonplans

National Geographic's Xpedition "The Human Role in Dog Evolution" asks students to think carefully about man's best friend in a unique extension of the study of the human-animal bond. Students will investigate the human role in the domestication and evolution of ancient and modern dog breeds.

<http://www.nationalgeographic.com/xpeditions/lessons/08/g912/dogsevolution.html>

Resources

Background Information

The American Veterinary Medical Association: <http://www.avma.org>

The "Care for Animals" section offers several modules on animals and animal health, with one focusing on veterinarians found at this address:

<http://www.avma.org/careforanimals/animatedjourneys/aboutvets/aboutvets.asp>.

The module contains comprehensive information about the profession as well as activities focusing on pet care and animal medicine.

American Humane: <http://www.americanhumane.org>

The American Humane website features general knowledge on protecting children and animals. There is a wealth of information and activities offered ranging from animal fact sheets to tips for attracting urban wildlife.

Educational Resources

42Explore: <http://42explore.com/>

This website presents information on a variety of thematic topics, including organized lesson plans, activities, and resources. Developed by educators for educators and students, the website provides a consolidated database of educationally-sound lessons and resources. Be sure to explore the "Careers" unit as well as the main index as there are many explorations devoted to specific animals (i.e. bats). A new exploration is posted each week!

Pet Education: http://www.peteducation.com/category_summary.cfm?cls=0&Cat=1540

Owned and operated by practicing veterinarians, this resource offers a wide variety of information on animals. The "Clinic Cases" section of this website provides many educational articles on cases the veterinarians have encountered throughout their practice. Reading these articles, students will better understand the range of medical problems veterinarians address and the process of diagnosis and treatment. The articles are easy to read and entertaining. Also, the "Pets and Humans" section provides information on a variety of ways animals help humans (i.e. rescue dogs, pet therapy).

Key terms

As these terms will be used throughout the journey, it is advised students understand their meaning before the excursion.

- Veterinarian: a person that trained and licensed to practice medicine on animals
- Veterinary medicine: the branch of medicine that deals with the causes, diagnosis, and treatment of diseases and injuries of animals

- Animal: 1) a living creature that is generally distinguished from plants by its cellular structure and by the ability to move voluntarily; 2) such a living creature other than a human, esp. a mammal.
- Mammal: any of the vertebrate animals that feed their babies with milk from the female mammary glands and usu. produce living young.
- Domestic: tame or domesticated
- Clinic: a medical facility
- Disease: an abnormal physical or mental condition that causes an organism to function wrongly; illness; sickness
- Career: a profession or occupation chosen as a life's work
- Profession: an occupation or career requiring advanced training or study

Questions for the Expert

Please forward any questions your students may have for the expert to Lia Woo at lia.woo@21-learn.com.

Further Investigation: ideas to enhance students' learning *after* the excursion

Reflection

RAFT Assignments: **Role, Audience, Format, Topic**

RAFT assignments offer creative ways to engage students in reflective thinking and to build students' writing skills. Students take a specific 'role', write with a particular 'audience' in mind, following a certain format on an assigned topic. The following are examples that relate to the journey:

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Role: A medical researcher

Audience: Public

Format: Case study with scientific explanation

Topic: How animal health affects human health

Service Learning

Engage students in developing a marketing campaign to promote animals and the human-animal bond. Students could create posters using publishing software or video public service announcements that portray ten ways to be kind to animals.

Make a Difference: Ten ways to be kind to animals

1. Speak out for animals
2. Never tolerate animal cruelty
3. Adopt a shelter pet
4. Spay or neuter your pets
5. Keep pets' vaccinations current
6. Identify your pets with tags
7. Appreciate wildlife
8. Leave room for habitats
9. Make a bird or bat house
10. Teach your friends about the importance of being kind to animals

Support your local animal shelter

Visit your local animal shelter and ask what your class can do to educate the public on the purpose and role of animal shelters. Engage students in organizing a community event to educate and spread awareness of animal shelters.