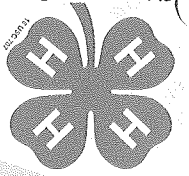


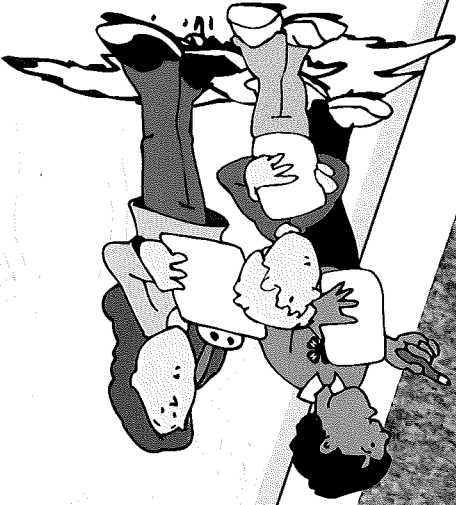
County \_\_\_\_\_

Name \_\_\_\_\_

# Sheep Project Activity Guide

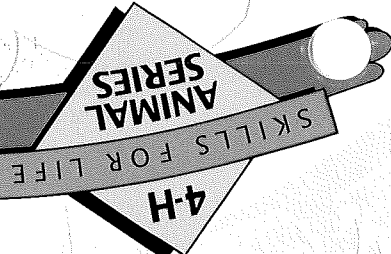


REVIEWED & RECOMMENDED  
National 4-H Curriculum



3  
Sheep

# Leading the Flock



# Note to the Project Helper

If you were a project helper for one or more youth involved in completing Sheep 1 or Sheep 2 you know what a great experience this important role is. If not, expect a memorable time. As a helper you are in the perfect position to help youth grow and develop in positive ways as they learn about sheep and about themselves. You nurture and cultivate their interest in this project by guiding their planning, helping them carry out their activities and recognizing them for a job well done.

## Your Role

- Become familiar with the material in this activity guide and the *Helper's Guide*
- Support youth in their efforts to set goals and complete each achievement program
- Date and initial the activities on the Sheep Achievement Program as the youth completes them and the two of you discuss them
- Help youth to get to know themselves, including their strengths and weaknesses
- Encourage the use of the experiential learning cycle described on this page

## Sheep "Skills for Life" Series

This guide, *Leading the Flock* is the third in the series of three for youth, which also includes *Sheep 1 Rams, Lambs and You*, *Sheep 2 Shear Delight* and the *Sheep Helper's Guide*. The three youth guides have been designed to be developmentally appropriate for grades 3-4, 5-7 and 6-9 respectively, but may be used by youth in any grade based on their project skills and expertise. All activities in the guides have several parts: A description of the skills to be practiced; discussion questions, suggestions for additional activities and additional helpful information. The "Show of Success" listed for each activity is an excellent way to evaluate the youth's success. Each of the guides also includes an achievement program to encourage youth to learn more about sheep while developing important life skills.

## Acknowledgments

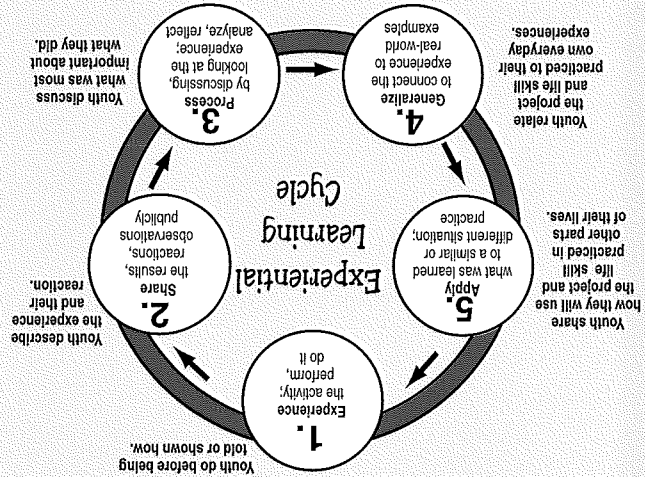
**Revision Team:** This revision of the four sheep activity guides was accomplished by the Sheep Design Team comprised of Joe D. Camarillo, California, Chair; Marvin Dehle, Washington; C. J. McCabe, Wyoming; Marc Horney, New Jersey; M. J. Wylie, Wisconsin; and Tom Zurcher, Director and Editor.

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**Original Series Writing Team:** Doyle Wolverton, Nebraska; La Mar Graftl, Iowa; Gary Wilson, Ohio; Roger Haugen, North Dakota; Kris Tolman, Nebraska; and Tom Zurcher, Project Coordinator and Editor.

## Experiential Learning Model



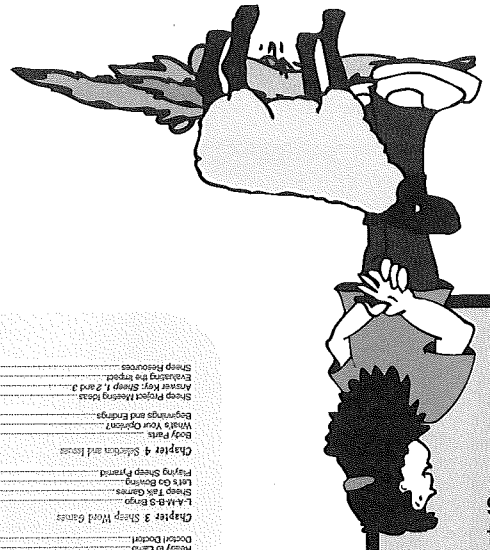
Pfeiffer, J.W., & Jones, J.E., "Reference Guide to Handbooks and Annals" © 1983 John Wiley & Sons, Inc. Reprinted with permission of John Wiley & Sons, Inc.

In the *Helper's Guide* you will find another evaluation piece titled "Evaluating the Impact." Complete this before the youth begins each level and after completing each level. Each activity is designed so the young person has an opportunity to learn by doing before being told or shown how. Your challenge is to "sit on your hands" while the youth explores the activity and learns from the experience, even when it doesn't work the way it's expected to. You can help with the learning most effectively by listening as the young person considers the questions and draws conclusions. At times the activity may call for you to be a resource person for content or ideas.

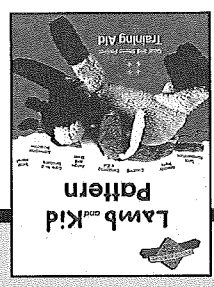
The fourth publication in this series, *Sheep Helper's Guide*, provides additional learn-by-doing activities that can be adapted to the family, the classroom, after school child care, 4-H project groups, clubs or other groups. You'll also find helpful hints about characteristics of youth, life skill development, teaching experientially, meeting ideas as well answers to many of the activities in the youth guides.

This five-step model is included in each activity in this series. As you can see, the youth first attempt the activity on their own. After the youth do as much as they can and answer the questions, you then meet together and discuss: What they did? What was important about what they did? How does what they did relate to their lives? And finally, how might they use the life and project skills practiced in the future? Sample questions are included following each experience. Your ability to ask additional thought-provoking questions and to clarify and expand participant ideas will add to the educational experience.

Good luck in your role as Project Helper!



Use this pattern to make a realistic model kid or lamb.



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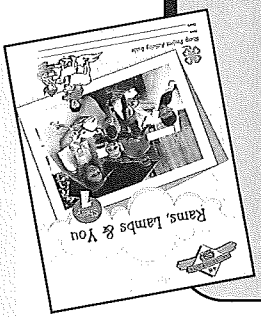
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# Leading the Flock

# What's Inside

For more on sheep... look for these other guides in this set.

Rams, Lambs and You



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## Helper's Guide

# Having Fun with the Sheep Project

By now you are probably an expert on sheep, or certainly know more than you did when you started this project. Whether you raise one or several project animals, you are in an excellent position to share your experiences with others. *Leading the Flock* provides several opportunities for you to develop your leadership skills as you strive to complete Level 3 of the Sheep Achievement Program. You'll also find activities to help you develop a business, explore careers and teach others. Here are some of things you'll do:

- Plan and organize a judging contest
- Determine income and expenses for a sheep enterprise
- Identify parts of a ewe's and ram's reproductive systems
- Design and conduct a sheep products survey
- Find sheep-related information on the WWW
- Plan an event or activity
- Interview people in five agricultural careers
- Debate an issue affecting the sheep industry
- Design and teach a lesson on a sheep topic
- Organize and conduct an ABC's of Sheep game



"Thanks for being my project helper."

## Sheep 3 Project Guidelines

- Do a minimum of seven activities of the Leading the Flock Sheep Achievement Program each year and complete Level 3 within three years
- Participate in a minimum of five of the learning experiences listed each year
- Practice and develop the life skills of leading others, making decisions, planning and communicating, while you learn to take risks, think creatively, use community resources, explore careers and take responsibility
- Keep the Goals and Highlights page current
- Share your sheep knowledge and skills with others
- Have fun!

## Sheep Achievement Program

If you have completed levels 1 and 2, you know each chapter contains sheep-related activities that encourage you to practice a certain life skill while doing the activity. In many cases, because this is an activity guide and not a resource manual, you will need to research other sources of information to complete a particular activity. The page of sheep resources in the back of this guide is a good place to start, but you'll also want to work closely with your project helper. You'll find an abundance of information on the Internet with literally thousands of sites containing information on sheep and sheep products.

Remember this is your own personal guide. Feel free to use it to record your thoughts and ideas. Most questions will not have a "right" answer. The questions will help you explore the subject and your own ideas in more depth. Additional activities are included in *Sheep Helper's Guide*. Many of these are fun experiences for you to use with other youth as you develop your leadership skills.

## Your Project Helper

Choose your own helper. This person might be a project leader or advisor, teacher, family member, neighbor, friend, or anyone who has the interest to work with you to complete Level 3. Meet with your helper to set goals, plan and complete activities in this guide. Discussing each activity with your helper and having this special person date and initial your achievement program will make this project more interesting and fun. Write the name, phone number and E-mail address of your project helper here:

My Project Helper \_\_\_\_\_

Phone # \_\_\_\_\_

E-mail address \_\_\_\_\_

# Sheep 3 Planning Guide

## Sheep Project Highlights

Date and list the exciting things you do and learn.

Name \_\_\_\_\_  
 Project Animal's Name \_\_\_\_\_  
 Breed \_\_\_\_\_

What I want to do and learn in Sheep 3:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

## My Sheep Project Goals

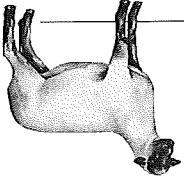
Complete at least five of these activities each year.

Activity	Year	
	Year	Year
Give a presentation		
Be a member of a sheep organization		
Help organize a sheep project meeting		
Help conduct a sheep show		
Participate on a judging team		
Help a younger 4-H'er exhibit at a fair		
Help judge a sheep show		
Help plan a sheep skillathon		
Coach a livestock quiz bowl team		
Organize a sheep showmanship contest		

## Leading the Flock Completion Certificate



I certify that

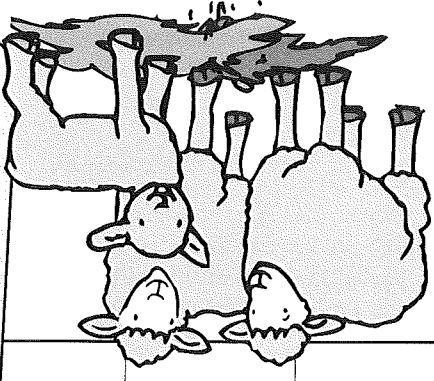


\_\_\_\_\_ has completed all requirements of the *Leading the Flock* Achievement Program in the National 4-H Curriculum Sheep "Skills for Life" Series.

Signature \_\_\_\_\_

Date \_\_\_\_\_

A picture of my project animal and me.



# Achievement Program

Leading the Flock

## Achievement Program Guidelines

- 1. To pass the Sheep 3 Achievement Program complete at least 21 of the Leading the Flock and More Challenges activities in this activity guide in three years. At least 11 of the 21 activities must be selected from those listed below.
- 2. Complete at least seven activities of either type each year.
- 3. Have your project helper date and initial the activities you complete and discuss.

I plan to complete Level 3 this year.

Select and do any of the More Challenges Challenges activities in Leading the Flock or make up your own. Record the page and number of each one you complete and have your helper initial.

*More Challenges*

Page	#	Date Completed	Helper's Initial

## Leading the Flock Activities

Chapter 1 Selection and Management	Date Completed	Helper's Initials
Judging for Everyone		
The Bottom Line		
Surfing the Web		
Chapter 2 Reproduction and Genetics		
Exploring Sheep Reproductive Systems		
Breeding Time		
Traits Make a Difference		
Chapter 3 Marketing and Nutrition		
Who Wants What?		
Marketing a Sheep Product		
Let's Talk Hay		
Chapter 4 Leadership and Careers		
The Big Event		
Sheep Issues		
Teaching Others		
ABC's of Sheep		
Dyed in the Wool		

Write your own activity here.

Helper's Initials \_\_\_\_\_ Date \_\_\_\_\_

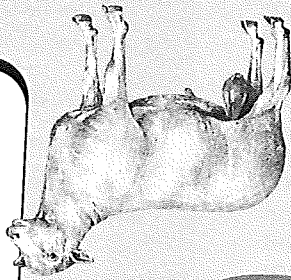
Write your own activity here.

Helper's Initials \_\_\_\_\_ Date \_\_\_\_\_

Write your own activity here.

Helper's Initials \_\_\_\_\_ Date \_\_\_\_\_

# Judging for Everyone



**Sheep Project Skill:** Planning a judging contest  
**Life Skill:** Developing leadership skills  
**Show of Success:** Plans and organizes a judging contest

As you've probably discovered, judging activities are great ways to learn to observe carefully, make decisions and defend your opinion in a convincing manner. Judging also offers you the opportunity to develop your leadership and organizational skills.

Have fun planning a judging activity so everyone has the best possible opportunity to develop important life skills as well as learn to judge. Good luck on your judging contest!

## Your Challenge

Work with a committee to organize and conduct a judging contest with at least three classes of four items each and one or two sets of oral reasons. The classes in your contest can be whatever you

choose — sheep, production records, showmanship, wool or anything else that can be judged. As you plan, check the planning steps you do and indicate who will do each step and when.

### Judging Contest Organizer

When	Who	Planning Steps
_____	_____	Organize committee
_____	_____	Outline contest agenda
_____	_____	Select classes
_____	_____	Select a judge
_____	_____	Invite participants
_____	_____	Select an announcer
_____	_____	Select animals
_____	_____	Transport animals
_____	_____	Care for animals
_____	_____	Set-up contest (allow 8-10 minutes per class)
_____	_____	Organize classes
_____	_____	Orient oral reasons listeners
_____	_____	Provide recognition
_____	_____	Clean-up
_____	_____	Follow-up (news releases, thank yous)

Good planning will make the contest better for everyone.

See what score you would earn if you place the class backwards 4-2-1-3. Did you come up with 10 points?

50 possible points - 12 points = 38 points

Questions	Answers	Points Lost
Did I place 3 over 1?	No	2
Did I place 3 over 2?	No	2 + 4 (missed both pairs)
Did I place 3 over 4?	Yes	0
Did I place 1 over 2?	No	4
Did I place 1 over 4?	Yes	0
Did I place 2 over 4?	Yes	0

1. Being able to figure the score made on each class judged is a fun activity for everyone. If you're not familiar with how to do this, here is a short refresher. You need the "official" placing and the "cuts" or differences between the three pairs in the class. For example, say the judge placed a class 3-1-2-4 with cuts of 2-4-6. You placed the class 2-1-3-4. To figure your score ask six questions related to the six possible pair combinations:

*More Challenges*

---



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*Apply what you learned*  
 What did you learn about providing leadership to a planning committee that you can use the next time you try to do something similar?

---



---

*Generate to your life*  
 What are the benefits of working together as a team to accomplish something?

---



---

*Process what's important*  
 What was the most challenging part of providing leadership to the planning committee?

---



---

- How were the classes selected so the experience was educational rather than simply guessing?
- How did you provide leadership to the planning committee?
- How did you feel the judging contest went?

*Share with your helper*

*Talk It Over*

*Giving Oral Reasons*

In order to give a good set of reasons you need:

- Knowledge of ideal sheep
- Knowledge of names of parts and comparative terms
- Knowledge of reasons organization
- Ability to take good notes
- Confidence

A judging class is made up of four animals. Reasons are given by comparing three pairs of animals: top pair, middle pair, bottom pair and explaining why one animal is better than another.

There are many ways to say the same thing. The challenge of reasons is to say the same thing more than once in a set of reasons, but worded such that the reasons do not become repetitions. Imagine that you are describing the class to a person who has not seen it, mainly by comparing one animal to another.

*Scoring Reasons*



**40-50 points**  
 An exceptional set of reasons. Recognized the significant differences; reasons were clear and easy to follow; and used comparative terminology. Used mostly comparative rather than descriptive terms; spoke convincingly with good eye contact; and answered questions correctly.

**35-40 points**  
 Above average set of reasons. Used an easy-to-follow format for the reasons; correct terminology; saw the most significant differences between the items; spoke convincingly; and answered questions correctly.

**30-35 points**  
 An excellent score for a junior member who knows what he/she is doing but has not yet acquired the vocabulary and forcefulness to score higher.

**25-30 points**  
 This score would indicate that you did not see the class clearly; failed to use comparative terminology; but did give a full set of reasons.

**0 points**  
 Didn't give reasons.



## Organizing Reasons

Organization of reasons is a must if all differences are to be discussed in a logical order. Reasons are divided into the following sections:

1. Introduction
2. Top pair paragraph
3. Middle pair paragraph
4. Bottom pair paragraph
5. Bottom individual paragraph

### Introduction

The introduction to a set of reasons is always the same except for the name of the class and the placing.

Example: for a class of yearling ewes placed 4-3-2-1, the introduction might be as follows: "I placed this class of yearling ewes 4-3-2-1."

### Top, Middle and Bottom Paragraphs

The three paragraphs within a set of reasons are all organized in much the same manner. Each paragraph is composed of a series of sentences that describe the two ewes in the particular pair.

**A.** The first part of the paragraph is the introduction that introduces the paragraph. Continuing the example of the yearling ewe class, the introduction would be, "In my top pair I placed 4 over 3 because..."

### B. The next part of the first sentence is the "topic sentence" and should contain the most important factor involved in the placing. "...because 4 was larger framed and more upstanding."

This sentence should leave no doubt in the reason taker's mind that 4 was larger than 3 and that difference was the most important factor involved in placing that pair of yearling ewes.

### C. The "furthermore sentence" is devoted to the next largest difference between the two animals and our example class might read, "Furthermore, 4 was a nicer balanced ewe being more angular fronted." Because of the way in which it is said, it is obvious that you feel that 4 is a better balanced ewe. Yet by putting this statement second, you have said differences in balance are not as large as differences in frame.

**D.** The "in addition sentence" may be used alone or along with an "also" sentence. Whether one or

both are used depends on whether the remaining differences between the animals are large enough to justify the use of both sentences. Assuming number 4 is an easy top, these sentences might read: "In addition 4 was a more level, stronger topped ewe that stood wider when viewed from behind." The next is the "grant sentence." The grant sentence admits that the lower placed animal in the pair has some traits superior to the higher placed animal. The grant sentence may well be the most important sentence in the paragraph, particularly in a close placing where others may have switched the pair.

### E. Next is the "grant sentence." The grant sentence admits that the lower placed animal in the pair has some traits superior to the higher placed animal. The grant sentence may well be the most important sentence in the paragraph, particularly in a close placing where others may have switched the pair.

If the differences or points in which the bottom animal in a pair was superior are all brought out and the reason taker realizes that you saw the difference, but simply switched the pair, he or she may not take off many points. On the other hand, if the member switched the pair and had no grant sentence or a very weak one, then probably the reason taker would take off more points.

### F. The last sentence is the "criticize sentence." This sentence is important because if there is a fault in the second animal it should be brought out. In the yearling ewe class the criticize sentence might read: "I criticize 3 as she is coarse shouldered and sloped over her rump."

If all the sentences were put together, the top paragraph would read: "...In my top pair I placed 4 over 3 because 4 was larger framed and more upstanding. Furthermore, 4 was a nicer balanced ewe being more angular fronted. In addition 4 was a more level, stronger topped ewe that stood wider when

viewed from behind. I grant, however, that 3 showed more depth of rib indicating more body capacity and higher overall volume."

**F.** The last sentence is the "criticize sentence." This sentence is important because if there is a fault in the second animal it should be brought out. In the yearling ewe class the criticize sentence might read: "I criticize 3 as she is coarse shouldered and sloped over her rump."

If all the sentences were put together, the top paragraph would read: "...In my top pair I placed 4 over 3 because 4 was larger framed and more upstanding. Furthermore, 4 was a nicer balanced ewe being more angular fronted. In addition 4 was a more level, stronger topped ewe that stood wider when

viewed from behind. I grant, however, that 3 showed more depth of rib indicating more body capacity and higher overall volume. However, I criticize 3 as she is coarse shouldered and sloped over her rump."

The paragraphs pertaining to the middle and bottom pair are composed in the same manner as the top paragraph except with different introductory statements. The introduction of these two paragraphs might read: "In my middle pair, I placed 3 over 2, because..."

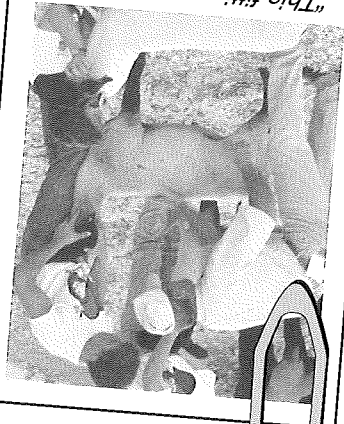
"In regard to my bottom pair, I placed 2 over 1 because..."

After having finished the discussion of the top, middle and bottom pairs, all that remains is a description of the bottom individual and the closing statement.

### Bottom Individual Paragraph

If the bottom animal was an easy last place and grants over the third place animal are very minimal, then the last place animal should be criticized to let the judge know you really saw the animal. Remember that, although they might be hard to find, all animals have some strong points. We will call that a grant to the individual and start the individual paragraph with it. A typical bottom paragraph might read: "Realizing 4 was a heavier muscled female, I criticized her and placed her last as she was the most conventional, smallest framed, shortest bodied ewe in the class."

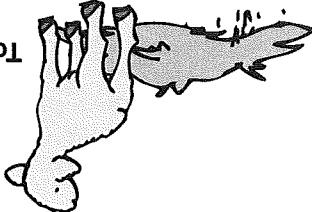
**Acknowledgement:** Adapted from activity written by Clint Rusk for National 4-H Curriculum Beel "Skills for Life" Series.



"This fitting and showing contest is fun."

## My Sheep Operation Budget

<p><b>Expenses</b></p> <p>From _____ to _____</p> <p>Flock description: _____</p> <p>Feed _____</p> <p>Ewes _____</p> <p>Lambs _____</p> <p>Rams _____</p> <p>Utilities _____</p> <p>Replacement ewes _____</p> <p>Rams _____</p> <p>Shearing _____</p> <p>Interest on borrowed dollars _____</p> <p>Labor _____</p> <p>Veterinary &amp; medical _____</p> <p>Insurance _____</p> <p>Fuel _____</p> <p>Taxes _____</p> <p>Marketing &amp; transportation _____</p> <p>Supplies &amp; materials _____</p> <p>Other _____</p> <p>Total Expenses _____</p> <p>Total Estimated Profit (loss) \$ _____</p>	<p><b>Income</b></p> <p>Market lambs sold @ # \$/lb. _____</p> <p>Cull ewes sold _____</p> <p>Breeding stock sold _____</p> <p>Wool _____</p> <p>Rams sold _____</p> <p>Other _____</p> <p>Total Income _____</p>
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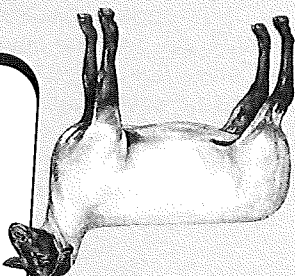


## Your Challenge

Pretend that you've owned and managed a 100-head crossbred ewe flock for three years. Determine the income and expenses you would expect during a 12-month period of operation. You may use your own flock or someone else's to complete the budget.

# The Bottom Line

You and your family probably make budgets for monthly family expenses, vacations and special purchases. Perhaps you decide ahead of time how you will spend or invest your own money. Planning is important. The same is true when raising sheep. In this activity you'll complete a budget and practice your planning skills.



**Sheep Project Skill:** Making a budget

**Life Skill:** Planning and organizing

**Show of Success:** Determines the income and expenses for a sheep enterprise.

This will take some figuring.

# Estimated Cost and Return for Ewe Per Year

(Costs for your sheep enterprise may be different from this example.)

## Expenses

**Grain**  
 30 days prior to lambing @ .50 lb./day 15 lbs.  
 50 days after lambing @ 1.00 lb./day 50 lbs.  
 Creep feed for lambs (birth till market) 200 lbs.  
 Total grain = 265 lbs. at \$.04 \$10.60

**Hay**  
 50 days feed in corn stalks and stubble  
 Ewes, 140 days of hay feeding @ 4 lbs. per day = 560 x \$.025 \$14.00  
 Lambs, 100 days of hay feeding @ 1 lb. per day = 100 x \$.025 \$2.50

**Pasture**  
 5 months @ \$1.50/head/month \$7.50

**Miscellaneous**  
 Salt - Minerals \$ .80  
 Breeding charge 1.00  
 Veterinary and drugs .60  
 Taxes and insurance on livestock and equipment .75  
 Depreciation and repairs on equipment \$5.00 x 10% .50  
 Shearing 1.50  
 Annual ewe depreciation 5.50  
 Ewe death loss 1.50

**Total expenses** \$36.15

Total cost does not include labor, interest or general farm overhead.

**Income**  
 140% lamb crop (1.4 lambs @ 110 lbs./lamb = 154 lbs. of lamb @ \$.50/lb. \$77.00  
 9 lbs. wool x 30¢ 2.70

**Total estimated income** \$79.20

**Total expenses** \$36.15

**Estimated returns over cost per ewe** \$43.05



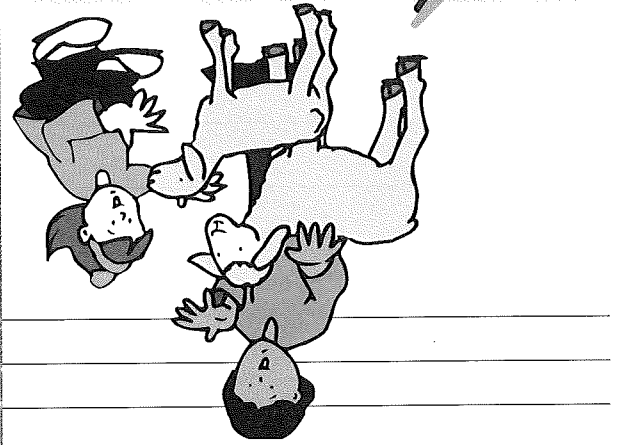
## Talk It Over

- Share with your helper
- What is the biggest expense in a sheep enterprise?
  - What production figure has the biggest effect on profit?

Process what's important  
 How can profits be made raising sheep?

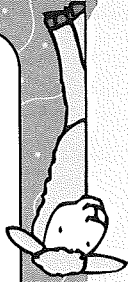
Generalize to your life  
 How do you plan and manage your income to cover expenses in your personal life?

Apply what you learned  
 How are you using budgeting and other kinds of planning now to prepare for goals after high school?



More Challenges

1. Check your newspaper and record weekly prices for market lambs on a graph for a six-week period during the time lambs are usually marketed in your area.
2. Analyze a sheep enterprise using a computer program.



My Favorite Sheep Web Sites	URL
Type of Information Found Here	

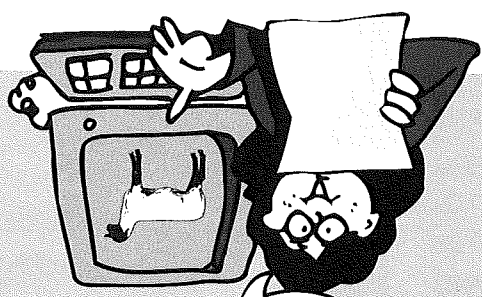
access to the Internet can then use this notebook. Make a display poster of sheep resources on the web. This poster can be used in presentations and displayed at fairs. Be prepared, there are over one million potential sites that have something to do with sheep! Some are listed on the Sheep Resource page.

Surf the web. Several sites are listed for you to check. List five sheep web sites and the type of information found in each. Print five pieces of information that interests you. Work with other group members to put together a notebook of the printed information. Everyone including those who don't have

### Your Challenge

Do you have access to the Internet? Do you know how to search for information on the Internet? Do you have someone who can help you if you don't have access or don't know how? This activity will be your opportunity to learn or sharpen your computer skills, while learning more about sheep, sheep health and sheep nutrition.

## Surfing the Web



There are some great sheep web sites.

- Sheep Project Skill: Expanding sheep knowledge
- Life Skill: Locating resources and communicating with others
- Show of Success: Locates sheep information on the Internet.

# The Internet



The Internet has become a valuable and popular source for all kinds of information. Individuals, organizations, universities, clubs, companies and many other kinds of groups have their own web sites or make information available through some other means on the web. The "up side" of the web is that it makes it possible to send new information rapidly throughout the world. Information is available to anyone with a computer and Internet connection. People with similar interests can communicate with each other. The "down side" of the web includes the vast amount of information to wade through and the wide range of quality of the information on the web.

## Examples of Sheep Web Sites

### Online Resources

- American Lamb Council [www.lambcouncil.com](http://www.lambcouncil.com)
- American Meat Institute [www.meataml.org](http://www.meataml.org)
- American Sheep Industry Association [www.sheepusa.org](http://www.sheepusa.org)
- National Lamb Feeders Association [www.wvics.com/~nlfa-sheep/](http://www.wvics.com/~nlfa-sheep/)
- National Meat Association [www.nmaonline.org/links.htm](http://www.nmaonline.org/links.htm)
- National Sheep Improvement Program [www.nsip.org/](http://www.nsip.org/)
- Oklahoma State University Sheep Breeds Library <http://www.ansi.okstate.edu/BREEDS/SHEEP/>



More Challenges

1. Find a sheep "pen-pal" through the net.

## Talk It Over

- Share with your helper
  - How many sheep-related web sites did you find?
  - Who sponsored the web sites? Breed associations, feed companies, veterinary supply companies, schools and universities? What others?
- Process what's important
- How will the information you printed help others in learning about sheep?

## Generate to your life

If you need other information about a topic you are interested in, how can you look it up on the web?

## Apply what you learned

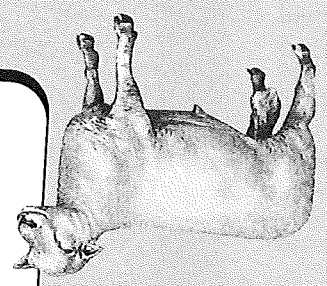
What would you do if something you found on the web didn't seem to be in line with information you already knew to be correct?

Chapter 2  
Reproduction and Genetics

Exploring Sheep Reproductive Systems

What is the purpose of the ram? Basically, it is to breed ewes to have lambs. Each organ is designed to perform a specific reproductive function. What is

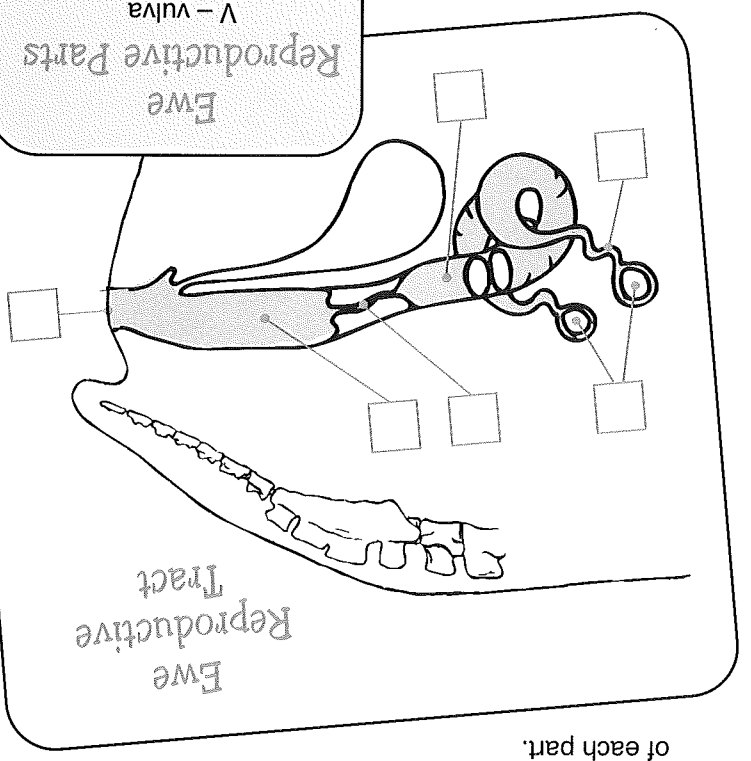
the ewe's purpose? It is to have a lamb. The ewe's body is designed to breed, carry and give birth to a lamb. In this activity, you will learn the basic parts of the male and female reproductive systems.



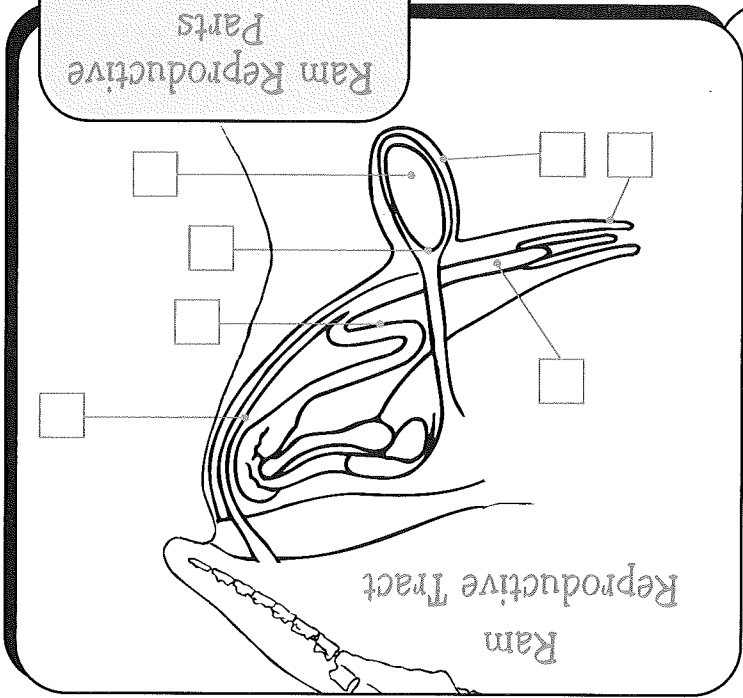
**Sheep Project Skill:** Identifying parts of sheep reproductive systems and practicing science and processing skills  
**Life Skill:** Labels the parts of the male and female sheep reproductive systems.  
**Show of Success:** Labels the parts of the male and female sheep reproductive systems.

Your Challenge

1. Identify parts of the ewe's and ram's reproductive tracts by labeling each part on the diagram with the correct letter. Explain to your helper the purpose of each part.



**Ewe Reproductive Parts**  
 F - oviduct  
 O - ovary  
 U - uterus  
 C - cervix  
 Va - vagina  
 V - vulva



**Ram Reproductive Parts**  
 A - testicle  
 B - epididymis  
 C - sheath  
 D - scrotum  
 P - penis  
 Q - sigmoid flexure  
 S - retractor penis muscle

2. On the ewe's reproductive tract, trace the route the egg takes from the ovary to fertilization to birth.

Talk It Over

Share with your helper

- What are the parts of the reproductive systems?

Process what's important

Why is it important to know how the reproductive systems function?

Generate to your life  
 What economic factors do you need to consider if you have ewes that do not get bred?

What are some factors that may prevent a ewe from producing healthy eggs for fertilization?

Apply what you learned  
 How can information in this lesson be useful in preventing future breeding problems?

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Talk Words: broad ligament • cervix • epididymis • ovary • oviduct • penis • retractor penis muscle • scrotum • sheath • sigmoid flexure • testicles • uterus • vagina • vulva

Acknowledgment: Adapted from activity written by Jackie Buckley for the National 4-H Curriculum Beef Series.



Reproductive Parts

Female Reproductive Parts

**Broad ligament** - A rough band of fibrous tissue that holds the uterus in place.

**Cervix** - Barrier that protects the uterus from infection and foreign debris.

**Ovary** - The eggs develop here.

**Oviduct** - Fertilization takes place here. Fertilized egg travels down the oviduct to the uterus to develop.

**Uterus** - The fetus — the baby lamb — develops here during pregnancy.

**Vagina** - Tube that connects the vulva with the uterus, where the ram deposits the semen, serves as the birth canal.

**Vulva** - External opening to the reproductive tract.

Male Reproductive Parts

**Epididymis** - Tube that stores sperm, transports it from the testicles to the penis.

**Penis** - Part of the tract that the ram uses to breed the ewe.

**Retractor penis muscle** - Pulls the penis back into the ram's body after mating.

**Scrotum** - Covers and protects the testicles.

**Sheath** - Provides protection for the penis.

**Sigmoid flexure** - Muscle that keeps the penis inside the ram's body and allows it to be extended during mating.

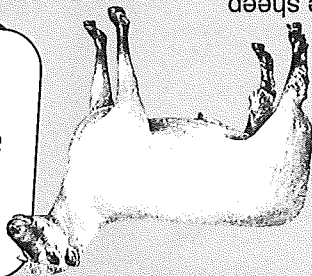
**Testicles** - Produce the male hormone testosterone. Where the sperm is made.

More Challenges

1. Locate and examine a female reproductive tract from a local processing plant or veterinarian. Describe the different parts to your helper or friend.

# Breeding Time

The breeding season is a key time in the sheep business. Some producers like early lambs born within a short period of time. Seedstock producers usually try to maintain a concentrated gene pool to ensure uniformity, although sometimes they may mix different lineages in the hopes of producing exceptional individuals. The producers of market lambs will often breed crossbred ewes to purebred rams of different breeds to gain the



**Sheep Project Skill:** Exploring reproductive terms  
**Life Skill:** Communicating with others  
**Show of Success:** Becomes acquainted with reproductive terms.

advantages of heterosis (hybrid vigor) in the offspring. These are all strategies for getting the best lamb crop possible for particular situations. In this activity you'll learn basic terminology related to sheep reproduction to help you communicate accurately and make good decisions.

## Your Challenge

Use each word listed in the Reproduction Word Bank in a short written summary that traces the order you believe each would happen in the course of a breeding season. If you aren't sure about the meaning of a word, check the Sheep Talk glossaries found in *Sheep 1, 2* and 3 or other sheep references. Add your own title to your summary.

Discuss your summary with your family and helper. Then circle each of the words in the Reproduction Word Find.

Using the words in sentences should help me understand them.

- Breed
- Conceive
- Eggs
- Estrous Cycle
- Ewe
- Fertilization
- Fetus
- Flush
- Gestation
- Labor
- Ovulation
- Parturition
- Pregnancy
- Ram
- Semen
- Sperm
- Uterus

## Reproduction Word Bank



## Reproductive Summary

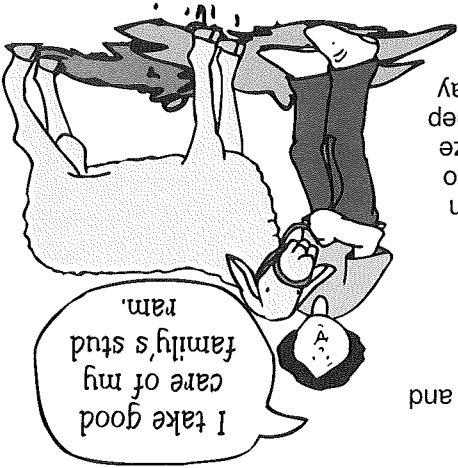
Title



1. Draw a ewe's and a ram's reproductive system. Identify the ovaries, fallopian tubes, uterus, cervix, vagina and vulva in the ewe's and the testes, scrotum, epididymis, vas deferens and penis in the ram's reproductive track.

2. Describe the differences between the breeding programs of a market lamb producer and a purebred breeder. Include how the following may be used: inbreeding, crossbreeding, outcrossing and line breeding.

*More Challenges*



**Ram Care**  
 During the breeding season high temperatures can cause a ram to become infertile (unable to fertilize the eggs). During hot weather keep him in a cool place during the day and with the ewes only at night.

- Heredity
- Age of ewe
- Light, temperature, humidity and season of year
- Association with the ram
- Nutrition
- Diseases and parasites

**Fertility** in the ewe can be influenced by:

**Ovulation**  
 Release (ovulation) occurs about 24 hours after the ewe initially exhibits heat. Once ovulation occurs the egg is quickly swept into the infundibulum, into the oviduct and in a matter of minutes actually penetrates the egg and fertilizes it. The result of fertilization is a new embryo, which after about six days, reaches the uterus and develops into a new lamb. This development period is called gestation and lasts about 147 days. Twin births result when two separate sperm fertilize two separate eggs.

**Fertilization**  
 Fertilization involves the union of sperm from the male with an ovum (egg) from the female. At mating the male deposits semen (sperm-rich fluid) into the vagina of the female. The sperm cells migrate up the female reproductive organ to the site of fertilization which occurs in the oviduct. The first sperm cells reach the site of fertilization in the oviduct in less than five minutes. At this point the sperm waits for the egg to arrive. The egg has been sitting in a follicle on the ovary, waiting to be released.

**The Ewe's Estrous Cycle**  
 The estrous cycle is characterized by heat periods (estrus)—that time when the ewe accepts the ram) at regular 17-day intervals. The heat period lasts for about 32 hours (range 20 to 42 hours). This is the only time within the 17-day cycle that the ewe allows the ram to mate. She will be back in heat again 17 days later. This 17-day cycle's activity continues until she finally conveys. Heat periods stop when she does conceive, and she will not mate again until at least 40 to 60 days after the lamb is born.

Reproduction



*Talk Words*

estrus • heat period • estrous cycle • ovulation • gestation • polyestrus

Reproduction Word Find

G S C O N C E I V E A S N  
 E P C F D O E E F G H O B  
 S E M E N H I S S I J R  
 T R K T S L U T M T N O E  
 A M P U Q R R S A T R U E  
 T U L P E W E Z W L X U D  
 I F Y T Z A I B C D U E S  
 O F U G H L A B O R I V J  
 N O I T I R U T R A P K O  
 L M N T O P R Q R S T E U  
 V P R E G N A N C Y W G X  
 F E T U S Y M Z A B C G D  
 F E L C Y C S U O R T S E

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*Apply what you learned*  
 What can you do to become a better communicator?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

*Generate to your life*  
 How does saying or writing words help you understand their meaning better?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

*Process what's important*  
 What care does a ram need?

● *Share with your helper*  
 What sequence of events occurs during the breeding season?

Talk 97 Over

# Traits Make a Difference

There are many breeds of sheep found in the United States. They vary in growth rate, mature body weight, prolificacy, milking ability, fleece weight and fleece spinning counts. Continued improvement in flock

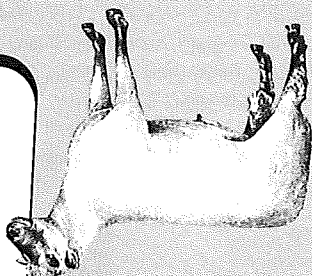
What would be the best ram for ewe #3?

performance is necessary to maintain or improve the profitability of a sheep operation. One of the ways to do this is through genetic selection. Your selection can improve many different performance traits; however, it is best to concentrate your efforts on a few desirable traits.

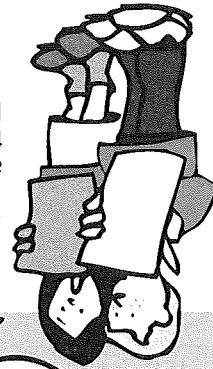
**Sheep Project Skill:** Improving the flock

**Life Skills:** Planning and organizing

**Show of Success:** Selects traits that may improve physical or carcass quality for a commercial sheep enterprise.



## Your Challenge



Evaluate six ewes in a flock scenario using the Heritability Chart. Decide whether to cull or to use ram number one or ram number two to best meet the production needs outlined. Write your reasons for selection or culling and explain them to your helper, leader or a sheep producer.

**Ram #2 - White Face**  
(Wool Breed)

**Characteristics**

- Wool covering on face
- Sound feet and legs
- Born a twin
- Average loin eye area
- Above average rate of gain
- Above average body length
- Minimum fat cover over loin
- Above average wool staple length
- Above average fleece grade
- Above average clean wool yield

**Ram #1 - Black Face**  
(Meat Breed)

**Characteristics**

- Open - clean faced
- Born a twin
- Above average loin eye area
- Minimum fat cover over loin
- Average wool staple length
- Average fleece grade
- Average clean wool yield

**Ewe #1:** A three year-old, white face ewe with fine wool and average size and will be used to produce replacement ewe lambs for a commercial sheep operation.

Ram Selected # \_\_\_\_\_ Reason: \_\_\_\_\_

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**Ewe #2:** A two year-old black face ewe, extremely meaty, average size, born a triplet, used to produce meat type lambs in a farm flock.

Ram Selected # \_\_\_\_\_ Reason: \_\_\_\_\_

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**Ewe #3:** A large framed ewe, three year-old, unsound on her feet and legs, very meaty, average milk production, used to produce market lambs on a commercial operation.

Ram Selected # \_\_\_\_\_ Reason: \_\_\_\_\_

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**Ewe #4:** An average framed ewe, four year-old, sound feet and legs, produces and raises triplets, fine wool, used to produce replacement ewe lambs to be kept in a farm flock.

Ram Selected # \_\_\_\_\_ Reason: \_\_\_\_\_

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**Ewe #5:** A large framed, black face, four year-old ewe, high milk production, has produced twin lambs annually to be kept to produce commercial rams.

Ram Selected # \_\_\_\_\_ Reason: \_\_\_\_\_

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**Ewe #6:** A short staple length, three year-old meaty ewe, large framed, sound feet and legs, to be used for producing commercial replacement ewe lambs.

Ram Selected # \_\_\_\_\_ Reason: \_\_\_\_\_

# Heritability Estimates



The heritability for a given trait may vary between breeds or sheep populations of different genetic backgrounds. There are several methods of estimating heritabilities, and the results obtained may differ. Heritability is important to estimate the amount of improvement that might be expected in one year of one generation. In general, heritabilities of less than 20 percent are considered low; between 20 percent and 40 percent are considered medium and over 40 percent are considered high.

## Heritability Estimates

Characteristics Average % Heritability

**High**  
 Percent fat of carcass 50  
 Face covering 50  
 Market weight 50  
 Mature body weight 50

## Medium

Wool staple length as yearling 47  
 Body type as yearling 40  
 Loin eye area 40  
 Weight of retail cuts 40  
 Clean fleece weight 40  
 Fleece grade 35  
 Birth weight 30  
 Rate of gain 30  
 Carcass length 30  
 Milk production 26  
 Fat thickness over loin eye 23

## Low

Multiple births 20  
 Number of lambs reared 13  
 Carcass quality grade 12  
 Body type as lamb 10

Acknowledgment: Sixth Edition of *Scientific Farm Animal Production* by Robert Taylor and Thomas Field Colorado State University and *Sheep Industry Development Handbook*.

More Challenges

1. Help another youth who raises sheep set a goal to improve a physical or carcass quality trait within a flock.
2. Meet with a sheep producer and develop a scoring chart for evaluating physical features by low, medium or high heritable traits.
3. Research how dominant and recessive genes work in both animal and human traits.

## Talk 'n' Learn heritability • heritability estimate



A Finnsheep produced 41 lambs in 93 months according to an article in *Finnsheep Breeders Association newsletter Short Tales*, May 1994. She had four sets of sextuplets, two sets of quintuplets, one set of quadruplets and one set of triplets. In 1993 she had six lambs in April and five lambs in December. She was due to lamb in June 1994 again!

41 Lambs in 93 Months!

*Apply what you learned*  
 What planning skill that you learned can you use in the future?

*Generate to your life*  
 What heritable traits are present in your family that may be considered high? Examples include height, eye color and hair color.

*Process what's important*  
 How has trait manipulation improved your flock and why is it important?

- What physical traits did you observe?
  - Are those traits low medium or high heritability?
- Share with your helper*

Adults				
Youth				
Females				
Males				
Respondents	Question #1	Question #2	Question #3	Question #4

Survey Results

Question #1 \_\_\_\_\_

Question #2 \_\_\_\_\_

Question #3 \_\_\_\_\_

Question #4 \_\_\_\_\_

Key Survey Questions

Your Challenge

Design and conduct a survey to learn what people think about sheep products — especially lamb and wool.

The first step is to design the survey. Asking the right questions is very important. Write questions that will help you determine whether people buy lamb and wool products. If they do, why? If they don't, why not (too expensive, don't like the taste)? Design a questionnaire and test it with your family first. Make sure they understand the questions. Write four of your best questions below.

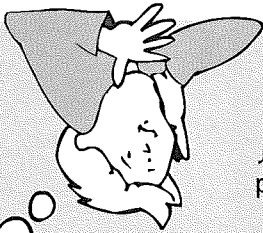
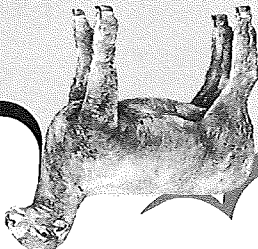
Next, you will need to find a place to do the survey interviews. You can conduct your survey in any public tourist site or anywhere you feel comfortable and have permission. Make sure you interview people you don't usually see. When you interview, be sure to ask the same questions. Don't lead them with your voice to give one answer over another. You want to know what people think, not what you think you should hear. Share the results of your survey at a 4-H meeting or with your project group.

a survey.

How do you decide what food and clothes to buy? What do you know about why people decide what to buy? As a person who enjoys sheep you probably want to be a good promoter and salesperson for all sheep products. In order to "sell" your products you need to know the opinions of others. One way to learn about opinions is by conducting

Who Wants What?

Marketing and Nutrition



I wonder if everyone likes to wear wool and eat lamb.

**Sheep Project Skill:** Checking consumer preferences

**Life Skill:** Communicating with others

**Show of Success:** Designs and conducts a sheep products survey.

1. Research a career in market research. What are the tasks, the opportunities? What techniques are used for gathering information? How do businesses depend on market research to determine their products and services? To build communication with customers?

2. Watch three or four television commercials. Analyze the opinions or impression each ad is trying to communicate to viewers. Discuss what you learned with your helper or project group. Why is it important to be aware of what commercials are trying to communicate? Are the messages "right" for everyone who views the commercial? Why is truth in advertising regulated by law?

*More Challenges* ✓



- There are 914 different breeds of sheep in the world
- Australia, China and New Zealand have the largest numbers of sheep and the highest production of lamb and mutton meat
- Per-capita consumption is 55 lbs in New Zealand and only about one lb in the United States
- There are approximately seven million sheep in the United States in comparison to 98 million cattle
- In 1998 the United States produced approximately 233.8 million pounds of lamb
- The top six sheep producing states are Texas (1,350,000), California (810,000), Wyoming (660,000), South Dakota (420,000), Colorado (410,000) and Utah (400,000)
- The most popular sheep breeds in the United States are Rambouillet, Columbia, Suffolk and Hampshire
- Dogs, llamas and even donkeys are used to guard sheep flocks from predators

*Industry Facts*



*Amazing Properties of Wool*

- Resilient
- Wear-resistant
- Light-weight
- Holds shape
- Comfortable
- Richly beautiful
- Static-resistant
- Flame-retardant
- Versatile

Wool does it all!



*Apply what you learned*  
 What could you do to improve your communication skills when talking with people you don't know?

*Generate to your life*  
 How do companies learn what people think of their products?

How can you use what you learned in this survey in your sheep project?

*Process what's important*  
 What do you feel is the most important thing you learned?

- Where did you do your survey?
  - What was most difficult about doing it?
  - What were the results of your survey?
- Share with your helper*

*Talk It Over*

What were people's reactions to your product marketing plan?

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How would you promote the product?

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How would you research the development of the product?

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How would you describe your product:

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### My Marketing Plan

### Your Challenge

Develop a marketing plan for a lamb product. Describe your plan in "My Marketing Plan."

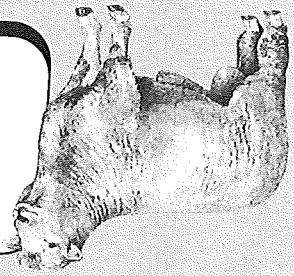


Try the team approach.

One of the challenges facing the lamb industry is the low consumption of lamb meat in the United States. Annual consumption of lamb is less than one pound per person, as compared to other red meats that have an annual consumption of 50 pounds or more per person.

It is not enough to just produce a good product. You must become involved in telling others about its versatility and nutritional value, so lamb consumption will increase and the industry will grow.

## Marketing a Sheep Product



**Sheep Project Skill:** Promoting lamb  
**Life Skill:** Communicating with others  
**Show of Success:** Completes a marketing plan.

*Talk It Over*

*Share with your helper*

● What did you include in your plan?

*Process what's important*

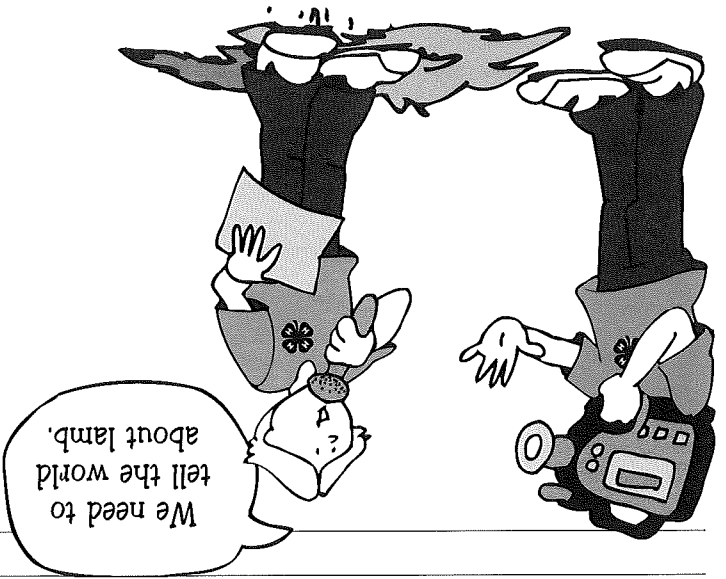
What is the most important thing you think people need to know about lamb?

*Generate to your life*

Why is persistence important when experimenting with a new product or other activity?

*Apply what you learned*

What did you learn about marketing through this activity?



Written by Rosie Noid.



**Product Plan Ideas**

Start by getting ideas. You can generate lots of ideas by asking lots of people — people buying meat in the grocery store, grocery store meat managers, or even the American Lamb Council. One question you might consider asking is "What would make you more likely to buy lamb meat?" Once you have an idea for a product, make a plan on how to develop the product and how to promote it. Seek help from other members and adults in your club in developing the product. You might use them as your initial "taste-testers" to see if your product appeals to them. Remember that it might take more than one try to come up with a product that is acceptable! Experimenting is the key! Once your product is developed, you can decide how to promote it. Consider checking with grocery stores, local fairs and exhibitions, producer groups, radio stations and newspapers. Usually, free product samples are a good way to entice people to try a new product.

**Sheep Industry Marketing Action Steps**

The sheep industry has identified five action steps to increase consumer demand and market share for lamb and wool products.

1. Identify the present and future consumers of lamb by market segment, and strive to increase market share by 10% by the year 2003.
2. Identify and produce the types and variety of products that meet consumer needs.
3. Move toward consumer-ready/prepackaged lamb that includes meal solutions.
4. Promote lamb aggressively to the consumer through target marketing and partnerships.
5. Develop an integrated marketing plan for the sheep industry.

Acknowledgement: Sheep Industry Long Range Plan, Texas A & M University

*More Challenges*

1. Research a career in industry public relations.
2. Select two or three of the Action Steps listed in Sheep Facts and investigate what is being done to reach those goals in the last two years.

Quality Hay



Hay Judging Notes		Sample 1	Sample 2	Sample 3	Sample 4
Color					
Leafiness					
Odor					
Maturity (how old)					
Foreign Material					
Texture					
Total Points					
My Placing					

Hay Judging Notes

You'll need three or four samples of hay. The hay can be one of the legumes such as alfalfa, clover, peas and vetch or a grass hay such as oats, wheat, ryegrass, sudan, brome or prairie grass. If you can't find samples of one kind that are very different in quality, use different kinds of hay. Play the role of official hay buyer. Judge the samples and present your reasons to your helper. Complete the Hay Judging Notes form and the Oral Reasons Note Card to help you give your reasons. Give four points for best in each category and one for the worst sample.

Your Challenge

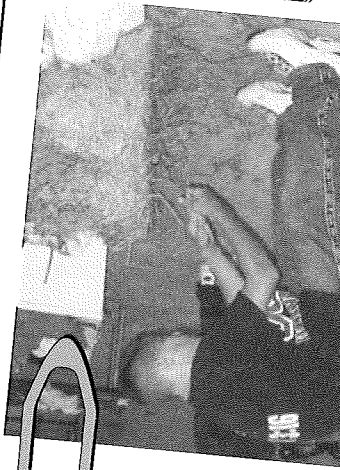
Did you know that sheep are a kind of "food machine"? They change things people can't eat—like grass and hay, into products we can use like wool and meat. How well they do this depends on the quality of forage (pasture, hay, silage) they eat. Learning how to tell forage quality is an important skill for a sheep producer. Sometimes you may be asked to help someone select a load of hay. This activity will help prepare you.

This hay has lots of stems and very few leaves.

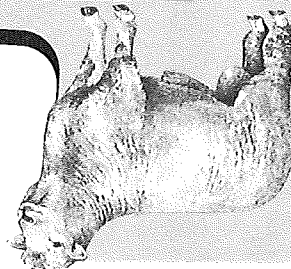
Low Quality Hay



"This hay is almost colorless and has few leaves."



**Sheep Project Skill:** Selecting quality forage  
**Life Skill:** Relating through communicating  
**Show of Success:** Judges hay and presents reasons.



Let's Talk Hay



Share with your helpers

- Where did you find the hay samples?
- What kind of hay did you judge?

Process what's important

Why is selecting good hay for sheep important?

Generate to your life  
Why is being able to clearly tell others what you believe important?

Apply what you learned  
What can you do to improve your speaking skills?

How can you apply what you learned about selecting hay to your sheep project?

More Challenges

1. Participate in a hay-judging contest.
2. Give an illustrated talk on selecting high quality hay.
3. Attend a hay show and observe the different qualities of hay.
4. Give an illustrated talk on producing quality hay.



Hay Quality

Several things can affect the quality of hay:

- kind of hay (alfalfa vs. prairie hay)
- fertilizers
- age or stage of maturity
- how well it dried after being cut
- storage and handling

**Storing Hay**  
Store baled hay inside a shed, or on dry, level, well-drained sites. Stack the bales to avoid wasted space and permit easy handling. Even large round bales must be set on a well-drained site. Crushed rock makes a good base for those bales. Without a good base, the bales will act like a sponge and soak up moisture from wet soil. More spoilage can occur on the bottom side of the bale than the top.

Reasons Note Card

Class \_\_\_\_\_

I placed this class of \_\_\_\_\_ over \_\_\_\_\_ in the top pair because \_\_\_\_\_

I grant \_\_\_\_\_ was \_\_\_\_\_ than \_\_\_\_\_

Going to the middle pair, I placed \_\_\_\_\_ over \_\_\_\_\_ because \_\_\_\_\_

I admit \_\_\_\_\_ was \_\_\_\_\_ than \_\_\_\_\_

I placed \_\_\_\_\_ over \_\_\_\_\_ in the bottom pair because \_\_\_\_\_

I realize \_\_\_\_\_ was \_\_\_\_\_ than \_\_\_\_\_

However, I faulted \_\_\_\_\_ and placed him last because \_\_\_\_\_

Stage of Growth and Crude Protein

Crop	Stage of Growth	Crude Protein Percent
Alfalfa	Early Bloom	18
	Full Bloom	14
Wheat	Boot	18
	Full Bloom	8.5
Sudan	Early Boot	17
	Full Bloom	8
Brome	Late Boot	17
	Full Bloom	12.5
Prairie Grass	Early Boot	13
	Mature	6

Event Highlights

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Activities Planned

Who                      When                      What

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Goals

Planning Team

Date

Location

Type of Event

### Our Sheep Event



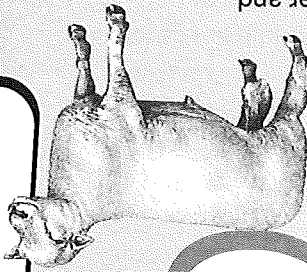
### Your Challenge

Work with others to plan a sheep-related event or activity. Complete the planning guide below and then conduct the activity.

shows, sheep skillathons, lambing clinics, tours and club activities are all excellent ways for you to practice your planning skills.

The best way to learn to be a good planner and organizer is to practice. In 4-H you have many opportunities to work with others as you organize a wide variety of events and activities. Field trips, fitting and showing clinics, sales, auctions, sheep

## The Big Event



**Sheep Project Skill:** Planning sheep-related activities

**Life Skill:** Planning and organizing

**Show of Success:** Plans and conducts event or activity.

### Careers and Leadership



1. Help plan and conduct a county or statewide event. Discuss what you learned with your helper.
2. Interview someone who plans events—large meetings, community events, campaigns, fund raising events, school festivals, etc. What are the essential parts of planning a successful event? What is most difficult to plan? What are sure-fire roads to disaster?

*More Challenges*



*Apply what you learned*  
How can you be a better team member?



*"Sheep pre-fairs are fun events."*

Can we help conduct the event?

*Generate to your life*  
What did you learn about teamwork?

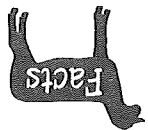
*Process what's important*  
How did the goals you set influence what you planned?

- How did you plan for such items as promotion, set up, clean up, parking, donor contacts, resource people, food service, etc.?
- What contributed to the success or failure of your event?
- What was most challenging?
- What was the event you and your friends planned and conducted?

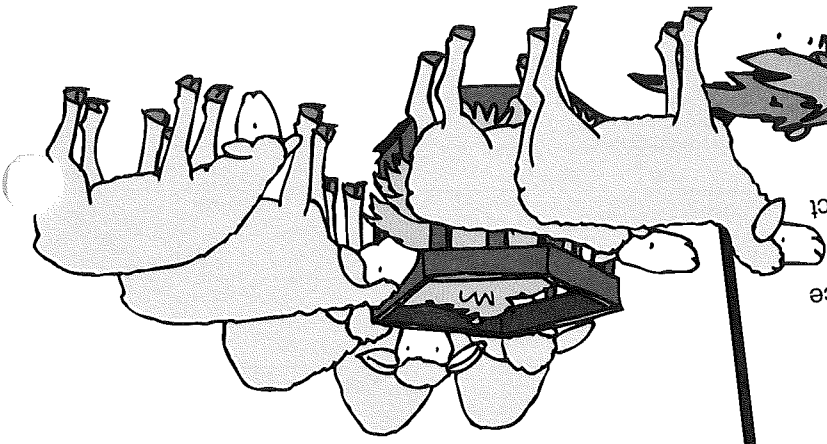
*Share with your helper*

*Talk It Over*

# Event Committee Checklist



- Set goals and objectives
- Set a date and location
- Establish committees and subcommittees
- Establish a promotion plan
- Plan what, when and who for each part of the program
- Plan what needs to be done after the program is over



**Join a Sheep Organization**

Many sheep production and breed associations offer youth memberships to students, 4-H and FFA members. Membership in a sheep organization is a great way to become familiar with local and national issues, and to find a place to help. You can also meet other producers and youth who share your interest in sheep. For help finding local sheep associations, contact the American Sheep Industry Association (see Resources).

**Issue** \_\_\_\_\_

Who's affected by the issue? \_\_\_\_\_

Who needs to be involved to change the situation? \_\_\_\_\_

What do you think should be done? \_\_\_\_\_

How could you help solve the issue? \_\_\_\_\_

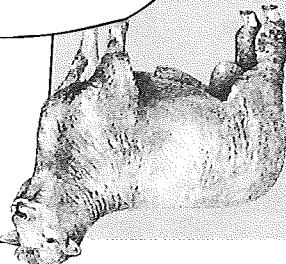
You think through the issue you choose. Contacting and interviewing a member of a local or state sheep producers association may help you. Once you've arrived at some conclusions of your own, share them in a presentation to your group.

Select one sheep-related issue or problem that is either important to the sheep industry, to the general public, or to both groups. Examples of issues are shown on the next page. Complete the outline for the issue you select. You may want to involve others as

### Your Challenge

What are the issues that affect the sheep industry? What are the general public's concerns about sheep and sheep products? How do these issues get resolved? This is your opportunity to see yourself as part of the solution. You can make a difference!

# Sheep Issues



- Sheep Project Skill:** Dealing with sheep industry issues
- Life Skill:** Communicating with others
- Show of Success:** Describes an issue affecting the sheep industry.

We can make a difference if we work together.



# Animal

## Production Issues



### National Sheep Industry Goals

- Eliminate scrapie in the United States
- Improve efficiency and decrease costs of production
- Provide a consistent supply of quality products on a year-round basis
- Increase consumer demand and market share for lamb and wool products
- Ensure food safety, animal welfare and environmental stewardship programs that meet or exceed consumer expectations
- Develop a functioning value-based marketing system for lamb and wool
- Encourage alliance development to allow better communication and improved risk management

Acknowledgement: Sheep Industry Long Range Plan, Texas A & M University

These are important issues.



## Animal Related Issues

- Animal rights/animal welfare
- Manure/waste disposal
- Safety/labeling of meat products
- International trade/quotas
- Lean lamb production
- Quality assurance of sheep products
- Predator control
- Niche lamb markets
- Care and management of show lambs

## Talk It Over

Share with your helper

- What issues did you consider?
- Why were these issues important to you?
- What organized groups should be involved?

Process what's important

What value are communication skills when you are involved with issues that affect a lot of people?

Generate to your life

How do you get involved in issues that affect you personally?

Apply what you learned

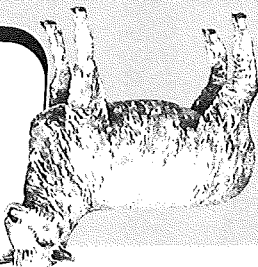
What could you do to really make a difference in an issue you feel strongly about?

More Challenges



1. Attend a meeting of a community or city organization where issues affecting the general public are discussed and actions taken. Discuss with your family what you observed and how decisions were made.
2. Serve on a sheep organization board or a committee that addresses important challenges facing the industry.

Sheep Project Skill: Teaching others  
 Life Skill: Leading self and others  
 Show of Success: Designs and teaches a lesson on a sheep topic.

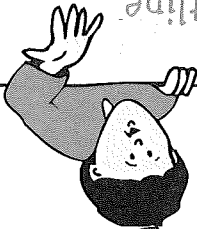


Do you recognize this process? It is the one you have been using to learn in these activity guides. Now you have a chance to use it to help someone else learn something you know!



"I enjoy helping others learn about sheep."

I've got a lot to learn before I'm a really good teacher.



### My Teaching Outline

# Teaching Others

You may not realize it, but teaching others is one of the most important leadership skills. Good leaders teach others what they know as well as listen to others. This activity will help you develop good teaching skills by practicing the experiential learning process.

Experiential learning starts with the learner being active, doing an activity or experience (not listening to a speech). Then the learner, a) shares what happened b) talks about what is important c) figures how the activity applies to her or him d) decides what ideas can be applied in the future

## Your Challenge

Choose a topic related to the sheep project. To prepare to teach, complete the outline below. To learn more about the experiential learning process, see page 5 of the 4-H Sheep Group Activity Guide or page 2 of this guide. After you have designed your lesson, discuss it with your helper. Then try it with three or more people as learners.

1. **Experience (Doing)**  
Describe the experience or activity learners will do before they are told or shown how to do it.
2. **Share (What happened?)**  
Write questions to ask the learners about their experience and their reaction to the activity after they have completed it.
3. **Process (What's important?)**  
Write a question to ask the learners about what they think is the most important thing they learned from the activity.
4. **Generalize (So what?)**  
Write a question that asks how the experience relates to their lives.
5. **Apply (Now what?)**  
Write a question to ask how they could apply what they learned to a different situation.

Using the experiential model involves everyone.

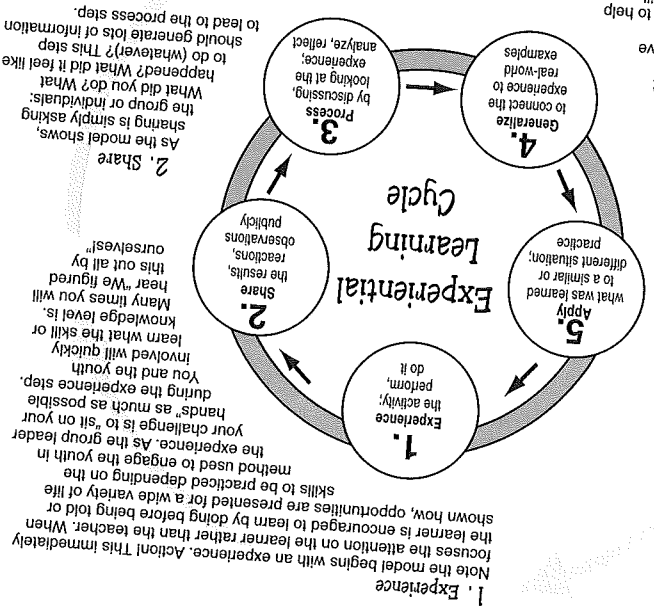


1. Teach someone how to teach using the experiential method. See if you can allow your learner to discover the process rather than being told or shown what it is.
2. Observe how a teacher at school teaches. Are the steps of the experiential process followed or some other method? Describe what you observe to your helper.

### More Challenges

Reprinted with permission of John Wiley & Sons, Inc. Pfeiffer, J.W., & Jones, J.E., "Reference Guide to Handbooks and Annals" © 1983 John Wiley & Sons, Inc.

3. Process  
The questions and discussion now become more focused on what was most important about the experience. Common themes that emerge from the sharing session are explored further. Often the key teaching points related to the subject matter are discussed.



5. Apply  
What was really learned and can the youth express how they can Or better yet, can they actually show that they have mastered a skill by performing another activity that requires the new skill to be used? Again the emphasis is placed on the life skill practiced rather than the subject matter skill.

4. Generalize  
In this step the discussion becomes more personal. So what? Is the question. What did the experience mean to me personally? To my everyday life? The subject matter alone could remain the focus of the discussion in all five steps of the model. However, because the major outcome is to help youth develop important life skills, a major part of the discussion is shifted on the life skill the youth practiced while doing the activity or experience. If the method employed required the youth to work in teams to complete the activity then questions about teamwork would be appropriate. If the methodology asks the youth to communicate then communications skills are discussed.

The experiential cycle is starting to make sense.

Apply what you learned

Where else could you use the experiential learning process to teach others?

Generate to your life  
When have you learned something by trying it first and then discussing what you did with someone?

### Process what's important

Why is it important for the learners to try to do something first before being told or shown how to do it?

- How did you feel using the experiential process?
- How did the learners respond to your teaching method?
- Did they learn from it?

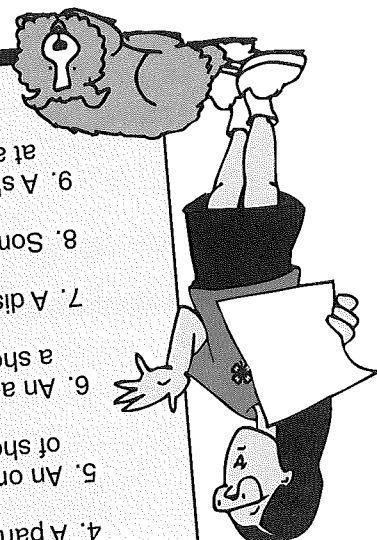
### Share with your helper

### Good Teaching

What is good teaching? First, good teaching depends on the learners as much as the teacher. Good teaching depends on what the learners already know (a teacher builds on that), what the learners want to know (a good teacher uses that to motivate the learners) and how they learn best. Second, people will remember more of what is taught to them if they are involved. This kind of teaching takes longer than lecturing, but it is usually worth it because the learners remember more.



### Talk It Over



This is a fun game to play with the whole family.

1. A term associated with wool
2. An occupation directly or indirectly related to sheep
3. A state that has sheep
4. A part of the body of sheep
5. An organ or other inside part of sheep
6. An activity in 4-H that you and a sheep can be a part of
7. A disease that sheep might have
8. Something a sheep eats
9. A sheep topic you might discuss at a project meeting
10. A leadership skill you might gain through involvement in a 4-H sheep project
11. A country that has a large number of sheep
12. A breed of sheep
13. A product or by-product of sheep
14. A piece of equipment you might use with sheep
15. (Add your own)

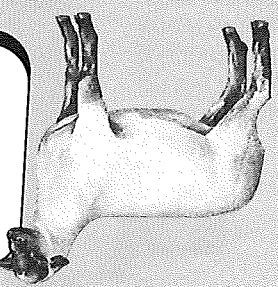
Game Starters

Your Challenge

With your family or a group of friends who are interested in sheep, organize a game of ABC's of Sheep. You'll need at least 15 questions related to sheep; some examples are shown. Form pairs for more fun and interaction. The goal of the game is to see if a pair can think of an answer that no other pair (or individual) can. Each pair with a unique answer awards themselves two points. One point is received for an answer that some other pair also has. If a pair has different answers for each of the questions, they have 30 total points.

ABC's of Sheep

Playing games is a fun way to learn. They're a great opportunity to develop communication and leadership skills. Your friends and family will enjoy playing ABC's of sheep.



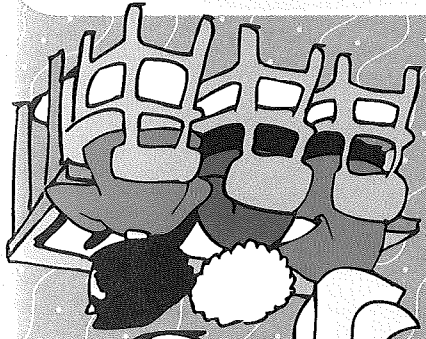
Sheep Project Skill: Learning about sheep  
 Life Skill: Developing leadership skills  
 Show of Success: Organizes and conducts an ABC's of Sheep game.

The first time through, answers to the questions may begin with any letter. Then name a letter that answers must begin with. More than one-word answers are okay as long as the first letter of each word is the same. Encourage learning by having everyone talk about the answers and ask questions about answers they don't understand. Keep the game fun.



1. Make up your own educational game and play it with a group.

More Challenges



Cabbage?

Corn?

Something a sheep eats starting with the letter C.



- Check the Sheep Helper's Guide for these other fun games your group can play:
- Sheep Skillathon
  - L-A-M-B-S Bingo
  - Sheep Quiz Bowl
  - Sheep Pyramid
  - Sheep Body Parts

More Fun Sheep Project Games



Apply what you learned  
How might having good leadership skills help you in school? On the job? In your family?

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What parts of your leadership style do you feel you would like to improve? Why?

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Generalize to your life  
What did you learn about getting others involved and having fun that you can use in the future?

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- Process what's important  
What personal life skills do you feel the players practiced while playing the game?
- How did you organize the game?
  - How did you feel providing leadership to the game?
  - What did the participants learn?

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Share with your helper

Talk It Over



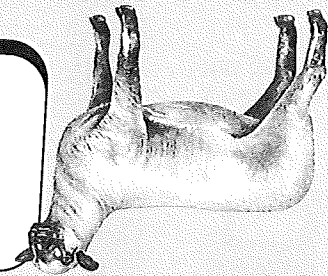
Career Interview Summary			
Interviews	1	2	3
Type of career			
Person interviewed			
Education/training needed			
Positive aspects			
Negative aspects			
Approximate yearly income			
Possible future changes in career			
How career would fit you			

### Your Challenge

Interview three people who are involved in agriculture-related careers that most interest you. Record your findings below.

Finding a career that will allow you to do what you really enjoy doing each day is a goal worth pursuing. Whether you will find the career you desire will depend on you and your willingness to prepare yourself. In this activity you'll explore possible careers that relate to your interest in sheep and agriculture.

## Dyed in the Wool



**Sheep Project Skill:** Exploring agricultural careers  
**Life Skill:** Communicating with others  
**Show of Success:** Interviews three people about their careers.

Why do you enjoy being a bank loan officer for farmers?

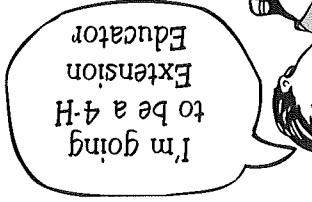


# Careers in Animal Agriculture



By majoring in animal sciences, you can prepare yourself for one or more of the many careers related to animal agriculture. Rewarding career opportunities are available in business, industry, government, education and research.

- Types of Employers**
- Animal health firms
  - Animal health firms
  - Breeding firms
  - Commercial feedlots
  - Commercial banks
  - Community colleges
  - Companion animal industry
  - Farm organizations
  - Federal and state government
  - Feed companies
  - Food/meat processing companies
  - Grain companies
  - Livestock equipment companies
  - Livestock publications
  - Marketing/commission firms
  - Purebred breed associations
  - Poultry processors
  - Private research firms
  - Racetracks
  - Radio/TV stations
  - Riding stables
  - Self-employed
  - Stockyard companies
  - Veterinary supplies
  - Zoos
- Types of Employers**
- Advertising Executive
  - Agriculture Engineer
  - Agriculture Journalist
  - Artificial Inseminator
  - Animal Health Product Salesperson
  - Banker
  - Consultant
  - Dairy Equipment Specialist
  - Extension Educator
  - Feed Lot Operator
  - Farm Manager
  - Financial Analyst
  - Financial Representative
  - Food Service Manager
  - Geneticist
  - Lawyer
  - Livestock Breeder
  - Livestock Buyer
  - Livestock Marketing Specialist
  - Livestock Procurer
  - Livestock Equipment Sales Manager
  - Livestock Insurance Representative
  - Meat Cutter
  - Mechanic
  - Meat Grader
  - Market Forecaster
  - Nutritionist
  - Packer
  - Researcher
  - Retailer
  - Salesperson
  - Teacher
  - Trucker
  - Veterinarian
  - Vocational Instructor
  - Agriculture Instructor



Check the American Society of Animal Science web site [www.asas.org](http://www.asas.org) for additional career opportunities.

## Talk It Over

*Share with your helper*

- What careers did you explore?
- What questions did you ask?
- What did you like and dislike about the careers?
- What career would most allow you to use your skills?
- How might your interest in sheep help you get a job in the future?

*Process what's important*

What did you learn from the interviews that was most important to you?

\_\_\_\_\_

\_\_\_\_\_

*Generate to your life*

Why is it necessary to take personal responsibility to plan for a career you want?

\_\_\_\_\_

\_\_\_\_\_

*Apply what you learned*

What can you start doing today to have the career you want?

\_\_\_\_\_

\_\_\_\_\_

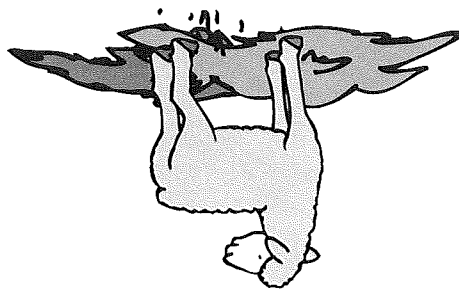
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1. Meet with a school guidance counselor about training needed for careers in which you are interested. Discuss a possible educational plan with your family.
2. Write a job description for a possible career in the sheep industry ten years from now. Include position title, responsibilities, benefits, training required, etc. Share this with your helper or family.
3. Shadow a person for an entire day who is doing what you think you would enjoy doing. Write a short report about your experience and share it with your helper.

I plan to be a geneticist.





# Sheep Talk 3

This is the third of three Sheep Talk glossaries for you to use to increase your "sheep" vocabulary. See how many of these words your family knows.

T

**Environment** - All the external factors within which an animal's genotype acts to determine the animal's phenotypic traits.

**Estrous cycle** - The time from one estrus (heat) to the next, about 17 days in ewes.

**Estrus** - Also known as "heat," the period of time when the female will allow the male to breed her.

E

**Fabrication** - The process of cutting lamb carcasses into wholesale cuts in the meat processing plant.

**Fecundity** - Ability to produce many offspring.

**Fever** - A body temperature above normal for the species.

**Fiber** - A single piece of wool.

**Fleece** - The wool from one sheep.

**Fleece weight** - Weight of shorn wool from one animal.

F

**Flock expected progeny difference** - (FEPD) An estimate of how much better (or poorer) an individual's offspring will perform compared to the average of the flock.

**Flushing** - The practice of feeding and managing the ewes so that they are gaining weight when the breeding season begins.

**Antibody** - A substance that helps fight disease. Colostrum is high in antibodies.

**Apparel wools** - All wools that are manufactured into cloth for use as clothing.

A

**Carrier** - Animal that does not exhibit a trait but carries the gene for it.

**Chromosomes** - DNA molecules are organized into pairs that make up the nucleus of every cell. Each individual has the exact same set of chromosomes in every cell. Sheep have 54 chromosomes (27 pairs).

C

**Clean fleece weight** - Weight of fleece after it has been washed and scoured.

**Clean price** - Price paid per pound of clean wool.

**Combined selection** - Selection based on an individual's breeding value which was estimated by combining all performance information for selected and correlated traits.

**Crimp** - The natural waviness of a piece of wool.

**Crochling** - Trimming the wool on a sheep's crotch.

**Cryptorchid** - A lamb with one or more of its testicles retained in the abdominal cavity.

D

**Dominant** - A gene which, when paired with another gene that determines that certain characteristic, covers up the phenotypic expression of that gene.

**DNA** - (deoxyribonucleic acid) Genetic material that controls how animals look and perform. DNA molecules are organized into pairs of chromosomes.

**Dressing percent** - The carcass weight as a percentage of live weight.

**Breeding soundness examination (BSE)** A physical examination of a ram used to determine if he is capable of getting ewes pregnant.

**Blood System** - American wool grades based on the degree of fineness of wool, measured as low 1/4, 1/4, 3/8 and 1/2 blood and fine wool.

**Bloat** - An abnormal buildup of gas in the rumen.

B

**Carrier** - Animal that does not exhibit a trait but carries the gene for it.

**Chromosomes** - DNA molecules are organized into pairs that make up the nucleus of every cell. Each individual has the exact same set of chromosomes in every cell. Sheep have 54 chromosomes (27 pairs).

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**DNA** - (deoxyribonucleic acid) Genetic material that controls how animals look and perform. DNA molecules are organized into pairs of chromosomes.

**Dressing percent** - The carcass weight as a percentage of live weight.

**Scales** - Layer of cells that protect wool fiber.

**Scouring** - Process by which grease (lanolin) and dirt are removed from wool.

**Scrotal circumference** - The distance around both of a ram's testicles, measured at the widest part of his scrotum.

**Selection** - The act of determining which individuals will be allowed to mate to produce the next generation.

**Settled** - Indicates that an animal has become pregnant.

**Short day breeder** - An animal like a sheep that begins its breeding season as the days get shorter.

**Sperm** - A highly specialized cell produced in the testes that fertilizes the ovum and starts the formation of a fetus.

**Staple length** - Length of the wool fiber in the fleece.

**Testes** - The primary sex organ of the male that produces sperm and the male sex hormones.

**Tissue** - Groups of cells working together to carry out a common function such as muscle tissue, connective tissue and epithelial tissue.

**Total ewe productivity** - Pounds of lamb weaned per pound of ewe exposed.

**Uterus** - The organ in a female animal body where young are carried before birth.

**Wool yield** - Pounds of clean wool as a percentage of pounds of grease wool.

**Woolen** - Process used to manufacture softer types of clothes and yarns.

**Worsted** - Process used to manufacture men's suits.

**Yolk** - The natural grease covering on the wool fibers of the unscoured fleece.

**Natural selection** - Survival of the fittest; allows sheep that are best adapted to their environment to survive and produce the largest number of offspring.

**Open** - When a ewe is not pregnant.

**Outbreeding** - Mating of individuals less closely related than the average of the breed.

**Out-of-season breeding** - The practice of breeding ewes in spring.

**Ovary** - Primary female sex organ that produces ovum and secretes female sex hormones.

**Ovulation** - Release of an egg (ovum) from the ovary.

**Ovum** - Highly specialized cell produced in the ovary that provides 1/2 the genetic basis of an animal.

**Oxytocin** - The hormone that controls milk letdown.

**Phenotype** - The characteristics of an animal that can be seen or measured.

**Prolificacy** - Reproductive performance measured by number of lambs born per ewe lambing.

**Prepotency** - The ability of an individual to transmit its own qualities to its offspring.

**Price spread** - The difference between the farm price and the retail price.

**Quarantine** - The separation of a diseased or exposed animal from other animals in order to prevent the spread of a contagious disease.

**Gene** - Found in pairs in chromosomes, directs the production of enzymes and proteins which influence development, performance and appearance of an animal.

**Genotype** - Genetic composition of an individual or a listing on an animal's genes.

**Gestation** - Pregnancy; the period of development of a fetus between fertilization and birth.

**Grease fleece weight** - Weight of fleece after it has been shorn and prior to washing and scouring.

**Grease price** - Price paid per pound of grease wool.

**Grease wool** - Shorn wool that has not been washed.

**Heritability** - The likelihood of certain traits being passed genetically to future offspring.

**Heredity** - The transmission of genetic material from one generation of animals to the next.

**Heterosis** - (hybrid vigor) The superiority of a crossbred individual relative to the average performance of the parent purebreds included in the cross. Crossbred individuals tend to be more vigorous, fertile and grow faster than the average of purebreds that make up the cross.

**Inbreeding** - Mating of individuals more closely related than the average of the breed (e.g., mating of a ram and ewe related by having one or more ancestors in common).

**Lanolin** - Refined wool grease.

**Lethal defect** - Animal dies because of the genes it inherited.

**Line breeding** - Use of close relatives such as sons and grandsons in a breeding program to retain merits of an individual ancestor.

# Sheep Resources

The following are examples of resources to help you complete the activities and learn more about this exciting project. The Extension Service does not endorse any non-extension resources or web sites.

- 4-H Sheep Internet Site**  
<http://members.aol.com/culhambs/>  
 heepweb.htm
- Sheep on the Web**  
<http://members.aol.com/culhambs/>
- Sheep Publications**  
 National 4-H Curriculum  
 Materials  
 BU-06367  
 Sheep 1 Rams, Lambs and You  
 BU-06368  
 Sheep 2 Shear Delight  
 BU-06369  
 Sheep 3 Leading the Flock  
 BU-06370  
 Sheep Helpers' Guide  
 BU-07514 Lamb and Kid Pattern
- Books**  
*Beginning Shepherd's Manual*  
 Barbara Smith et al.  
 Paperback—160 pages 2nd  
 edition (January 1997)  
 Iowa State University Press;  
 ISBN: 081382799X  
*Raising Sheep the Modern Way*  
 by Paula Simmons  
 Storey Communications, Inc.  
 Pownal, VT 05261  
*Sheep & Goat Science*  
 M.E. Ensminger  
 Interstate Printers & Pub.  
 ISBN: 0813431166  
*Sheep Production Handbook*  
 Sheep Industry Development  
 Program, Inc.  
 Rt 1, Box 100  
 Clarks Hill, IN 47930-9726  
 765-523-2767  
<http://members.aol.com/culhamell/bchevoits.htm>
- Breeds and Breed Associations**  
<http://www.ansl.okstate.edu/BREED/S/SHEEP/>
- Am Cheviot Sheep Society**  
 Rt 1, Box 100  
 Clarks Hill, IN 47930-9726  
 765-523-2767  
<http://members.aol.com/culhamell/bchevoits.htm>
- Columbia Sheep Breeders**  
 PO Box 272  
 Upper Sandusky, OH 43351-0000  
 740-482-2748
- Am Corriedale Assn**  
 PO Box 391  
 Clay City, IL 62824-0391  
 618-676-1046
- Am & Delaine Merino Record Assn**  
 1026 CR 1175  
 Ashland, OH 44805-9523  
 419-281-5786
- Am Hampshire Sheep Assn**  
 1557 173rd Ave # 8  
 Milo, IA 50166-9667  
 515-942-6402
- Sheep Associations**  
 Am Sheep Industry Association  
 6911 South Yosemite Street,  
 Suite 200  
 Englewood, CO 80112-1414  
 303-771-3500 ext. 46  
[www.sheepusa.org](http://www.sheepusa.org)  
 Sheep Breeds  
 Sheep Breed Associations  
 Industry Efforts  
 Product Information  
 Make It Yourself with Wool  
 Contest  
 Sheep Diseases  
 Wool Production  
 Lamb and Wool Marketing  
 Financial Budgets
- National Lamb Feeders Association**  
[www.wlcs.com/~nlfa-sheep/](http://www.wlcs.com/~nlfa-sheep/)
- National Meat Association**  
[www.naonline.org/links.htm](http://www.naonline.org/links.htm)
- National Sheep Improvement Program**  
[www.nsip.org/](http://www.nsip.org/)
- Government**  
**USDA National Sheep Database Project**  
[www.reusda.gov/agvys/ladds/lives/tok/sheep/nsd.htm](http://www.reusda.gov/agvys/ladds/lives/tok/sheep/nsd.htm)
- University and Cooperative Extension Service Sites**  
**Cooperative Extension Service**  
**Sheep Links**  
<http://www.msue.msu.edu/lac/agnci/cigrntst/animshsee.htm>
- Cornell University Sheep Program**  
<http://www.ansci.cornell.edu/sheep/sheep.htm>
- Michigan State University Sheep Extension Programs**  
<http://www.canr.msu.edu/dept/ans/sheexi.htm>
- Oklahoma State University Virtual Livestock Library - Sheep**  
<http://www.ansl.okstate.edu/LIBRARY/sheep.htm>
- Purdue University Extension Sheep Publications**  
<http://ag.ansc.purdue.edu/sheep/>  
<http://www.agcom.purdue.edu/AG>
- Am N Country Cheviot Sheep Assn**  
 8708 S CR 500 W  
 Reesville, IN 46171-0000  
 765-672-8205 H  
 yuccaff@crtc.com
- Am Rambouillet Breeders Assn**  
 2709 Sherwood Wy  
 San Angelo, TX 76901  
 915-947-3660
- Am Shropshire Reg Assn**  
 24905 Streit Rd, PO Box 635  
 Harvard, IL 60033-0635  
 815-943-2034
- Am Southdown Breeders Assn**  
 HC 13, Box 220  
 Fredonia, TX 76842-9702  
 915-429-6226  
 southdown@cresc.net
- Natl Suffolk Sheep Assn**  
 1120 Wilkes Blvd  
 Columbia, MO 65201-7605  
 573-442-4103  
[www.dkiostra@socket.net](http://www.dkiostra@socket.net)
- United Suffolk Sheep Assn**  
 17 W Main, PO Box 256  
 Newton, UT 84327-0256  
 435-563-6105 H  
 435-563-9356 F  
[www.u-s-s-a.org](http://www.u-s-s-a.org)
- Quality Assurance**  
**Western Fairs Association**  
**Livestock Quality Assurance Pages**  
[www.fairsnet.org/quality/index.htm](http://www.fairsnet.org/quality/index.htm)
- Marketing**  
 Lamb Markets  
[www.mtsheep.org/lamb.htm](http://www.mtsheep.org/lamb.htm)
- Wool**  
**Montana Wool Growers Association**  
[www.mtsheep.org/](http://www.mtsheep.org/)
- Wool.com (Australia)**  
[www.wool.com.au/](http://www.wool.com.au/)
- Woolmark (US)**  
<http://www.woolmark.com>
- Wool WWW Virtual Library**  
 (Australia)  
[www.dpie.gov.au/agfor/wool/vl/sho](http://www.dpie.gov.au/agfor/wool/vl/sho)
- Feeds and Feeding**  
**Feeding Sheep**  
<http://www.ext.vt.edu/pubs/sheep/410-853/410-853.html>
- Feeding the Ewe Flock**  
<http://ag.ansc.purdue.edu/sheep/articles/FEEDING.html>
- Nutrient Requirements of Sheep**  
<http://asnet.tamu.edu/www/kids/sheep.htm>
- Texas A&M University Extension Sheep & Goat Publications**  
<http://agpublitions.tamu.edu/pub/seanim/#SHEEPGOATS>
- Texas A & M University Extension Sheep Publications**  
<http://mcdowell.ces.state.nc.us/stat/indexca/pages/>  
 sheep&goats.shtml
- Utah State University 4-H Cyber Livestock Judging**  
<http://lathresearch.usu.edu/boxelder/xt/4-hcyberjdg/cyberjg.htm>
- Quality Assurance**  
**Western Fairs Association**  
**Livestock Quality Assurance Pages**  
[www.fairsnet.org/quality/index.htm](http://www.fairsnet.org/quality/index.htm)
- Marketing**  
 Lamb Markets  
[www.mtsheep.org/lamb.htm](http://www.mtsheep.org/lamb.htm)
- Wool**  
**Montana Wool Growers Association**  
[www.mtsheep.org/](http://www.mtsheep.org/)
- Wool.com (Australia)**  
[www.wool.com.au/](http://www.wool.com.au/)
- Woolmark (US)**  
<http://www.woolmark.com>
- Wool WWW Virtual Library**  
 (Australia)  
[www.dpie.gov.au/agfor/wool/vl/sho](http://www.dpie.gov.au/agfor/wool/vl/sho)
- Feeds and Feeding**  
**Feeding Sheep**  
<http://www.ext.vt.edu/pubs/sheep/410-853/410-853.html>
- Feeding the Ewe Flock**  
<http://ag.ansc.purdue.edu/sheep/articles/FEEDING.html>
- Nutrient Requirements of Sheep**  
<http://asnet.tamu.edu/www/kids/sheep.htm>

Find more about Sheep  
and other projects online at:

Discover over 180 National 4-H Curriculum titles in mission areas of Science, Engineering, and Technology; Healthy Living; and Citizenship. Youth activity guides are filled with fun, engaging experiences that cultivate abilities youth need for everyday living as they progressively gain knowledge about subjects that interest them.

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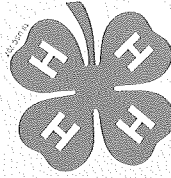
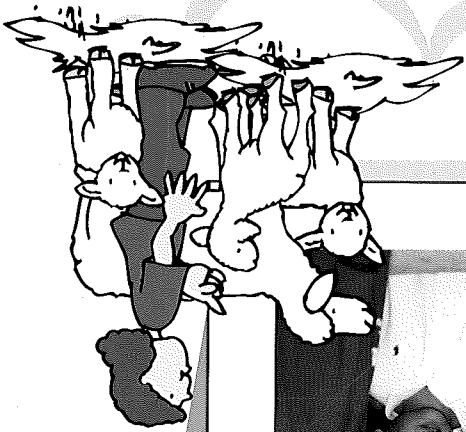
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- Get in the Act!

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- Experiential Learning Video

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my Heart to greater loyalty,  
my Hands to larger service, and  
my Health to better living,  
for my club, my community,  
for my country, and my world.