

Veterinary Medical Practices: Laboratory Procedures

Media Type: Video
Duration: 22 minutes

Goal: To help students understand the importance of laboratory procedures and how to perform common laboratory tests.

Description: Students will be able to describe and explain the importance of proper laboratory procedures as well as how to collect, handle, prepare and examine fecal, blood and urine specimens. Students will also learn about normal and abnormal results obtained from complete blood counts and other laboratory tests. Preparation of microscope slides, preservation of specimens and performing common laboratory tests are also provided.

Objectives:

1. To describe tests and explain the importance of proper laboratory procedures.
2. To demonstrate the procedures used in collecting, handling, preparing and examining fecal, blood and urine specimens.
3. To discuss normal and abnormal results obtained in complete blood counts.
4. To explain sensitivity testing and how to read test results.
5. To prepare microscope slides, preserve specimens and perform common laboratory tests including fecal flotation, microfilaria smear, packed cell volume.

Common Core Standards

Agriculture, Food & Natural Resources Career Cluster (AG)

Animal Systems Career Pathway (AG-ANI)	Utilize best-practice protocols based upon animal behaviors for animal husbandry and welfare.
	Evaluate environmental factors affecting animal performance and implement procedures for enhancing performance and animal health.
	Classify, evaluate and select animals based on anatomical and physiological characteristics.
	Apply principles of effective animal health care.

College & Career Readiness Anchor Standards for Reading

Key Ideas & Details	Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.	
	Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.	
	9-10.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

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College & Career Readiness Anchor Standards for Writing

Production & Distribution of Writing	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	
	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.	
	Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.	
	9-12.6	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
	9-12.6	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
	9-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
Text Types & Purposes	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.	
	Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.	
	9-10.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
	11-12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
Research to Build & Present Knowledge	Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.	
	Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.	
	Draw evidence from literary or informational texts to support analysis, reflection, and research.	
	9-12.9	Conduct short as well as more sustained research projects to answer a question or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
	9-12.9	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
	9-12.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.

College & Career Readiness Anchor Standards for Language

Conventions of Standard English	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.	
	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.	
	9-12.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
	9-12.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

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Common Core Standards

College & Career Readiness Anchor Standards for Speaking and Listening

Comprehension & Collaboration	Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.	
	Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.	
	9-12.2	Initiate and participate effectively in a range of collaborative discussions with diverse partners on grades 9–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
	9-10.2	Integrate multiple sources of information presented in diverse media or formats evaluating the credibility and accuracy of each source.
	9-10.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.
Presentation of Knowledge & Ideas	Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.	
	Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.	
	Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.	
	9-12.4	Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
	9-12.5	Make strategic use of digital media in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
	9-12.6	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

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Lesson Plan

Class 1: Distribute the *Veterinary Medical Practices: Laboratory Procedures Worksheet* and *Vocabulary Handout* for students to use as reference materials during the presentation. Distribute the *Blood Samples Student Handout* and the *Microfilaria Smear Student Handout*. Show the *Veterinary Medical Practices: Introduction to Lab Procedures* and *Blood Examinations* segments.



Video
7 min.

Class 2: Remind students to continue using the *Worksheet* and *Vocabulary Handout* as reference materials. Distribute the *Fecal Samples Student Handout*. Show the *Veterinary Medical Practices: Fecal Examinations* segment. Distribute the *Under the Microscope Activity* and allow the remainder of the class for students to work.



Video
9 min.

Class 3: Remind students to continue using the *Vocabulary Handout* and *Worksheet* while viewing the presentation. Distribute the *Urine Samples Student Handout* and the *Culture & Sensitivity Testing Student Handout*. Show the *Veterinary Medical Practices: Urine Examinations* and *Culture & Sensitivity Tests* segments. Hand out the *Laboratory Test Importance Project* and allow the remainder of the class for students to work.



Video
6 min.

Class 4: Distribute the *Veterinary Medical Practices: Laboratory Procedures Assessment* and allow time for students to complete it. Then, allow the remainder of the class for students to complete their *Projects*.



Lesson Links

American Veterinary Medical Association

- <http://www.avma.org>

Merck Manuals

- <http://www.merckmanuals.com/vet>



Career & Technical Student Organizations

FFA

- Veterinary Science Project



Career Connections

Using the *Career Connections Activity*, allow students to explore the various careers associated with this lesson. See the *Activity* for more details. *If student licenses have been purchased:* Students will select the interviews to watch based on your directions. *If only a teacher license is purchased:* Show students all the career interviews and instruct them to only complete the interview form for the required number of interviews.

- iCEV50006, Kerry Blanton, Veterinarian, South Plains Veterinary Clinic
- iCEV50055, Wendy MacPherson, Veterinary Technician, Emergency Pet Hospital at Collier County in Naples, FL
- iCEV50076, Frank Saiz, Veterinary Technician, Animal Hospital of Lubbock, TX

Veterinary Medical Practices: Clinical Examinations



Lab Activities

Under the Microscope

Directions:

It is very important for students to understand what they are looking for when examining a specimen under a microscope after a fecal flotation. In order to detect any parasites, they must know what they look like. Instruct students to research fecal flotation and common parasites found after examining a fecal flotation. They may use the presentation, Internet, books and any other resources available. Students must include at least two parasites for large and small animals, information about the parasites life cycle, how the parasite is transmitted to the animal and what the parasite looks like under a microscope slide. After conducting their research, instruct students to create a drawing which identifies what the parasites will look like after a fecal flotation under a microscope slide. Then, have them list the additional information and attach it with their drawing. Students must also include a citation sheet with their drawing.



Projects

Laboratory Test Importance

Directions:

Students will write a minimum two page paper explaining the importance of laboratory tests discussed within the presentation. The paper must include what the test detects, why it is important, how it is performed, how often it should be performed and how it aides in prevention. They may use the presentation, Internet, library and any other resources available. Students must also include a citation sheet with their paper.