

Endocrine, Immune & Integumentary Systems

Media Type: DVD

Duration: 15 minutes

Goal: To understand the basic anatomy of the endocrine, immune and integumentary systems.

Description:

Take a visual, introductory journey through the endocrine, immune, and integumentary systems. Using a variety of special effects, endoscopic video of organs inside a living organism, three-dimensional graphics and specimens of dissected organs, experts of human anatomy, animal science, muscle biology and comparative anatomy use more than a century of combined experience to give an understanding of what makes higher level organisms function. This program offers a comparative view of the organ systems elements of different animal species and classes, including fish, poultry, cattle, sheep, goats, pigs and humans, offering a wider perspective and a more thorough understanding of the structures and functions within these systems.

Objectives:

1. To understand the basic functions of the endocrine, immune and integumentary systems.
2. To understand the different types of the endocrine, immune and integumentary systems.
3. To identify basic structures associated with the endocrine, immune and integumentary systems.



Agriculture, Food & Natural Resources Career Cluster (AG)

Cluster	Standard
	Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food & Natural Resources Career Pathways.
	Analyze the interaction among AFNR systems in the production, processing and management of food, fiber and fuel and the sustainable use of natural resources.
Animal Systems Career Pathway (AG-ANI)	Classify, evaluate and select animals based on anatomical and physiological characteristics.

College & Career Readiness Anchor Standards for Reading

Reading Standards for Literacy in Science & Technical Subjects			
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.		
	<table border="1"> <tr> <td>9-10.1</td> <td>Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.</td> </tr> </table>	9-10.1	Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.
9-10.1	Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.		
Craft & Structure	Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.		
	<table border="1"> <tr> <td>9-10.4</td> <td>Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.</td> </tr> </table>	9-10.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.
	9-10.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.	
<table border="1"> <tr> <td>11-12.4</td> <td>Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.</td> </tr> </table>	11-12.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.	
11-12.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.		

Endocrine, Immune & Integumentary Systems



College & Career Readiness Anchor Standards for Reading

Reading Standards for Literacy in Science & Technical Subjects		
Integration of Knowledge & Ideas	Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.	
	9-10.7	Translate quantitative or technical information expressed in words in a text into visual form and translate information expressed visually or mathematically into words.
	11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media in order to address a question or solve a problem.

College & Career Readiness Anchor Standards for Writing

Writing Standards for Literacy in History/Social Studies & Technical Subjects		
Text Types & Purposes	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, including the narration of historical events, scientific procedures/ experiments, or technical processes.
Production & Distribution of Writing	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	
	9-10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
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.	
	9-10.7	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.
	9-10.8	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.
	9-10.9	Draw evidence from informational texts to support analysis, reflection, and research.
	11-12.7	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.
	11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
11-12.9	Draw evidence from informational texts to support analysis, reflection, and research.	

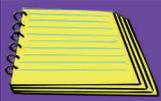
Endocrine, Immune & Integumentary Systems



College & Career Readiness Anchor Standards for Speaking and Listening

Speaking & Listening Standards	
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.
	9-10.1 Initiate and participate effectively in a range of collaborative discussions with diverse partners on grades 9–10 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.
	11-12.1 Initiate and participate effectively in a range of collaborative discussions with diverse partners on grades 11–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
	11-12.2 Integrate multiple sources of information presented in diverse formats and media in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
11-12.3 Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.	
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.
	9-10.4 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.
	9-10.5 Make strategic use of digital media in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
	9-10.6 Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.
	11-12.4 Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
	11-12.5 Make strategic use of digital media in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
11-12.6 Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate.	

Endocrine, Immune & Integumentary Systems



Lesson Plan

Class 1: Begin the *What Do I Know Activity*. Distribute the *Endocrine, Immune & Integumentary Systems Vocabulary Handout and Worksheet* to be filled out during the presentation. Show the *Endocrine System - Part 1*. Complete the *Endocrine System Assessment (Part 2)*. Assign the *Comparing Systems Project* for homework.



9 min.

Class 2: Show the *Immune System - Part 1*. Complete the *Immune System Assessment (Part 2)*. Allow students to begin working on the *Systems Outline Activity*. Assign the *Model Systems Project* for homework.



3 min.

Class 3: Show the *Integumentary System - Part 1*. Complete the *Integumentary System Assessment (Part 2)*. Allow students to finish the *What Do I Know Activity* and the *Systems Outline Activity*. With any remaining class time students should work on their *Projects*.



3 min.

Class 4: Allow students to present and turn in their *Projects*.



Lesson Links

InnerBody

- <http://www.innerbody.com>



Career & Technical Student Organizations

FFA

- Dairy Cattle Evaluation
- Horse Evaluation
- Livestock Evaluation
- Poultry Evaluation



Career Connections

- iCEV50841, Katherine Chauncey, Ph.D., R.D., Associate Professor, Health Sciences Center, Texas Tech University
- iCEV51095, Susan Bozeman, D.V.M., Owner & Veterinarian, Bozeman Animal Clinic
- iCEV50027, Frank Garry, D.V.M., Veterinary Professor, Colorado State University

Endocrine, Immune & Integumentary Systems



Lab Activities

What Do I Know

Directions:

Before watching the presentation for the endocrine, immune and integumentary systems, have each student write down what they already know about the systems. Have them discuss what they wrote, which can include organs and body parts involved in the systems, the roles played, how the body uses the systems on a daily basis or any other knowledge they may have. After the presentation, have them make another list describing anything they learned which they did not previously know. Discuss these as well, noting any changes in their lists and whether the students were surprised by the facts of the systems.

Systems Outline

Directions:

Divide the class into five groups. Assign each group either humans, cattle, horses, poultry or pigs. Using poster board or another large piece of paper, have the students draw an outline of the animal body, then draw the different parts of either the endocrine, immune or integumentary system within the outline. When finished, have students present their drawing to the class, identifying the different parts they noted and why they are important.



Projects

Comparing Systems

Directions:

Divide the class into four groups and assign each group either sheep, swine, cattle or horses. Groups should research the difference in the human endocrine, immune and integumentary systems and the systems in the animal they were assigned. Groups will compile their findings into a Microsoft® PowerPoint® presentation. The presentation should include a diagram of each of systems with the main organs labeled. It should also contain the differences between animal and human systems. Have groups present their findings to the class.

Model Systems

Directions:

Assign each student an organ or other body part which plays an important role in the endocrine, immune or integumentary system. As homework, instruct them to create a model of this body part using materials found in their home. Have the students bring their model in as well as a short report stating its importance to the human body.