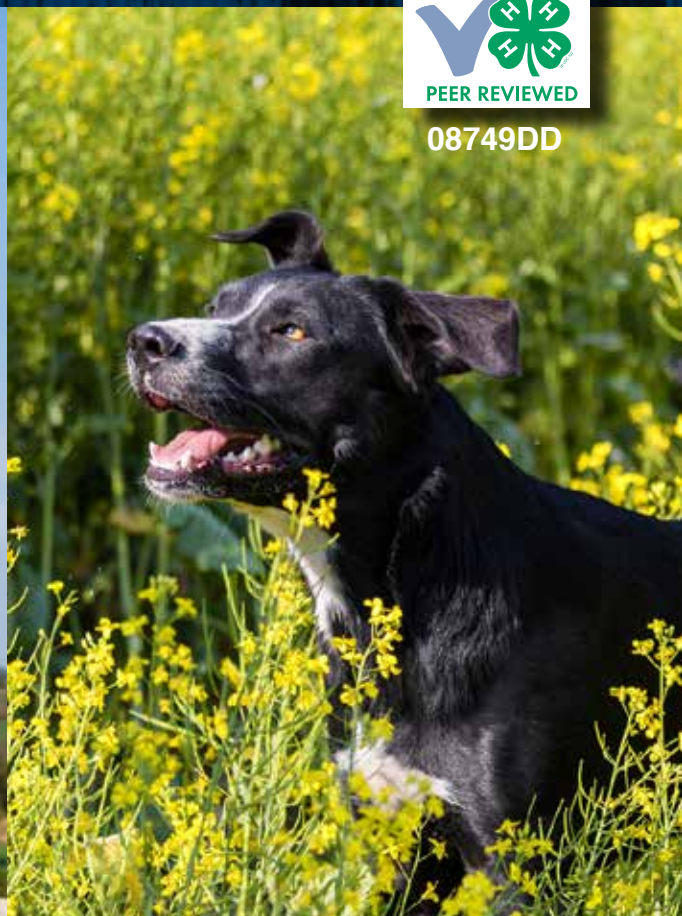


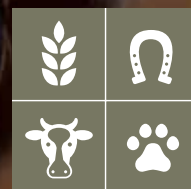


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# **Understanding and Applying Veterinary Science**

## **Module 5: Advanced Concepts in Animal Care**



**Facilitator Guide**

# Acknowledgements



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This Curriculum is a project by:



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# Facilitator Tips:

How to get the most from this curriculum

## Teaching and Learning Strategies

All activities in the *Understanding and Applying Veterinary Science in 4-H* curriculum were designed using experiential learning and inquiry. **Experiential learning (EL)** is grounded in the idea that experience is essential to learning and understanding. Specifically, EL involves a recurring sequence of three distinct steps: 1) an experience (“Do”) that involves learner exploration; 2) a period of reflection (“Reflect”) where learners share their reactions and observations, process their experience, and make generalizations to real-life examples; and 3) an opportunity to apply (“Apply”) new knowledge and skills in an authentic manner, which helps learners deepen and broaden their understanding (it helps learning last!).

**Inquiry** is a teaching and learning strategy whereby learners are engaged in activities that require the observation and manipulation of objects and ideas in order to construct knowledge and develop skills. Inquiry is grounded in experience, focuses on the use and development of critical thinking skills, and targets the learning and application of specific content knowledge.

The inquiry-based activities in the *Understanding and Applying Veterinary Science in 4-H* curriculum were designed using the 5-step EL cycle (Pfeiffer and Jones , 1983): Experience, Sharing, Processing, Generalizing, and Application. It is recommended that adequate time be allotted for youth learners to proceed through each step in order for learning to be maximized.

## Organization of Learning Environment

### Creating the environments where learning takes place

The activities in the *Understanding and Applying Veterinary Science in 4-H* curriculum were designed to be facilitated in a small group-learning environment. Learners construct understanding through inquiry using observations, the manipulation of objects and ideas, and personal reflection. However, **learning is a social endeavor** where dialogue and reflection with others are critical elements. Therefore, creating physical and social environments where learners can carry out inquiry will help them organize their thoughts and develop an understanding of the content and processes being emphasized in specific curriculum activities.



# Facilitator Tips:

How to get the most from this curriculum

## Curriculum Activity Layout

- **Activity Title**  
The activity title introduces the facilitator to the topic that will be addressed during the activity. A subtitle may specify the area of focus within the topic.
  
- **Background Information**  
This introductory section provides facilitators with a brief overview of the subject matter and offers examples that help to explain why the topic is important. This section may also include brief descriptions of the sections included in each activity (e.g., concepts and vocabulary, life skills targeted, subject links to education standards, and an overview of activities.)  
  

**Facilitator Tip:** The background information is **not** meant to be shared with the youth prior to the activity. Rather, it is intended to support facilitators by providing factual information that may help ground and inform group discussions.
  
- **Time Required**  
Each module includes an estimate of the time needed to complete the activities. The actual time required for the activities will vary based on level of learner interest, size of the group, age of the group members, and the setting in which the activities take place.
  
- **Learning Objectives: Concepts and Vocabulary**  
Facilitators are provided with a list of defined concepts and vocabulary that represent key curriculum content that is meant to be discovered by the youth through their exploration, reflection, and discussion with others.  
  

**Facilitator Tip:** The list should **not** be provided to the youth at the beginning of the activity. At the end of each activity, the facilitators should ensure that the appropriate terms and concepts have been discovered by or introduced to the youth.
  
- **Life Skills**  
Life skills are abilities that help youth become productive, contributing members of society. The activities are designed to provide youth with the opportunity to practice particular life skills that are utilized in everyday life. The life skills being targeted are listed for each activity. Learn more about the Targeting Life Skills model at: [http://www.csrees.usda.gov/nea/family/res/pdfs/Targeting\\_Life\\_Skills.pdf](http://www.csrees.usda.gov/nea/family/res/pdfs/Targeting_Life_Skills.pdf)
  
- **National Science Education Standards Supported**  
The Next Generation Science Standards are guidelines for educators regarding what K-12 students should know, comprehend, and be able to do in order to be scientifically literate, competent members of society. Each activity supports at least one of the Next Generation Science Standards Crosscutting Concepts. For more information about the Next Generation Science Standards, visit: <http://www.nextgenscience.org/sites/ngss/files/Appendix%20G%20-%20Crosscutting%20Concepts%20FINAL%20edited%204.10.13.pdf>
  
- **Suggested Groupings**  
Activities are designed for youth to work in pairs, small groups, large groups, or individually. The suggested groupings are meant to help facilitate quality learning among the youth.

# Facilitator Tips:

How to get the most from this curriculum

## Materials Needed

A list of the materials needed to complete the activities is provided for the facilitator. The list describes the materials to be used, as well as how many of each item is required for each activity. Most materials are provided (these are marked with an \*); however, other materials will need to be obtained by the facilitator.

## Getting Ready

This section describes what needs to be done by the facilitator to prepare for the activity. It is highly recommended that facilitators review this list carefully and prepare necessary materials prior to activity implementation.

## Opening Questions/Prompts

**Facilitator Tip:** This is the point where each activity begins with the youth.

Questions or prompts presented at the beginning of each activity are meant to draw the youth into the topic being addressed in the activity. Responses to the questions will also provide the facilitator with an understanding of what the youth already know about the topic. Each question is designed to be open-ended and to support collaboration within the group. Facilitators should encourage the youth to record their answers to these introductory questions on the provided flip chart paper, as this is an important part of the learning process.

**Facilitator Tip:** Ask the questions/prompts as they are written. Open-ended questioning is a key element of inquiry-based learning.

## Procedure (Experiencing)

This is the part of the curriculum when the youth experience and complete the activity itself. It is highly recommended that facilitators review the procedure prior to implementing with youth so the activity flows smoothly from one section to another. It is important for youth to record their observations, ideas, and other thoughts during the procedure on the flip chart paper provided, as this is an important part of the learning process.

## Sharing, Processing, and Generalizing

Following the activity procedure there is a period of reflection, during which time the youth come back together as a large group and share their observations with each other. This is an opportunity for youth to communicate their findings, listen to what others discovered, consider the various thought processes, and learn from each other. This section helps to solidify what the youth have learned throughout the course of the activity.

# Facilitator Tips:

How to get the most from this curriculum

- **Concept and Term Discovery/Introduction**

At this point of the activity, most of the concepts will have most likely already been discovered by the youth. Many concepts will have already been defined by now as well. However, some technical terms may need to be introduced to the youth. The facilitator needs to confirm that all important terms and concepts have been defined.

**Facilitator Tip:** Ensure that all terms/concepts have been discovered by or introduced to the youth. Additionally, make certain that any misconceptions have been addressed.

- **Concept Application**

The true test of understanding takes place when learners attempt to apply their new knowledge and skills to authentic situations. At this point of the activity, youth have already completed the hands-on activities that have introduced the new concepts and skills. The concept application section provides the facilitator with activities that allow youth the opportunity to take what they have learned and apply it to independent, real-world situations. This application may be subdivided according to level of knowledge and experience of the learners. This application of knowledge is a critical step of the learning process. It is recommended that the youth be required to participate in the application activity and report back on their experience at the following group meeting.

- **References:**

Following the concept application section, the facilitator is provided with a list of references. The references list can be used as an additional resource by the facilitator to learn more information about the topics addressed during the activity.

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# Understanding and Applying Veterinary Science

## Module 5: Advanced Concepts in Animal Care

### Background Information

Our society is rapidly shifting in its appraisal of animal care practice, which has resulted in the rejection of practices that are considered cruel or overly intensive. In addition, increased appreciation for the role animal welfare plays in animal agriculture has led to an increase in demand for food products that are humanely raised and harvested. The topic of animal welfare is complex and worthy of study by anyone who cares for or raises animals.

The term “animal welfare” is becoming increasingly more common in discussions regarding animal care and use, particularly with respect to animal agriculture, experimental research, and animal exhibition in zoos

and aquariums. While the term “animal welfare” is used frequently, discussions about this topic can become confusing if the concepts are not defined appropriately. For example, **Animal Welfare** is often confused with **Animal Rights**; however, the two are distinct concepts (see sidebar). In general, animal welfare refers to a quality that is intrinsic to the individual animal, i.e., the animal’s state of being well or ‘faring’ well. As a state, animal welfare cannot be directly measured, but

has both physical and psychological components that can be evaluated through scientific means. **Animal Welfare Science** is the branch of science that focuses on the assessment and enhancement of the welfare of animals in a variety of contexts including agricultural settings. **Animal Welfare Proponents** agree that it is a human responsibility to use science to inform animal housing, handling, and management practices and to ensure the well-being of animals in human care.

Those who are interested in learning more about animal emotions are encouraged to reference the work of Dr. Temple Grandin and Dr. Marc Bekoff. Recommended reading includes: <http://www.grandin.com/inc/animals.make.us.human.html> <http://www.literati.net/authors/marc-bekoff/>

In addition, Dr. Bekoff and Dr. Grandin are featured in the PBS documentary “Animal Odd Couples” where they discuss the science of animal emotion. The full episode may be accessed here: <http://www.pbs.org/wnet/nature/episodes/animal-odd-couples/full-episode/8009/>

Many discussions of animal welfare focus primarily on the physical health of an animal, and there is often an assumption made that animals with good health and productivity have good welfare. It is true that good health is an important component to having good welfare, and this curriculum has covered many aspects of health in the previous modules. However, physical health and production are not the only factors that must be considered when assessing animal welfare. This is true, in part, because animals can have good physical health but experience **emotional states** such as frustration or fear. In fact, consideration of the emotional states of animals is one of the central concepts in animal welfare and requires that we understand not only the state of the animal’s body, but also its feelings.

The scientific study of animal welfare includes consideration of animal’s internal experiences or feelings and there is scientific evidence that vertebrate animals (mammals, birds, reptiles, amphibians and fish) are capable of experiencing a wide range of both positive and negative emotions. While the specific experience of these emotions may differ from our own, we know that many other species of animals possess the same brain structures that support the experience of these emotions in humans, and there is scientific evidence that demonstrates the role emotions play in allowing animals to behave adaptively and flexibly (see sidebar).

The **Animal Rights** movement is based on the tenet that humans should give equal consideration to the comparable interests of animals and humans. Animal rights proponents seek to eliminate the use of animals in modern society based on the belief that non-human animals should have the same or similar rights to people.

**Animal Welfare** proponents do not object to all forms of animal use, but advocate for more humane conditions for all animals in human care. An animal welfare perspective requires making ethical decisions regarding acceptable levels of animal suffering in light of the benefit to humans resulting from animal use practices. To make these decisions, animal welfare advocates rely on science to help determine the impacts of practices such as farming on the animals involved, as well as to develop refinements to practices to enhance animal well-being.

## Background Information (continued)

To understand and appreciate animal welfare in the context of raising animals as companions or for food, it is necessary to take the physical health and psychological state of animals into consideration when making decisions about their treatment and care. Maintaining a good state of animal welfare must include providing care for animals that minimizes negative emotional states such as fear and frustration. In addition, animal caregivers must consider how their practice can provide **positive experiences** for their animals. These include opportunities to exercise, explore, play, and develop positive social relationships with human caretakers and (in social species) their own kind. At this point scientists are not able to directly measure how animals feel, but we can better understand their internal experiences by studying their behavior and their responses to different types of care, housing, and management practices.

It is important to understand how to apply animal care practices that decrease the likelihood that animals will experience pain, suffering or other negative emotions, as well as have the opportunity to express a range of natural behaviors and experience positive emotions. A framework that has been developed for this purpose is known as the “**Five Freedoms**.” These are:

1. *Freedom from Hunger and Thirst* by providing ready access to fresh water and a diet to maintain full health and vigor.
2. *Freedom from Discomfort* by providing an appropriate environment including shelter and a comfortable resting area.
3. *Freedom from Pain, Injury or Disease* by prevention or rapid diagnosis and treatment.
4. *Freedom to Express Normal Behavior* by providing sufficient space, proper facilities and appropriate social partners.
5. *Freedom from Fear and Distress* by ensuring conditions and treatment that avoids mental suffering.

For more information on the Five Freedoms see:

<http://www.fawc.org.uk/freedoms.htm>

[http://www.progressivecattle.com/index.php?option=com\\_content&view=article&id=3788:the-five-freedoms-of-cattle&catid=93:featured-main-page](http://www.progressivecattle.com/index.php?option=com_content&view=article&id=3788:the-five-freedoms-of-cattle&catid=93:featured-main-page)

## Life Skills Targeted

- Head: critical thinking, decision making, service learning
- Heart: concern for others, empathy, communication
- Hands: teamwork, contributions to group effort, self-motivation, community service volunteering, responsible citizenship
- Health: stress management

## Next Generation Science Standards Cross-Cutting Concepts Supported

- Patterns
- Cause and effect

## Concepts and Vocabulary

- **Animal Welfare:** Welfare is viewed as something intrinsic to the individual animal, i.e., the animal's state of being well or 'faring' well.
- **Animal Rights:** Animal Rights is a philosophical view that animals have rights similar to or the same as humans.
- **Animal Welfare Proponents:** Those who agree that it is our responsibility to ensure the best possible well-being of animals cared for or used by humans.
- **Animal Welfare Science:** An interdisciplinary branch of science that focuses on the assessment and enhancement of the welfare of animals in a variety of contexts.
- **Five Freedoms:** A framework for animal care practices that decreases the likelihood that animals will experience pain, suffering or other negative emotions, as well as provides opportunity to express a range of natural behaviors and experience positive emotions
- **Emotional State:** Animal's internal experiences or feelings. These states are becoming increasingly understood and explored by scientists.
- **Positive Experiences:** Opportunities for animals to interact in a constructive, enjoyable manner with humans or other animals.

## Activity 1: Considering Emotional Responses in Humans and Animals



### Suggested Groupings:

- Part A – youth will work individually; Part B – youth will work in pairs.

**Time Needed:** 45 minutes to 1 hour

### Materials Needed:

- Clear plastic cups that are 12 ounces or larger (1 per youth).
- Small pieces of red paper crumpled into balls (approximately 25 per youth).
- Small pieces of green paper crumpled into balls (approximately 25 per youth).
- Small pieces of white paper crumpled into balls (approximately 12 per youth).
- Emotion Scenarios (Appendix A) (1 set).
- Human Emotion Worksheet (Appendix B) (one per youth).
- Animal Emotion Worksheet (Appendix C) (one per pair).
- Writing utensils (one per youth).
- Flip chart paper.

*\*Materials provided.*

This activity is meant to support exploration of the psychological state of animals in more depth with respect to feelings and the relationship between context and positive and negative emotions.

### Getting Ready

- Gather all necessary materials (cups; colored paper).
- Make 25 red paper balls, 25 green paper balls, and 12 white paper balls for each youth.
- Copy necessary Appendices for each youth (Part A); copy necessary Appendices for youth when working in pairs (Part B).
- Write out the Five Freedoms onto a piece of flip chart paper (do not post until later in the activity).

### Opening Questions/Prompts

1. What do you know about the term animal welfare? Ask the youth to record their responses on the flip chart paper provided.
2. What things do animal owners need to take into consideration if they are concerned about providing good welfare to the animals in their care? Ask the youth to record their responses on the flip chart paper provided.
3. What does having a “good day” mean to you? What might you experience on a “good day”? Ask the youth to record their responses on the flip chart paper provided.
4. What does having a “bad day” mean to you? What might you experience on a “bad day”? Ask the youth to record their responses on the flip chart paper provided.
5. Describe how you are to know if someone else is having a good day or a bad day. Ask the youth to record their responses on the flip chart paper provided.

**Facilitator Tip:** Ask youth to think about modes of communication other than direct verbal communication.

## Activity 1: Considering Emotional Responses in Humans and Animals



### PART A: HUMAN EMOTIONS

#### Procedure (Experiencing)

1. Hand out cups, Human Emotion Worksheet (Appendix B), and writing utensils.
2. Place paper balls in the center of the tables around which the youth are sitting.
3. Explain to the youth that the red balls represent negative feelings and the green balls represent positive feelings. The white balls represent neutral feelings or no opinion.
4. Instruct youth to listen to the Scenario (Appendix A) that you read from the card. Based on their interpretation of the experience, each youth should select two paper balls to put in their cup according to the following key:
  - a. 2 Green = Positive Experience
  - b. 2 Red = Negative Experience
  - c. 1 Green, 1 Red = Mixed Experience
  - d. 1 White = Neutral or No Opinion
5. Have the youth record their selection in the appropriate row of the recording sheet.
6. Ask youth to identify the emotion they imagine they would experience in this scenario. They can use a single word or a phrase to describe the emotion or emotions.

Repeat until all 12 scenarios have been read.

#### Sharing, Processing, and Generalizing

Follow the lines of thinking developed by the youth as they share and compare their thoughts, observations, and conclusions. If necessary, use more targeted questions as prompts to get to particular points. Specific questions might include:

1. Look at the contents of your cup and the cups of those around you. How is the distribution of red, green and white balls similar or different? Ask youth to write down their thoughts and ideas on the flip chart paper provided.
2. Choose one of the scenarios and share the emotion you wrote down to describe how you would feel in that situation. Explain how your responses were similar to or different from the emotions others recorded. Ask youth to write down their thoughts and ideas on the flip chart paper provided.



# Activity 1: Considering Emotional Responses in Humans and Animals



## PART B: ANIMAL EMOTIONS

### Getting Ready

- Have the youth form pairs.
- Each youth in the pair should have their recording sheet from Part A and their writing utensil.
- Give each pair one copy of the Animal Emotion Worksheet for Part B.

### Procedure (Experiencing)

1. Have each pair write down each emotion they recorded on their Human Emotion Worksheet from Part A in column A of their Animal Emotion Worksheet. If the two youth had some emotions in common they need only record that emotion once.  
**Facilitator Tip:** If pairs of youth collectively have more than 12 unique emotions listed on their Part A Worksheets, they should choose 12 to record on their Animal Emotion Worksheet.
2. Once the emotions are recorded, ask the pairs to pick 6 emotions listed and work together to write a short experience that they think would cause an animal to experience each emotion listed. Emphasize that the experiences they write should be realistic.
3. If youth cannot come up with an experience that might cause an animal to experience the emotion listed, have them describe why they were unable to do so.
4. Introduce the Five Freedoms by posting the sheet of flip chart paper with the Five Freedoms listed. Ask the youth to review their animal emotion scenarios and identify where one or more of the Five Freedoms is addressed in each scenario.
5. Ask the youth to reflect on the Five Freedoms listed. Ask them to describe how they think the Five Freedoms address the welfare of animals. Should more “freedoms” be added to the list? If so, what should they be?

### Sharing, Processing, and Generalizing

Follow the lines of thinking developed by the youth as they share and compare their thoughts, observations, and conclusions. If necessary, use more targeted questions as prompts to get to particular points. For example:

1. Ask each group to share two of their animal emotion experiences. Allow others to comment on the experiences shared. Discuss the similarities and/or differences regarding the opinions expressed by others.
2. Ask youth to share if there were emotions on their list for which they could not imagine a scenario that would lead an animal to experience that emotion. Allow others to comment. Discuss the similarities and/or differences regarding the opinions expressed by others.
3. Ask youth to describe their perspective on animal emotions. Allow for different perspectives to be expressed.

**Facilitator Tip:** Throughout the discussion, remind youth of the importance of maintaining a safe and respectful environment for sharing as necessary.

### Concept and Term Discovery/Introduction

At this point, it is important to ensure that the following terms/concepts have been discovered or introduced: animal welfare, animal rights, animal welfare science, animal welfare proponents, Five Freedoms, emotional state, and positive experiences. (Note: The goal is to have the youth discover terms and concepts through their own exploration.)