

S H E E P : *From the Animal's Point of View*

2

SUBJECT OVERVIEW AND
BACKGROUND INFORMATION

Sheep roamed freely until they were domesticated in central Asia around 10,000 B.C. The main products they supply for humans are meat, wool, and milk. Sheep are among the most versatile of animals and are capable of living in many different climates. They are known to survive in the harsh elements of the earth's poles, in rainforests, and in arid conditions found in deserts. Like many **ruminants**, sheep like to forage; they spend approximately 8 to 12 hours grazing every day. When grazing, they may travel several kilometers per day.

Humans control the food supply, breeding, and territory of domesticated sheep. There are two sets of practices associated with raising sheep: the **Extensive System** and the **Intensive System**. The Extensive System is a closer approximation of the habitat of wild sheep and involves raising flocks on large sections of land and allowing the sheep to graze with relative freedom. In the United States, approximately 6 million sheep are raised this way. The Intensive System involves confining the sheep to a smaller area of land and exercising greater control over their feeding.

Sheep Housing:

Designing a Sheep Habitat



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Concepts and Vocabulary

- **Environmental needs of humans and sheep:** The things that both humans and sheep need in their home or living area to help them survive and live comfortably.
- **Extensive system:** A system that does not constrain animals and allows them to perform their natural foraging behavior.
- **Intensive system:** A system that confines animals to a smaller area of land and places more controls on their feeding.

Life Skills

Communication, decision making, empathy, keeping records, planning/organizing, teamwork, wise use of resources

Subject Links

Science, Language Arts, Math

Overview of Activities

All animals have similar needs, such as food, water, shelter, and space. As an introduction to discovering the needs of

sheep, the first activity will help youth discover what their own needs are by thinking about their homes and exploring what they themselves need to live. Then they will use this information as a reference to help them decide what they think sheep might need.

In the next activity, the youth will be given a set budget to cover the cost of the items they will need to establish a home for their sheep. They will go on an imaginary shopping trip for the items they need to build and furnish their sheep's home, making purchase decisions based upon their budget.

The environmental needs of a sheep do not remain constant; they change depending on ecological factors and geographical locations. The youth will be given various scenarios that will require them to adjust their sheep's environment.

Finally, to apply their newly gained knowledge, the youth will use the shopping list from the activity to budget for the materials needed to create and maintain an environment suitable for their sheep.

REFERENCES

- Embar, W. 2007. Sheep. Vegan peace. www.veganpeace.com/animal_facts/Sheep.htm.
- Grandin, T. 1993. Livestock handling and transport, 2nd ed. Wallingford, UK: CAB International.
- Keller, C. 2008. History of sheep and history of the different sheep breeds. Daneke Club Lambs and Livestock website. www.danekeclublambs.com/HistoryofSheepandBreeds.html.
- Kiddyhouse.com. 2009. All about sheep for kids. www.kiddyhouse.com/Farm/Sheep/sheep.html.

FACTS ABOUT SHEEP

SHEEP HOUSING

When selecting or designing housing for sheep, it is important to keep their natural behaviors in mind. Sheep are easily stressed, so it is important that their environment be carefully designed with that in mind.

Social Groupings

Sheep are extremely gregarious animals—that means they like to stick together in groups—so it is very important to house them in a flock or social group. Keeping sheep in a flock minimizes stress and helps maintain order.

Sheep develop leader-follower relationships within their social group. All followers will go behind the leader when moving from place to place. If you change the social group by removing or replacing an adult group member the follower-leader relationships may be disrupted and fighting may result, so it is important to avoid changing social groupings as much as possible.

Enclosures

Sheep do best in a natural outdoor enclosure with available pasture. An example would be a grass-covered paddock. The floor area should be large enough to allow sheep to maintain their space from each other to minimize conflict and to allow young sheep to perform natural play behavior. Feeding troughs should be shallow enough to allow sheep to maintain eye contact with each other. The trough should be long enough to allow all sheep to feed at the same time.

If the sheep are housed indoors in stalls or crates, their individual enclosures should be no less than 2 meters x 1 meter. This will give the sheep enough space to turn around and take a few steps in one direction. Enclosures should also be big enough to allow young animals to perform natural play behavior. Bedding should consist of a 15 cm layer of straw or coarse sawdust mixed with wood shavings.

Stress

Novelty creates stress for the sheep; they are afraid of new stimuli or environments. However, there are ways to reduce this stress and create a more tranquil environment. If you have only one person who handles and takes care of the sheep, that will decrease their stress level. When handling the sheep, you need to be patient and gentle, giving the sheep time to familiarize themselves with their caretaker. This also lays the groundwork for easier handling in the future.

During routine handling procedures, it is important to maintain the leader-follower order. Forcing sheep to move in a manner contrary to this will cause stress, so always use the lead sheep to help move other sheep to a desired area.

REFERENCES

Information contained in this section is attributed to the following article:

Reinhardt, V., and A. Reinhardt. 2009. Comfortable quarters for sheep in research institutions. Animal Welfare Institute. Washington, D.C. www.awionline.org/pubs/cq/sheep.html.

ACTIVITY 1

My Home, a Sheep's Home

BACKGROUND INFORMATION

There are certain things in our environment that are essential—such as food, water, and shelter—without which we cannot survive, and there are other things that we do not need, but that enrich our lives, such as books, music, and play structures. When we compare humans and sheep, we can see many similarities and differences relating to what each species finds is essential and what each finds is supplementary.

Time Required

40 minutes

Concepts and Vocabulary

Environmental needs of humans and sheep

Life Skills

Communication, decision making, empathy, organizing

Subject Links

Science, Language Arts

State Content Standards

Science

- Sixth Grade:
 - » Investigation and Experimentation – 7d

Language Arts

- Third Grade:
 - » Listening and Speaking Strategies – 1.5
- Fourth Grade:
 - » Listening and Speaking Strategies – 1.1, 1.8, 2.2b

- Fifth Grade:
 - » Listening and Speaking Strategies – 1.5

Suggested Grouping

Groups of 3-4

Materials Needed for each Group

- Flip chart paper
- Writing instruments (pencils, pens, markers)

Getting Ready

- Divide the youth into groups of the desired size.
- Distribute the materials.

OPENING QUESTIONS

1. **Think about where you live. What are some things that you need in your home in order to survive? Please describe them. Record your ideas on the flip chart paper provided or explain your thoughts verbally.**
2. **What are some things in your home that improve the quality of your life? Record your ideas on the flip chart paper provided or explain your thoughts verbally.**
3. **What are some things in your home that are really important to you? Why are these things your favorites? Record your ideas on the flip chart paper provided or explain your thoughts verbally.**

PROCEDURE (EXPERIENCING): PART I

1. Ask the youth to work together to make a list of things they need in their homes, including all of the things in their house or community that they need in order to live safely and comfortably and to be healthy.
2. Then have the youth organize these items into categories:
 - » Social needs (friends, family, teachers, etc.)
 - » Physical needs (shelter, safety, health, comfort, etc.)
 - » Behavioral needs (toys, activities, exercise, etc.)
 - » Other needs

SHARING, PROCESSING, AND GENERALIZING: PART I

Follow the lines of thinking developed through the general thoughts, observations, and questions raised by the youth; if necessary, use more targeted questions as prompts to get to particular points. Specific questions might include:

- **What is on your group's list, and how does it compare to other groups' lists?** Ask each group to share their list, explaining what they have described as their needs and how they chose to categorize these needs. Are there similarities between the lists? Differences? Please explain.

PROCEDURE (EXPERIENCING): PART II

1. On another sheet of flip chart paper, have the youth list all the things they think a sheep needs.
 - » **Volunteer Note:** Remind them to think of their own needs.
2. Then have the youth organize these items into categories:
 - » Physical needs (shelter, safety, health, comfort, etc.)
 - » Social needs (friends, family, teachers, etc.)
 - » Behavioral needs (toys, activities, exercise, etc.)
 - » Other needs

SHARING, PROCESSING, AND GENERALIZING: PART II

Follow the lines of thinking developed through the general thoughts, observations, and questions raised by the youth; if necessary, use more targeted questions as prompts to get to particular points. Specific questions might include:

1. **What is on your group's list, and how does it compare to other groups' lists?** Ask each group to share their list, explaining what they have described as a sheep's needs and how they chose to categorize these needs. Are there similarities between the lists? Differences? Please explain.
2. **Have your group compare and contrast their lists of human needs and their lists of sheep needs. How are the needs of humans similar to or different from the needs of sheep?**

CONCEPTS AND TERMS

At this point, volunteers need to make sure that the concept of **environmental needs of humans and sheep** has been introduced to or discovered by the youth. (**Note:** The goal is to get the youth to develop concepts like this through their exploration and to have them define terms using their own words.) Youth should also note that there are different types of needs, including physical, social, and behavioral needs.

CONCEPT APPLICATION

1. Ask the youth to observe and compare different types of homes in their community. Some people live in single-standing homes, some people live in duplexes or townhouses, and other people live in apartments. How are these homes similar? How are they different?
2. Ask the youth to observe the homes of wild animals and compare them to those of domesticated animals. How does each type of animal meet its needs?

REFERENCE

Reinhardt, V., and A. Reinhardt. 2009. Comfortable quarters for sheep in research institutions. Animal Welfare Institute. Washington, D.C. www.awionline.org/pubs/cq/sheep.html.

ACTIVITY 2

Designing a Sheep's Environment

BACKGROUND INFORMATION

In the wild, sheep roam when they graze, sometimes traveling several kilometers each day as they forage for food! Some domesticated flocks have large areas of land (**extensive systems**) where they can graze freely and their environmental needs are met in a way similar to the life of their wild relatives. Others are raised in smaller areas (**intensive systems**) and their environmental needs must be met in different ways.

Time Required

1 hour

Concepts and Vocabulary

Environmental needs of sheep, Extensive System, Intensive System

Life Skills

Communication, decision making, empathy, keeping records, planning/organizing, teamwork, wise use of resources

Subject Links

Science, Language Arts, Math

State Content Standards:

Science

- Third Grade:
 - » Investigation and Experimentation–5e
- Fourth Grade:
 - » Investigation and Experimentation–6f

Language Arts

- Third Grade
 - » Listening and Speaking Strategies–1.8
- Fourth Grade:
 - » Listening and Speaking Strategies–1.1, 1.8
- Fifth Grade:
 - » Listening and Speaking Strategies–1.3

Math

- Third Grade:
 - » Number Sense–2.1, 2.7, 2.8, 3.3
 - » Mathematical Reasoning–3.3
- Fourth Grade:
 - » Number Sense - 2.1
 - » Mathematical Reasoning - 3.3
- Fifth Grade:
 - » Number Sense–2.1
 - » Mathematical Reasoning–3.3
- Sixth Grade:
 - » Mathematical Reasoning–3.3

Suggested Grouping

Groups of 2 to 3

Materials Needed

(*= Materials provided in curriculum)

- *Sheep Housing Item Price Lists
- *Shopping List
- Flip chart or other large paper
- Notebook paper
- Pencils
- Paper
- Crayons/markers
- Scissors
- Stapler
- Calculators

Getting Ready

- Set up a “store” where the youth can go shopping. Make twice as many *Sheep Housing Item Price Lists* as you have groups. Cut out each item in the lists, gather identical items into stacks, and staple each stack together. Arrange the items from each category (bedding, water and feed containers, housing, fencing, miscellaneous) on different tables so the youth can visit each store separately.
- Make enough *Shopping Lists* to give one to each group.
- Divide the youth into groups.

OPENING QUESTIONS

1. **What do you know about what a sheep needs in its home to live comfortably? Please explain. Record your ideas on the flip chart paper provided or explain your thoughts verbally.**

Types of responses to expect include

- › appropriate food
- › shelter from heat/cold
- › comfortable bedding
- › water
- › safety (no dangerous materials, safety from predators)
- › enough space to move around
- › appropriate lighting
- › clean floors with a non-slippery surface
- › fresh air
- › stable social group (minimum of one social companion)

2. **What do you think are some extra things that might make the quality of a sheep's life better? Please explain your thoughts verbally and/or record your ideas on the flip chart paper provided.**

Types of responses to expect include

- › toys
- › multiple social companions
- › variety of feed types
- › climbing structures
- › tunnels or other hiding spaces

- » **Volunteer Tip:** If the youth are having trouble coming up with ideas for these questions, ask them to refer

back to their lists of their own needs for inspiration. For example, if toys were mentioned as one of their needs, ask them what purpose the toys served (fun, exercise, challenge, and keep from being bored). Explore how these same needs are also important for sheep. How can we address these needs? If family and friends were mentioned, ask what purpose the family and friends serve (comfort, fun, companionship, love, safety). Explore how these same needs are also important to sheep. Why might having the company of other sheep be an important need? What might be the problems associated with housing sheep alone (stress, fear, loneliness)?

PROCEDURE (EXPERIENCING)— BUDGETING AND SHOPPING

1. At this point, the youth are going to go “shopping” for the items they believe a sheep will need for its home.
2. Each group of youth will be given a different budget: \$600, \$700, \$800, \$900, or \$1,000.
3. The groups will then visit the “store” and select the items they feel will best meet the needs of their sheep while fitting within their budget. For each item chosen, the youth should record the cost and the reason they chose the item. Remind youth that they are shopping for the supplies they will need to house appropriately 2 sheep.
4. Finally, each group should create a drawing of the home they would create for their sheep using the materials they purchased from their shopping list.
 - » **Note:** The drawing should be large; use a piece of flip chart paper.

SHARING, PROCESSING, AND GENERALIZING

Once they have finished with their shopping and drawings, engage the youth in a discussion about the items they have chosen. Each group should share their drawings and describe the items they chose to purchase for their sheep. They should discuss why they chose those particular items and how they made choices that would fit within their budget. Compare the lists. How did the different groups' budgets affect their choices?

CLOSING QUESTIONS

1. **What are some things you learned about the environmental needs of sheep and how you can help provide for them? Please explain.**
2. **How might cost affect your decisions when you are trying to house sheep appropriately? Please explain.**

CONCEPTS AND TERMS

At this point, volunteers need to make sure that the concepts and vocabulary of **environmental needs of sheep**, **extensive system**, and **intensive system** have been introduced or discovered by the youth. (**Note:** The goal is to get the youth to develop concepts like this through their exploration and to have them define terms using their own words.)

CONCEPT APPLICATION 1

The things needed in a person's home or an animal's home may change. The following scenarios represent situations that would require modifications to a sheep's environment. What would the animal's owner need to do to address these needs?

1. **Your ewe is pregnant. How will you change the environment to help prepare for lambing? Discuss and share your ideas.**
2. **The sheep do not get enough exercise. How will you change their environment to allow them to get more exercise? Discuss and share your ideas.**
3. **You moved to a place where it is very hot and dry most of the year. How will you make sure that your sheep are protected from the weather? Discuss and share your ideas.**
4. **You moved to a location where it is very cool and wet most of the year. How will you make sure that your sheep are protected from the weather? Discuss and share your ideas.**
5. **There are predators (e.g., wolves) that sometimes come into the backyard or pasture. How will you make sure that your sheep are safe? Discuss and share your ideas.**

CONCEPT APPLICATION 2

(For youth who have sheep)

Have the youth take home a copy of their completed shopping list. Ask youth to engage in a discussion with their family regarding the costs of creating and maintaining an appropriate environment for sheep. Youth who already have sheep at home should evaluate the current environment in which their sheep live and determine whether there are ways they could improve the environment. The youth should discuss these improvements and their costs with their family members.

CONCEPT APPLICATION 3

(For youth who are planning to obtain sheep)

Youth should take home a copy of their completed shopping list. Ask youth to engage in a discussion with their family regarding the costs of creating and maintaining an appropriate environment for sheep. Youth who are planning to obtain a sheep should work with their family members to create a budget and plan a shopping list for the items they will need to properly house their sheep.

CONCEPT APPLICATION 4

(For youth who do not have sheep and are not planning to obtain sheep)

Youth should think about any animal that they own or that someone they know owns. Then they should create a list of the environmental needs of that animal based on what they have learned about the environmental needs of sheep. Remind the youth that some of the needs will be similar to those of sheep and some will be different. Youth who have a pet at home should evaluate the current environment in which the pet lives and determine whether there are ways they could improve the environment. The youth should discuss these improvements and their costs with their family members.

REFERENCES

- Grandin, T. 1993. Livestock handling and transport, 2nd edition. Wallingford, UK: CAB International.
- Reinhardt, V., and A. Reinhardt. 2009. Comfortable quarters for sheep in research institutions. Animal Welfare Institute. Washington, D.C. www.awionline.org/pubs/cq02/Cq-sheep.html.

SHEEP HOUSING ITEM PRICE LISTS

(Note: The price for each item is an estimate, not its actual cost.) Each sheep requires a minimum area of about 1.5m².

FENCING

Two main types of fences:

- wood posts with wooden panels
- metal or wood posts with woven wire



FENCING AND FENCING SUPPLIES:

Wood fence with wood panels

- Wood fence with wood panels and gate: 8' x 8' = \$157.00
- Wood fence with wood panels and gate: 12' x 12' = \$241.00
- Wood fence with wood panels and gate: 18' x 18' = \$276.00
- Wood fence with wood panels and gate: 40' x 40' = \$490.00
- Wood fence with wood panels and gate: 80' x 80' = \$912.00

Wood posts with wire

- Wood posts with wire and gate: 8' x 8' = \$117.00
- Wood fence with wire and gate 12' x 12' = \$129.00
- Wood fence with wire and gate: 18' x 18' = \$141.00
- Wood fence with wire and gate: 40' x 40' = \$164.00
- Wood fence with wire and gate: 80' x 80' = \$224.00



Metal posts with wire

- Metal posts with wire and gate: 8' x 8' = \$115.00
- Metal posts with wire and gate: 12' x 12' = \$124.00
- Metal posts with wire and gate: 18' x 18' = \$133.00
- Metal posts with wire and gate: 40' x 40' = \$142.00
- Metal posts with wire and gate: 80' x 80' = \$177.00

HOUSING

Sheep hutch: \$362

- Protects from extreme weather
- Opaque material helps prevent overheating during the summer.
- Includes rear vent opening
- Includes feed door and ridge vents
- 84" x 60" x 52"
- 95 lb



Metal hut: \$950

- Metal roof with bare ground floor
- Accommodates a large number of sheep.



Carport: \$600

- Spacious area for many sheep
- Metal roof and bare ground floor
- Supported by wooden beams
- Provides shade against the sun



Rain shade:

- Provides shelter from the rain or heat
- 12' x 12'
- Without panels: \$699
- With panels: \$822



BEDDING

Wood shavings: \$8

- Small to medium flakes, not dusty
- Can be stored outside under a tarp
- 50 lb bag



Mixed shavings: \$5.85

- Screened, leaving only uniform-sized shavings
- 100% natural
- Virtually dust-free
- Soft and comfortable
- Made of fir and pine shavings
- 50 lb bag



Straw bedding: \$30 per week

- Absorbent and easy to maintain
- Cheap
- Warm



Rubber mats: \$39.99

- Great anti-fatigue mats
- Use in stalls and trailers
- Non-absorbent and easy to clean
- ½" x 4' x 6'



WATER AND FEED CONTAINERS

Rubber bucket

- Crack and crush resistant
- Flexible
- Long-lasting and durable
 - » 26 quart: \$9.95
 - » 42 quart: \$19.95



Plastic utility pan

- Can be used as a feeding/watering dish on the ground
- Tested to be stable and durable
 - » 5 quart: \$3.13
 - » 3 gallon: \$7.50



Plastic feeder pan:

- Can be used as a feeding/watering dish on the ground
- Impact resistant
- Tested to be stable and tough
 - » 10 quart: \$10.50



Plastic flat-back bucket:

- Can be used as a feeding/watering dish placed against a wall or fence
- Handle makes it easier to carry and hang
- Impact resistant
- Tested to be stable and durable
 - » 8 quart: \$6.95
 - » 12 quart: \$7.95
 - » 18 quart: \$9.95
 - » 20 quart: \$10.95



Hook-over portable feed pail: \$7.50

- For goats, sheep, horses, and llamas
- Hooks over 2' x 4' or 2' x 6' boards
- Can be permanently mounted with screws
- 8 quart



Hook-over portable feeder

- For sheep, goats, dogs, and horses
- Can be used for field, pasture, trailer, or stall
- Rounded corners for easy access
- Can hook over boards 2 inches wide
- Can permanently install into boards with screws.
 - » 12 quart: \$19.50
 - » 15 quart: \$23.50



Mini hook-over portable feeder: \$10.95

- Good for smaller breeds
- Easy to transport
- Hooks over fences
- 6 quarts



Portable feeder with divider: \$23.95

- Hooks to a variety of fence types: wire fences, pipe fences, and board fences
- Has adjustable steel brackets that fit most fence types
- Can hook onto wire fences with spring clips (not included)



Steel automatic waterer: \$33.95

- Ideal for horses, cattle, hogs, and dogs.
- Constant float-controlled water level
- Easy to use and clean
- Made of high-quality steel
- 8" across x 4½" deep



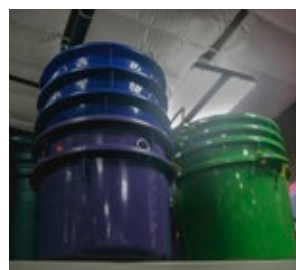
Hook-over corner feeder: \$18.95

- Used in corners
- Attach to fences with screws
- 26 quart



Multi-purpose buckets

- Used for multiple purposes (e.g., feed storage, waterer, feeder)
- Made of durable, sturdy plastic
- Short rope handles
 - » 8 quart: \$4.50
 - » 70 quart: \$20.50



Rubber ground feeders

- Placed on the ground
- Made of durable rubber
 - » 2 quart: \$3.95
 - » 4 quart: \$4.50
 - » 8 quart: \$6.50
 - » 3 gallon: \$9.50
 - » 6½ gallon with small handles: \$13.50
 - » 6½ gallon with metal hooks: \$17.50
 - » 15 gallon: \$26.50



Bucket:

- Multi-purpose
- Made of plastic
- Metal handle
 - » 8 quart: \$5.95
 - » 10 quart: \$7.95
 - » 12 quart: \$9.95
 - » 32 quart: \$19.95



Automatic waterer: \$32.95

- Install on a fence, wall, or corral
- Adjustable float maintenance for constant water supply
- Connects with ordinary ¾" garden hose
- Durable polyethylene and nylon construction
- 16 quart





Flat-back rubber feeder: \$17.95

- Made of durable rubber
- Metal handle can easily hook onto nails
- 20 quart



Water basin with hose: \$92.50

- Can be made to refill to a desired level automatically
- Contains non-siphon valve to adjust the water level
- Includes 6' hose
- 5 gallon



Heavy-duty outside feeder

- Made of long-lasting galvanized steel
- Sheep can feed from both sides
 - » 3' (up to 8 sheep): \$204.00
 - » 6' (up to 14 sheep): \$357.00



Over-the-fence feed trough

- Hooks onto fences
- Durable and sturdy
- Hangs on any wire or wooden fence
- Easy to clean
 - » 12" long x 9" wide x 6" high: \$22.95
 - » 36" long x 9" wide x 6" high: \$47.50



Over-the-fence-feeder

- Heavy-duty construction
- Can be hooked onto sturdy fences and corrals
- Resists cracking and weather damage
- Vented closure
 - » 20 gallon: \$47.95
 - » 50 gallon: \$52.00



MISCELLANEOUS SHEEP SUPPLIES

Sheep cover

- Made out of spandex
- Easy to clean and lasts through wear and tear.
- Comes in a variety of colors and designs.



Neck to Tail	Girth	Price
21" – 25"	24" – 29"	\$11.00
27"	31"	\$12.00
30"	34"	\$13.00
33"	36"	\$14.00
35"	38"	\$15.00
37"	40"	\$16.00
39"	42"	\$17.00
41"	45"	\$18.00
43"	47"	\$19.00
46"	49"	\$20.00
48"	51"	\$21.00
50"	53"	\$22.00

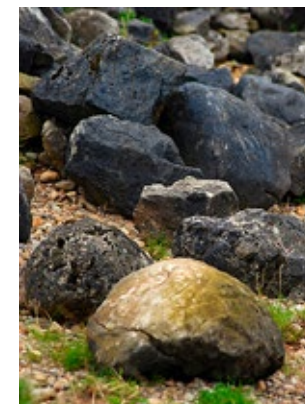
Halter

- ¾" nylon web
- Fits almost any sheep breed
- Adjustable sides
- Brass-plated hardware
 - » Regular halter: \$16.95
 - » Show Halter: \$20.50



Boulders: \$100

- Help create climbing areas for sheep



Heat lamp: \$8.45

- Insulated porcelain sockets
- Aluminum reflectors
- Flexible 6' cord
- Includes clamp



Salt lick: \$1.50

- 4 lb
- For cattle, sheep, and horses
- Convenient and easy due to small size



Heat lamp bulbs

- Produces heat rather than light
 - » Energy saver white lens infra, red 125 Watt: \$2.95
 - » Regular white lens infra, red 250 Watt: \$2.95
 - » Red lens infra, red 250 Watt: \$6.95



Sheep salt with selenium: \$14.20

- 50 lb
- Specially formulated to meet the needs of sheep
- Salt granules



Salt block holder: \$3.96

- Made of steel
- Durable and easy to mount
- Fits small salt blocks



Small feed scoop

- Used to pick up feed
- Made of plastic
 - » 2 pints: \$2.50
 - » 5 pints: \$4.50



STALL/CLEANING SUPPLIES

Fork

- Made of 100% polycarbonate, which provides strength and flexibility
- Weather resistant
- Lightweight
- Angled fork designed to easily pick up manure and prevent spillage
 - » No side panels (fork: 13 1/8" long x 15 1/8" wide): \$23.95
 - » With side panels:
 - › Small (Fork: 12 1/4" long x 11 1/2" wide): \$21.95
 - › Large (Fork: 13" long x 16" wide): \$29.95

Mineral and salt pan: \$ 10.50

- Holds salt licks and mineral blocks
- 10 quart
- Used on the ground



Steel feed scoop

- Used to pick up feed
- Made of galvanized steel
- Great for scooping grain
 - » 3 quart: \$8.95
 - » 4 quart: \$11.00
 - » 6 quart: \$13.50



Feed scoop: \$4.50

- Used for feed and supplements
- Made of durable plastic
- Enclosed for easy scooping
- Handle attached
- Measurements located inside for easy measuring
- Holds up to 3 quarts



Professional heavy-duty broom: \$34.50

- For contractors, landscape, and agriculture
- Durable and long lasting



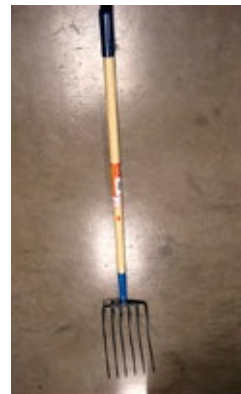
Janitor broom: \$11.50

- Handmade
- Bristles made of corn fibers
- Hardwood handle
- 5 rows of stitching



Hay fork

- Used to pick up hay and manure
 - » 5 prongs (longer): \$58.50
 - » 6 prongs (shorter): \$62.00



Scoop shovel

- Plastic shovel
 - » Large scoop/plastic handle: \$32.50
- Aluminum scoop
 - » Small scoop/short handle: \$31.95
 - » Large/long handle: \$34.95



Dust pan: \$12.50

- Handle attached for easy trash pickup
- Opening closes when hung to trap trash



Steel trash can: \$26.95

- Holds up to 30 gallons
- Made of galvanized steel with zinc coating
- Can be used to storage or trash



REFERENCES FOR SHOPPING LIST

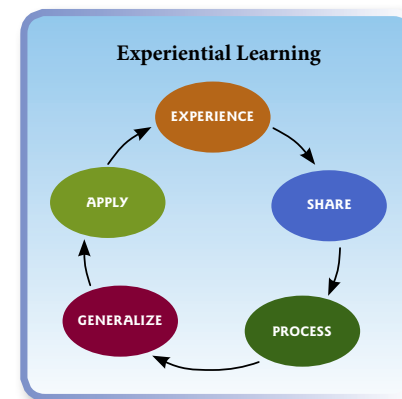
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Ma, J. 2009. Pictures courtesy of Higby's Country Feed Store in Dixon, California.

APPENDIX

The activities in this curriculum are designed around inquiry and experiential learning. Inquiry is a learner-centered approach in which individuals are problem solvers investigating questions through active engagement, observing and manipulating objects and phenomena, and acquiring or discovering knowledge.

Experiential learning (EL) is a foundational educational strategy used in 4-H. In it, the learner has an experience phase of engagement in an activity, a reflection phase in which observations and reactions are shared and discussed, and an application phase in which new knowledge and skills are applied to a real-life setting. In 4-H, an EL model that uses a 5-step learning cycle is most commonly used. These five steps—Exploration, Sharing, Processing, Generalizing, and Application—are part of a recurring process that helps build learner understanding over time.



For more information on inquiry, EL and the 5-step learning cycle, please visit the University of California's Science, Technology, Environmental Literacy Workgroup's Experiential Learning Web site, www.experientiallearning.ucdavis.edu/default.shtml.

GLOSSARY

- **Balanced diet:** Eating the right types of food in the right amounts to maintain a healthy body.
- **Basic nutrients:** Substances that help maintain a healthy body. These include carbohydrates, proteins, vitamins, and minerals.
- **Care:** Having concern for someone or something; tending to or overseeing a person or thing.
- **Direct contact:** Physical contact between an ill person or animal and a healthy person or animal.
- **Disease:** An abnormal condition that affects the normal function and health of an organism, decreasing the health of that organism.
- **Disease prevention:** Taking the necessary steps to prevent humans and/or animals from getting sick.
- **Disease transmission:** To transfer a disease from one person or animal to another.
- **Environmental needs of humans and sheep:** The things that both humans and sheep need in their home or living area to help them survive and live comfortably.
- **Essential nutrients:** Nutrients that humans and animals must have to live and function properly.
- **Extensive systems:** Systems that don't constrain animals and allow them to perform their natural foraging behavior.
- **Facial recognition:** Being able to identify and remember a face or several faces.
- **Flight zone:** A buffer zone around an animal. Animals will move away from anything they perceive as a threat if it intrudes within this buffer zone.
- **Flock (n)/Flocking (v):** A group of animals that stick and feed together.
- **Flocking instinct:** A natural instinct of a group of animals to stick together and follow the actions of the leader of the group.
- **Germs:** A microorganism that has the potential to cause diseases.
- **Health care monitoring:** Closely observing an animal's health, behavior and activity everyday to determine what is normal or abnormal about your animal.
- **Herding:** The act of gathering and keeping a group of animals together.
- **Herding strategies:** Different techniques that are used to gather and control a group of animals.
- **Illness:** Being unhealthy or in poor health.
- **Indirect contact:** When an uninfected person or animal touches the contaminated surface (e.g., table top) of an inanimate object (e.g., food dish).
- **Intensive systems:** Systems where animals are confined to a smaller area of land and where feeding is more controlled.
- **Life stages of sheep:** Sheep are categorized in different stages of development or life stages. Sheep at each life stage have different nutritional requirements to grow and stay healthy.
- **Predator:** Animals that hunt and eat other animals to survive.
- **Preventative health care:** The act of maintaining the health of humans and animals by preventing them from catching an illness or disease.
- **Prey:** Animals that are considered food to other animals.
- **Responsibility:** Being accountable for one's actions or behaviors.

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