

ANIMAL HOUSING- THINK INSIDE THE BOX

75 MINUTES
+ RESEARCH TIME
(delivery option 2 only)
SBI3U, SBI3C, SBI4U

A high school lesson plan provided by the University of Guelph

This activity will allow students to use their understanding of the respiratory, circulatory and digestive systems of various species in hands on learning. Students will be able to apply their knowledge of these biological systems by creating a theoretical model of an animal facility that suits characteristics of each species. This activity supports critical thinking and puts theoretical learning into a practical scenario.

Curriculum Alignments and Expectations

- Understanding of animal anatomy and physiology, and describe disorders of the respiratory, circulatory, and digestive systems of mammals
- Evaluate the impact of environmental factors on certain cellular processes that occur in mammals
- Demonstrate scientific investigation skills (related to both inquiry and research) in the four areas of skills (delivery option 2 only)

Learning Objectives

- Apply specific knowledge of biological systems
- Critically think to design and trouble shoot a better suited animal housing facility
- Support design concepts with information of how different environmental factors impact an animals biological functioning and overall health
- Understanding the functional responses of the respiratory and circulatory systems of animals, and the relationships between their respiratory, circulatory, and digestive systems.
- Learning to research scientific information (delivery option 2 only)

Assessment Strategies and Success Criteria

- Reflection paper/journal
- Think-pair-share
- Summary and debrief
- Quizzes

Cross Curricular Links

- Career Studies – Communicating with others and Interpersonal Relations
- Geography – Protecting Species and Spaces
- Geography – Developing Solutions
- Environmental Science – Managing and Reducing Waste

Materials

- Animal Housing Facility Photographs
- Various craft supplies
- Boxes
- Items to represent species

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TEACHER NOTES

Delivery Option 1

1. Begin by deciding which animal species you will discuss (i.e. chicken, cow, pig) and provide students with information about each species. Include background information on key aspects of the species biology. Touch on why these characteristics are important to consider when housing these animals and how their environment can potentially affect their overall health.
2. Provide some thought provoking images that give examples of animals interacting with their environment (i.e. pigs rolling in the mud to control their temperature). Offer explanations of how these factors can have impacts on the animal. This will prepare students for their first activity.

3. **Activity 1: Eye Spy**

Show students some common animal housing facilities and have them brainstorm independently or in a group about what factors may be important in an animal housing facility (i.e. light, ventilation, waste management, feeding methods, temperature regulation etc.). Try to show a variety of environments of different species that highlight several parts of an animal housing facility.

Warning: Be wary of discussing animal welfare concerns. It is important to identify many of these factors involve animal welfare but is difficult to discuss what is acceptable and what is not without appropriate background information.

Instructions: View the following photographs and use the handout provided to each group to list the parts of facility that should be taken into consideration and for what reason (i.e. waste management to maintain air quality and animal health/ comfort). Approximately 2 minutes per photograph with discussions to follow after all photographs have been shown

4. Explain to students' possible solutions to housing problems (i.e. providing sprinklers in certain areas to assist animals in cooling during warmer months) to encourage critical thinking. Get students involved by asking them for other alternative ideas that could be included in animal housing. Introduce the final activity and let their ideas come to life!

5. **Activity 2: Think Inside the Box!**

Divide your students into groups of 5 or less. Assign a particular species. Explain the main objectives of the activity are to connect the biological systems of the animal to their living environment and to be creative with their design. It is optional if you would like your students to focus on practicality or not.

Instructions: Brainstorm as a group what the key concepts you will incorporate in your animal facility to fit your species physiology. Design your facility using the materials provided. Be prepared to share and explain your ideas. Give approximately 5 minutes to brainstorm and 20 minutes to construct. Allow for enough time to share ideas concluding the activity.

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Delivery Option 2

1. Complete steps 1 to 4 during your introductory lesson, follow alternative Activity two below.

2. Activity 2: Think Inside the Box!

Divide you students into groups of 3 or less. Assign a particular species. Explain the main objectives of the activity are to connect the biological systems of the animal to their living environment and to be creative with their design. It is optional if you would like your students to focus on practicality or not.

Instructions: Research your species as a group. Find out what is unique about their body systems. The key concept is to incorporate information about your animal into your facility design and to be creative with your solutions to common problems with your species. Design your facility using any materials. Be prepared to share and explain your ideas to the class after the project is complete. Each group will have about 3 minutes to present their facility and explain why they designed it the way they did.

Additional Resources

- Department of Animal and Poultry Science <http://www.aps.uoguelph.ca>
- Ontario Agricultural College (Outreach Programs) <https://www.uoguelph.ca/oac/outreach>

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