



YOUTH DEVELOPMENT THROUGH VETERINARY SCIENCE 9

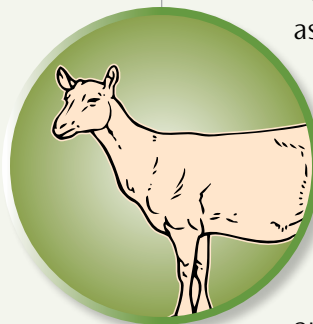
# Is Your Goat Feeling Green?

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## Subject Overview and Background Information

Prevention is the key in keeping a goat healthy. A goat needs the proper types and amounts of food, clean water, well-ventilated housing, exercise, attention, space, and necessary vaccinations. Like any other animal, the best way to help keep a goat healthy is to notice any signs of illness as early as possible. The sooner the goat gets the treatment it needs, the more likely it is to recover fully. Daily observations of your goat will help you detect any physical or behavioral changes that could be a sign of illness.

Goats are intelligent and curious animals that are often kept as pets. They have excellent balance, which enhances their already great climbing ability. They are adaptable to a variety of climates and can be found in most regions of the world. Goats are relatives of sheep and, like sheep, live in herds. Male goats are called **bucks**; females are called **does**; young goats are called **kids**. Goats are **ruminants**, meaning they have 4-chambered stomachs like cows. These chambers allow goats to regurgitate and then redigest their food.



Goats were domesticated around 8,000 years ago in the Middle East for their hair, meat, and milk. Back then, goat skin was also used for parchment (a material on which to write or paint) and wine containers. Today, goats are raised for many of the same reasons: hair, meat, and milk. Goat's milk is becoming popular because it is more easily digested than milk from a cow, and it is used to make several kinds of cheese, such as feta. Several breeds are raised specifically as milk goats, such as Saanens, LaMancha, and Alpine. Other goat breeds, such as the Boer, are bred specifically for their meat. Angora and Pygora goats are both raised for their hair, which is used to make mohair and cashmere sweaters, respectively. Goats are also used for weed control since they enjoy eating woody shrubs and weeds and have quite an ability to climb. Contrary to popular belief, goats will not eat anything and everything: they are actually quite particular eaters. However, be aware that although they are picky, they may eat plants that are poisonous to them. Common plants that cause problems include azaleas (*Rhododendron* spp.), wild mustard, acorns, wilted leaves of any stone fruit tree (like cherries and

peaches), and potato foliage. If you suspect that your goat has eaten any of these plants, make sure to get it medical attention right away.

Goats require energy, protein, vitamins, mineral, fiber, and water in their diets. A goat's specific nutritional requirements depend on its activity and environment. For example, lactating **does** and **kids** require more energy than those that are not lactating. In general, goats should consume at least 3 percent of their body weight in dry matter each day. Pasture and browse can meet the goat's need for dry matter, but they may not be available to all goat owners. Hay is another source of forage when grazing is not available. Make sure to feed fresh hay in order to avoid **mycotoxicosis** (mahy-koh-tok-si-koh-sis), a disease caused by poison found in moldy hay. Concentrates (grains) will often be a necessary part of a goat's diet since grain mixtures can be high in energy or protein. Vitamins and minerals, especially salt, calcium, and phosphorus, should be included in the goat's diet. And of course, goats need access to clean, fresh water all the time. Inadequacies in feed or water can cause health problems.

Since goats are **ruminants**, they are susceptible to digestive problems. The **rumen** (the main chamber of the that is used for digesting) contains **microbes**, microscopic organisms that help the goat digest food, and these **microbes** are very sensitive to sudden changes in pH (acidity). Any sudden changes in pH can cause **acidosis**, a common problem that occurs when feed is changed too suddenly. **Acidosis** can be deadly for a goat. The **microbes** cannot adapt quickly enough to the change in pH and may die off, disrupting the goat's digestion.

Goats may live in herds, but each still needs adequate personal space. Make sure that goats are not overcrowded, as this can spread many diseases, including pneumonia, goat pox, and mange. If goats are penned separately, each will need about 40 square feet of floor space. If they are housed in a group, a minimum of 20 square feet is required per goat. Besides having enough space, goats need to have housing that is well-ventilated but not drafty. Drafts make goats more susceptible to diseases.

## ◆ Activity Concepts and Vocabulary

- **Bacterial infection:** A disease caused by germs called bacteria.
- **Bacterium (bak-teer-ee-um):** An organism that cannot be seen with a naked eye. Some bacteria (germs) can cause diseases. Pneumonia, a disease that affects animals' lungs, can be caused by a bacterium.
- **Fungus (fuhng-guhs):** An organism (e.g., mold, yeast) that lives and feeds on organic material such as bread, wood, and other animals. A common fungus that affects animals is ringworm.
- **Inflammation (in-fluh-may-shuhn):** A local reaction of a tissue to irritation that causes pain and swelling.
- **Parasite (par-uh-site):** An organism (e.g., bacterium, worm, tick) that receives food and energy from another. A common parasite that affects animals is tapeworm.
- **Ruminant (roo-muh-nuhnt):** An animal that eats only vegetation and has a four-chambered stomach (consisting of a reticulum, rumen, omasum, and abomasums) for more efficient digestion of the plant material. The microbes in the rumen can break down cellulose in hay so that it can be used in the body. Nothing else but microbes can break down cellulose, so the ruminant can take advantage of an energy source not fully used by creatures with one stomach.
- **Veterinarian (vet-er-uh-nair-ee-uhn):** A doctor who takes care of animals.
- **Virus:** A type of germ that causes diseases. Rabies is a disease caused by a virus.
- **Zoonotic diseases (zoe-oh-nah-tick):** Any disease that affects an animal that can also be passed to humans.

## ◆ Life Skills

- **Head:** Keeping records, planning and organizing, problem solving, decision making, critical thinking
- **Heart:** sharing, communication, concern for others, empathy
- **Hands:** self-motivation, teamwork
- **Health:** Disease prevention, self responsibility, personal safety

## ◆ Subject Links

Science and Language Arts

## ◆ State Content Standards

### Science

- Third Grade
  - *Investigation and Experimentation: 5e*
- Fourth Grade
  - *Investigation and Experimentation: 6c*
- Fifth Grade
  - *Investigation and Experimentation: 6h, 6i*
- Sixth Grade
  - *Investigation and Experimentation: 7d*

### Language Arts

- Third Grade
  - *Reading Comprehension: 2.2, 2.6*
- Fourth Grade
  - *Reading Comprehension: 2.3*
  - *Listening and Speaking Strategies: 1.7*
- Fifth Grade
  - *Reading Comprehension: 2.3, 2.4*
  - *Listening and Speaking Strategies: 1.5*
- Sixth Grade:
  - *Listening and Speaking Strategies: 1.5*
  - *Speaking Applications: 2.5b*

## ◆ Purpose of Activities

To help youth learn about the proper maintenance and care of goats. Youth will also investigate the causes and symptoms of several goat diseases.

## ACTIVITY 1

# Monitoring Goat Health Day by Day



### Overview of the activity

The main goal of this activity is for youth to learn to make good physical and behavioral observations of goats by reading and analyzing descriptive journal entries. The youth will then use these observations to make inferences regarding the health of their goat.

## ◆ Time Required

Approximately 90 minutes

## ◆ Suggested Grouping

Pairs or small groups of 3 to 4

## ◆ Materials Needed for Each Pair or Group

(\*Materials provided in curriculum)

- Writing utensils
- Flip chart paper (one piece per group)
- \*Health assessment journals
- \*Goat disease information sheet
- \*Health assessment checklist

## ◆ Getting Ready

- Photocopy enough health assessment journals, goat disease information sheets, and health assessment checklists for the groups.

## Opening Questions

Ask the youth to respond to each question below by sharing their ideas verbally and/or by recording them on the flip chart paper provided.

1. What are some ways you can tell when you are sick?
2. What signs might your parents, teacher, friends, or doctor use to recognize that you are sick?
3. What are some things you can do to avoid becoming sick?
4. If your animal is sick, what are some changes you might notice about him or her?
5. What are some of the responsibilities you have to keep your pet or project animal healthy?

## Procedure (Experiencing)

- **Volunteer Tip:** Set up the following scenario for the youth: The youth in each group will be playing the role of a goat owner. Each group will receive one of the health assessment journals, one day at a time. As a group, the youth will go through the journal entry of each specific day and record important facts onto the health assessment checklist they have been given. At the end, using the checklists they have made, they will compare their findings with the goat disease information and draw a conclusion regarding what disease, if any, their goat has.

1. Give each group of goat owners Journal Entry 1 from their health assessment journal. The group should read the entry and record important findings on their health assessment checklist.
2. When the groups have completed Journal Entry 1, take away that journal entry and give them Journal Entry 2. Then have them read the entry and record important findings on their checklist.
3. Continue this pattern for the remaining days until each journal entry has been assessed.
4. When the group is done with the last day, remove this entry and pass out the goat disease information sheet. Have the groups review the data they recorded on their health assessment checklist and record their diagnosis of their goat's symptoms along with the reasons why they chose that diagnosis.

## Sharing, Processing, and Generalizing

Have each group share their diagnosis and indicate which parts of their checklist helped them make that determination. 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, such as:

1. What might be some advantages to keeping a daily health assessment journal for your goat? Ask the youth to share their ideas verbally and/or record them on the flip chart paper provided.
2. What are some examples of the symptoms you used to know when to be concerned with your goat's health? Ask the youth to share their ideas verbally and/or record them on the flip chart paper provided.

3. What do you think might happen if you ignored those symptoms and didn't seek veterinary care for your goat? Ask the youth to share their ideas verbally and/or record them on the flip chart paper provided.
4. Check the groups' diagnosis of their goat with the answer key below. If there are any discrepancies, have the youth discuss what led them to their conclusion. Ask the youth to share their ideas verbally and/or record them on the flip chart paper provided.

## Goat Disease Diagnosis Key

- ♦ Carrie: pneumonia
- ♦ Gwendolyn: acidosis
- ♦ Rocket: mange
- ♦ Sunday: mycotoxicosis

## Concept and Term Introduction

Volunteers need to ensure that the concepts and terms **bacterial infection, bacterium, fungus, inflammation, parasite, ruminant, veterinarian, virus, and zoonotic diseases** have been introduced.

- **Note:** The goal is to have the youth develop these concepts through their exploration and define the terms using their own words.

## Concept Application

An application for these skills is presented in Activity 2 of this unit. Youth who own a goat may apply Activity 2 to their own pet, while youth who do not own a goat may seek permission from a friend or family member to use their goat in this exercise.

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**HEALTH ASSESSMENT JOURNALS****Journal 1**

**Goat Name:** Carrie  
**Breed:** Boer  
**Sex:** Female  
**Age:** 3 years



Jennifer Technanun

## Journal Entry 1

Today Carrie seemed pretty happy. She was running around and playing in her pen when I came outside. She had eaten most of her hay, so I gave her more. Right after I refilled her food, she came to eat it. I filled her trough with some fresh water and then raked her pen while she followed me around. Her pen was cleaner than usual today since there were barely any droppings; I barely had to clean it. Then I brushed her, which she loves. She comes to stand right next to me when she sees the brush. She butts me with her head playfully if I hold onto the brush too long without brushing her, sometimes even knocking me over. While brushing her, I noticed that her eyes were clear and her coat was smooth. Afterward, she went back to climbing and exploring.

In the afternoon, when Carrie saw me come up to the gate, she came prancing over to see me. I noticed that her nose was slightly runny, but the discharge was clear. Since I had just learned how to take her rectal temperature, I decided to practice on her. She doesn't seem to like it, but stood pretty still anyways. Her temperature was 102.8°F. Her coat was a little dirty, probably from climbing all over the rocks. I brushed her again to clean her coat while she leaned on me. The whole time she was chewing her cud and her tail was flickering around happily. I think she really likes the attention. She also likes me scratching her ears. Then I took her out for a walk. Along the path, she stopped and sniffed at every plant, attempting to get a bite. But I knew better than to let her eat anything. She stopped twice to use the bathroom and then we headed home. As I was leaving her pen, she cried out, wanting me to come back.

## Journal 1

**Goat Name:** Carrie

**Breed:** Boer

**Sex:** Female

**Age:** 3 years



Jennifer Technanun

## Journal Entry 2

When I came out to see Carrie today, she seemed tired since she wasn't playing around when I came out. Maybe she doesn't like the cloudy weather. I noticed that her nose was still a little runny, too. I gave her more food and water since she had finished all her hay. Carrie didn't seem as interested in me today as she usually is. She didn't even follow me around when I was raking her pen, although it didn't take very long because it wasn't very dirty. She just watched me from a corner of her pen the whole time. But she got up and walked over slowly to me when I pulled out the brush. Her coat looked shiny and smooth, but when I touched her left side, she seemed a little sensitive about it. The whole time I was brushing her, she only seemed half interested. When I left her, she walked toward her food with her tail wagging.

In the afternoon, when I walked toward the gate, Carrie started bleating. I got inside and she immediately started rubbing up against me like she hadn't seen me for a long time. I practiced taking her temperature again. I had to do it twice since she didn't stand still long enough for me to get a good reading. Her temperature was 102.8°F. Her coat was dusty and slightly matted looking, but I think it's because it was raining during the day. I brushed it out so that it looked smooth and shiny again. Her nose was not runny anymore. Instead it felt warm and dry. When I took her out for her walk, she sneaked in a taste of a plant growing along the path. Then we walked past Billy, her goat friend, and they were talking to each other for a while. After the walk, Carrie seemed really warm and slightly out of breath.

## Journal 1

**Goat Name:** Carrie  
**Breed:** Boer  
**Gender:** Female  
**Age:** 3 years



Jennifer Technanun

## Journal Entry 3

Today Carrie greeted me with her bright eyes as I entered her pen to give her more food and water. I gave her more water, but most of her food was still there so I didn't give her anymore. She followed me around as I started raking the pen with her tail flickering. I realized it looked messier today, like she had been sitting and getting up a lot. She was probably just trying to get comfortable. And she had clumpy droppings all over her pen. I heard her sneeze a couple times when she was following me around, but maybe it's just from the dust. As I was brushing her, I noticed that she felt really warm. And after I was done brushing her, she didn't run off to play again. Instead she just sat down by her water trough and watched me leave.

When I came to see Carrie again, she just sat there as I entered her pen. She had some clear discharge from her nose and she sneezed a few more times. She seemed to lack the energy to care about me taking her temperature today. It was 103.2°F. I went up to her and scratched her ears before I started to brush her. She liked her ears being scratched because she leaned her head toward me. Her coat looked fine today; it didn't really get dirty at all. When I took her out for her walk, she seemed more sluggish than usual. Usually she trots alongside me, but this time she just walked slowly and she didn't try to eat any of the plants. When some squirrels ran up a nearby tree, she looked at them with interest. She used the bathroom once during our trip. After the walk, she sluggishly walked back into her pen to sit down next to her trough. I think she was tired.



## Journal 1

**Goat Name:** Carrie  
**Breed:** Boer  
**Gender:** Female  
**Age:** 3 years



Jennifer Technanun

## Journal Entry 4

Carrie got up when I opened the gate but didn't come out to greet me. She only stood up and then lay back down in the same spot. Her food seemed to be untouched. I dumped out all the old food and replaced it with fresh food; maybe she doesn't like food that's been out for too long. I added some fresh green leaves to her food as a treat to get her to eat some hay. She watched me, bleating loudly, from her spot as I cleaned the pen. As I walked past her, I could hear her breathing hard, like it was hard for her to get enough air. When I picked up her brush, she just looked up at me and blinked a couple times before putting her head back down again. I walked up to her and brushed her. Her coat doesn't look as shiny today and I think she feels skinnier, probably from not eating yesterday. I scratched her ears for a while, which she seemed to enjoy since she turned her head toward the scratching. Then she watched me as I left.

In the afternoon Carrie still looked tired. She walked up to see me, but her tail was not really wagging. I checked her food, and I don't think she touched any of it yet. Maybe she ate a couple of the leaves. I noticed that her nose was runny and the discharge looked white. After she greeted me, she lay back down and waited for me to brush her. Before brushing her, I took her temperature. It was 103.6°F. When I was brushing her, I could tell she was having a hard time breathing. Her chest went up and down more than it normally does with every breath. I decided that I would only take her out for a short walk today. She took her time walking, with her head hanging down the whole time. She sniffed at some of the plants but did not try to eat them. Even a nearby bird didn't interest her.

## Journal 1

**Goat Name:** Carrie  
**Breed:** Boer  
**Gender:** Female  
**Age:** 3 years



Jennifer Technanun

## Journal Entry 5

When I came into the pen, she seemed upset. She hadn't touched any of her food again. I think she ate only one or two of the leaves I had left her; those are usually her favorite. She was having trouble breathing again. She just stared at me, grinding her teeth, the whole time I was in there. A couple times she got up only to circle around and lay back down in the same spot. Her droppings looked consistent, but there weren't too many of them. She didn't even seem interested in getting brushed. She barely looked up at me when I was holding the brush. As I was brushing her, I noticed that her coat looked matted like it had been wet. But it didn't rain last night. While brushing her, I could hear a scratchy sound every time she breathed in. She was felt really warm the whole time.

When I went to see Carrie again, she just looked up at me from where she was laying down. There was a yellowish discharge from her nose, and I think she sneezed 6 or 7 times while I was standing there. She still hadn't touched her food. Her temperature was 104.3°F. When I went over to brush her, I noticed that she looked skinnier. Her coat looked kind of fluffed out. She looked up weakly at me when I scratched her ears. I think she liked the attention but the difficulty breathing was bothering her. I took her out for a short walk again because I didn't want to make it harder for her to breathe. On our usual path, she just walked slowly with her head and tail drooping. We had to stop and take a break once so that she could lie down and rest. When I put her back in her pen, I could still hear a wheezing sound as she breathed. She just sat down, stared at me while bleating loudly.

## Journal 2

Goat Name: Gwendolyn

Breed: Pygmy

Gender: Female

Age: 1 year



Michelle Ward

[http://www.flickr.com/photos/meeshy\\_meesh/1468891618/](http://www.flickr.com/photos/meeshy_meesh/1468891618/)

## Journal Entry 1

When I came out to see Gwendolyn today, she was prancing all around her pen. She was climbing all over and exploring everything in her pen. I came in to give her more hay, since she had finished all of it from the day before. I also gave her some fresh water. Her bright eyes followed me as I added food and water. Her tail wagged happily when I brought out her halter to walk her. She kept butting me with her head, wanting me to put on the halter faster. She nearly pushed me over before I got it on. I walked her toward the hill, up to her favorite spot where she sneaked in a few bites of a plant before I could pull her away. When we got back to her pen, she was still excited from the walk. I brushed her to calm her down. Her coat was smooth, shiny, and untangled. I counted the number of breaths she took in a minute and found that her respiration rate was 27 breaths per minute. When I got up to leave her pen, she started crying out for me to come back.

Gwen was climbing and running around her pen when I came to see her again. She kept pushing me with her head, wanting me to play. I decided that I should rake her pen first, and then I could play. There were a few droppings around but not too many. After I was done, I walked her across to the bigger pen so we could play. She looked so happy climbing over the logs and rocks as I chased her around. When she took a break, I noticed her chewing her cud contently. Before I took her back to her pen, I brushed her down. She was a little dirty from playing, but not too bad. There was some clear discharge from her nose. After I let her back into her pen, I scratched her ears for a while as she leaned on me. She was leaning so far that when I stepped back, she almost fell over.

## Journal 2

Goat Name: Gwendolyn

Breed: Pygmy

Gender: Female

Age: 1 year



Michelle Ward

[http://www.flickr.com/photos/meeshy\\_meesh/1468891618/](http://www.flickr.com/photos/meeshy_meesh/1468891618/)

## Journal Entry 2

Gwen looked excited to see me this morning. The second I walked in, she followed me everywhere. I went to refill her food, but I noticed that she had only eaten a little of it. I remembered hearing that adding grain to it would get them to eat it, so I poured a cup of grain into her trough. Then I put in some clean water too. I watched her for a while to check her respiration rate. She took 24 breaths in a minute. The second I pulled out her halter, she came running toward me. When I didn't put it on right away, she just blinked at me with her bright eyes wondering why I was taking my time. I put the halter on and took her out toward the hill again. She seemed interested in every little sound in the grass. She didn't try to eat anything, but she was stamping her feet on the road. I brushed her when we got back. She felt kind of warm but her coat was still smooth. She tilted her ears toward me so I could scratch them. When I left, she was running around again.

Gwen was just sitting when I came up to her pen in the afternoon. She had eaten most of the grain but still had lots of the hay left. She looked upset, but I don't know why. When I was raking out her pen, I noticed that she had diarrhea along with some of her regular droppings. She kept getting up and sitting down again. Every once in a while she would scratch her right ear with her hind leg. I put her halter on her to take her into the dirt play pen. She seemed less interested in running around. She circled the pen once before sitting down. I tried to get her to play for about 15 minutes but then gave up when all she did was stamp her feet in the dirt and repeatedly sit and stand. I brushed her again before putting her back in her pen and noticed that her left side seemed to be a little sensitive to the touch. Her ears were also sort of matted, probably from the scratching.

## Journal 2

Goat Name: Gwendolyn

Breed: Pygmy

Gender: Female

Age: 1 year



Michelle Ward

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## Journal Entry 3

This morning Gwen barely seemed interested in me. As I walked in, she followed me around but from a distance. I also noticed that her ears seemed to be droopy and she was limping slightly. I counted her breaths and found that she took 20 in a minute. She had finished her hay and the rest of her grain, so I gave her more food. Since she seemed to like the grain more, I gave her twice the amount of grain and less hay. Hopefully she will eat all of it. When I brought out her halter, she stared at me and walked closer to me slowly. Her eyes did not seem as bright and clear as before when she stared at me. I took her out to her favorite path, but nothing seemed to interest her. The whole time on the walk, she just walked behind me slowly and limping slightly. She barely had any energy. When we got back to her pen, she stamped her feet impatiently as I brushed her. I checked her left side and it was still sensitive. I left her sitting by the food with her head down.

Gwendolyn still looked sad this afternoon. Her feet seem to still be bothering her because it looked like it took a lot of effort to walk over to me. As I scratched her ears, I noticed that her coat was really scruffy looking. She had more diarrhea than yesterday, and it looks runnier. When I took her out to play in the yard, she tried to play. It took a lot of effort to climb one of her favorite logs, and I think she almost fell off. She kind of staggered when she was on it and almost lost her balance. After a little while, she just gave up and sat down. She coughed a couple times while she was sitting there. I went over to brush her and noticed that her left side was still sensitive. The rest of her coat looked matted and dirty. It wasn't shiny anymore. When I took her back to her pen, she just sat down and blinked at me before putting her head down.

## Journal 2

Goat Name: Gwendolyn

Breed: Pygmy

Gender: Female

Age: 1 year



Michelle Ward

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## Journal Entry 4

Gwendolyn looked more energetic today. She had eaten all her food; I guess she does like the grain more. I decided to give her mostly grain and a little bit of hay. I refilled her water as she followed me around. I think she is still having trouble walking because she limps and has trouble walking straight. Her tail was not wagging, but hanging limply toward the floor. She took 26 breaths in a minute. I put on her halter without trouble and took her out for a walk. I figure she was tired of the hill, so I took her on a different path. She still didn't seem very interested in anything during the walk. Her head hung near the ground the whole time and she limped slowly along the path. When we got back to her pen, I brushed her. She felt warm. Her coat looked dirty and matted. She bleated loudly when I touched her left side.

In the afternoon Gwen looked tired when I came into her pen. She stood up when I opened the gate but sat back down when I got in. The whole time I was raking her pen, she just watched me from a corner. Her eyes looked sad; they were not bright and happy looking. Her pen smelled more than usual today. I think it was from the diarrhea. I cleaned all that up before I took her out to the big pen. She could barely walk straight as she took a small circle around the pen. It looked like she was about to fall over several times. Watching her, I noticed that her left side seemed swollen. Maybe that's why it was sensitive. Not only did Gwen have trouble walking straight, but she also limped the whole way. She spent most of the time lying down and getting up again. I brushed her to try to make her coat look shiny again. I think that when I scratched her ears, she felt a little better since she leaned into the scratching. When she got back to her pen, she just stamped her feet a little before lying down.

## Journal 2

Goat Name: Gwendolyn

Breed: Pygmy

Gender: Female

Age: 1 year



Michelle Ward

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## Journal Entry 5

Gwen was lying down and standing up repeatedly when I came in her pen this morning. She didn't look or sound happy at all. She bleated loudly even before I came into her pen. Her pupils looked dilated and her coat looked dull. She had barely touched any of her food so I did not give her any more. Her ears and tail were droopy and she looked really sad. I was hoping her halter would cheer her up, but I don't think it did. She just slowly walked toward me. As she came toward me, I counted her breaths: 28 in a minute this time. It looked like she was in pain when she walked, so I decided to keep our walk short. I took her up to her favorite path and she took twice as long to only go halfway. The whole time, she limped along with her head nearly touching the ground. So when we got back, I decided to give her some fresh green leaves as a special treat. She ate a few of them from my hand but ignored the rest. I brushed her and noticed that she still flinched every time I touched her left side. She sat back down and looked like she wanted to sleep when I left.

Gwen did not seem to have any energy at all this afternoon. She had eaten barely any of her food. The whole time, she just watched me clean her pen with her dull eyes. Her pen was really smelly again; it must be from the diarrhea. She looked sad as she watched me work. When she got up, it looked really painful for her to walk, so I decided not to take her to her play pen today. I just brushed her coat, which still looked matted. Her left side looks more swollen than before and she doesn't like me touching that side. I sat there for a while scratching her ears. She closed her eyes as I scratched them. A couple times she got up and sat back down, but she didn't really walk very much. She just looks very tired and in pain.

### Journal 3

Goat Name: Rocket  
Breed: LaMancha  
Gender: Male, fixed (wether)  
Age: 5 years



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## Journal Entry 1

When I came outside this morning, I saw that Rocket was already waiting for me by the gate. His tail was flicking back and forth so fast that I could barely see it. He started rubbing his head against me as soon as I walked in. Then he followed me around as I raked his pen. There were a lot of droppings near his shed, but overall the pen was pretty clean. Then I pulled out his lead so I could take him out for a walk. He got so excited! He ran from me to the gate and back to me again. I think he wanted me to hurry up so he could go out. I put on his lead and took him out near the lake. He urinated twice along the path and tried to eat some plants. When he saw some ducks he curiously tried to sniff at them, but the ducks got scared and flew away. Rocket stopped once to scratch at his face. When I got him home, I brushed him. His smooth coat was very clean and looked shiny when I finished brushing. As I left, Rocket went off to stare at the squirrels in his tree.

Rocket came running up to greet me again this afternoon. He rubbed his head so hard against me that I almost fell over. He had no more food, so I gave him some more hay. I also changed his water. I had just learned how to take my own heart rate, so I tried it on Rocket. He didn't like standing there while I counted, but I finally got a reading of 73 beats for a minute. Then I pulled out his brush to brush him, but he wanted to play. He ran from me and then waited for me to chase him. I chased him around the pen for 15 minutes while he climbed on rocks and old fence posts to avoid me. Finally, he was ready to let me brush him. His coat was a little dirty but still smooth, and he felt slightly warm when I touched him. I scratched his cheek and he really liked it. I had to sneak out really fast so he wouldn't follow me out.



### Journal 3

**Goat Name:** Rocket  
**Breed:** LaMancha  
**Gender:** Male, fixed (wether)  
**Age:** 5 years



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## Journal Entry 2

It was really windy today. I think a storm may be coming. Rocket didn't come out to see me today; he just sat in his shed waiting for me to come in. When I started raking his pen, I could see his bright eyes following me around. There were droppings all over the place. When he saw his lead, he walked out to me quickly but he kept his head down the whole time. He butted me, telling me to put the lead on faster. I took him out to the lake again. All the ducks were sleeping on the grass today so Rocket didn't seem interested in them. He snatched a few leaves off a small bush before I could stop him. Then he rubbed up against a tree to itch his face. When I took him back to his pen, I noticed that he sneezed a couple times. As I brushed him, I noticed some white flakes near his tail. He was ready to go back to his shed when I was done brushing him.

It was raining pretty much the whole day while I was at school. Rocket's pen was really muddy, but he didn't seem to mind. He was full of energy and climbing over everything. When I refilled his food and water, he came up to butt me with his head. Then I took his heart rate again; there were 85 beats in a minute. He rubbed his cheek against the fence a few times. There was some clear discharge from his nose, too. It took a long time for me to brush him because his coat was caked with mud. Rocket didn't seem to mind the attention though since his tail was flicking around happily the whole time. He looked up at me with his bright eyes as I scratched his neck. I think he really liked it. As I left, he got dirty playing in the mud again.

### Journal 3

**Goat Name:** Rocket  
**Breed:** LaMancha  
**Gender:** Male, fixed (wether)  
**Age:** 5 years



<http://www.flickr.com/photos/7326810@N08/1235531698/>

## Journal Entry 3

I brought some leaves out to Rocket this morning, and he came prancing out to see me. He ate the leaves quickly but had to stop to scratch his face before finishing them all off. His shiny eyes stared at me for more leaves after he was done. While I was raking his pen, he followed me around with occasional stops at the fence to itch. His pen was really messy today since the mud was just beginning to dry out. I put on his lead without getting pushed over and took him out for a walk. He used the bathroom twice along the path but had a lot of energy. I stopped him from eating anything, although he tried. Twice he stopped to scratch his face. When we got back, I brushed him. I noticed that the hair on his cheek was getting thinner. The skin felt really hard and thick. The rest of his coat was pretty smooth. It was still muddy from yesterday until I brushed out the dried mud. As I left, he was scratching himself again.

Rocket looked pretty tired this afternoon. Maybe he spent all his energy playing while I was at school. He stood up when I came in and then sat back down again. There was some clear discharge from his nose and he sneezed a few times. He had eaten half of his food but I refilled it anyways. When I came up to take his pulse, he let me without even flinching. It was 75 beats per minute. Then I brushed him. I noticed that there was not very much hair left on his cheek and there were more white flakes in his coat. His coat did not shine in the light. The skin on his cheek looked like it had been bleeding, but it wasn't bleeding anymore. He scratched his cheek occasionally and he bit at his side a few times, too. He got up and sat right back down next to me. As I left, he was getting up and sitting down again.

### Journal 3

**Goat Name:** Rocket  
**Breed:** LaMancha  
**Gender:** Male, fixed (wether)  
**Age:** 5 years



<http://www.flickr.com/photos/7326810@N08/1235531698/>

### Journal Entry 4

This morning Rocket walked slowly up to the gate to greet me and to rub up his face against the fence. After I scratched his neck, he walked back to his shed and sat down. With his head down, he watched me rake his pen. The droppings looked consistent. Every time I looked over at him, he was chewing on his side or scratching his face with his back foot. When I pulled out his lead, he looked up but didn't come running. I walked over to him and put the lead on him. I noticed he had clear discharge coming from his nose. I walked him around the lake, but he barely seemed interested in anything. There was a duck fight and he didn't even care. All he cared about was rubbing up against a tree. Back in the pen, I brushed him. His tail wagged slightly as I brushed. There were a lot more white flakes in his coat and the spot he was itching on his side looked red. There was barely any more hair left on his cheek. The skin felt really thick and was covered in scabs. The spots he had been itching felt really warm.

When I came to see Rocket in the afternoon, he was rubbing his side on one of his rocks. He stopped for a second to bleat at me, but then continued. He had finished his food so I gave him more. I also gave him clean water. I went up to take his heart rate and counted 76 beats in a minute. The whole time I could hear him breathing. His bright eyes just looked at me when I pulled out the brush. Rocket's coat looked matted, probably from the itching. His cheek was nearly bald, and the spot he was scratching on his side was starting to lose hair too. He rubbed his head against me while I brushed him. His side had a little blood from where he had broken the skin from scratching. When I left, he got up to follow me but stopped halfway to scratch some more.

### Journal 3

**Goat Name:** Rocket  
**Breed:** LaMancha  
**Gender:** Male, fixed (wether)  
**Age:** 5 years



<http://www.flickr.com/photos/7326810@N08/1235531698/>

## Journal Entry 5

Rocket bleated at me as I came near his pen. He was coming to greet me but had to stop to scratch himself. When he came up to me, I could see that his coat looked really matted and dull. He followed me around the pen as I cleaned it, stopping to itch often. His droppings looked consistent and were all clustered around the fence post. When I took out his lead, he nearly pushed me over by leaning against me. He seemed like he really wanted to go out for his walk. He nearly stopped at every tree to rub his head and side against. Then we passed some ducks, which he looked at but didn't try to sniff. He used the bathroom once before we got back home. Back in his pen, I brushed him. He felt really warm and there was no more hair on his cheek. His side was no longer bleeding; it was now a scab. The skin in both those locations felt harder than the rest of his skin. Every time I brushed near his cheek or his side, he cried out.

When I came to see Rocket in the afternoon, he was scratching his head on the side of his shed. He looked like he was squinting at me; he looks upset. As I was going to refill his food and water, he kept bleating at me. He also kept getting up, circling, and then sitting back down again. His tail wasn't wagging at all. I could hear him breathing the whole time. When I went up to take his heart rate, I heard 78 beats in a minute. As I started to brush him, I noticed that he had a lot of white flakes in his coat, and his coat did not look shiny at all. It looked really messy with spots that barely had any hair. The skin on his cheek and on his side felt really warm and hard. It wasn't as flexible as the rest of his skin. Rocket kept scratching his cheek and his side. He also scratched his head a lot.

## Journal 4

**Goat Name:** Sunday  
**Breed:** Alpine  
**Gender:** Male, fixed (wether)  
**Age:** 9 months



<http://www.flickr.com/photos/7326810@N08/2564245533/>

### Journal Entry 1

When I came out, I saw Sunday chasing the pigeons from the puddles. As I walked into his pen, he came prancing up to me with his tail flickering happily. His coat looked a little dirty. After he shoved his head into my thigh, I scratched him in his favorite spot, between the shoulder blades. Then I brushed the dirt out of his coat until it glistened in the sunlight. He really enjoyed the attention. Sunday ran off to explore some more as I gave him some clean water. The recent storm had put leaves and twigs in it. As soon as he noticed that I gave him more food, he pranced over and started eating. I tried to take his rectal temperature, but he kept moving around. Eventually, I got him to hold still enough to get a reading of 103°F. As he continued to eat, I raked his pen. It was muddy from the rain, but not too dirty. When I left for school, Sunday was rubbing his head against the fence and bleating for me to come back.

Sunday was napping in a sunny corner of his pen when I came to see him this afternoon. Once I got into the pen, he came up and rubbed against my legs until I scratched him. When I stopped scratching him, he turned and stared at me with bright eyes, waiting for me to continue. Instead, I pulled out his lead and his pack for his pack training. Right now, I am just leading him around the property with an empty pack so he can get used to it. He sniffed the pack curiously when I put it on. He didn't want to walk on the lead at first but after I pulled harder, he calmly followed me. A couple times, he stopped along the path to eat some weeds. When we were done, I played tag with him. He kept running around the pen so I couldn't get him for 15 minutes. When I had to go inside, he was standing on a rock, watching me go.

## Journal 4

**Goat Name:** Sunday  
**Breed:** Alpine  
**Gender:** Male, fixed (wether)  
**Age:** 9 months



<http://www.flickr.com/photos/7326810@N08/2564245533/>

## Journal Entry 2

Sunday was bleating as I came to see him in the morning. Then he sat down in the shade to watch me work. He must feel lazy because of the heat and humidity today. I gave him more water and added more food to what he already had. When I pulled out his brush, he trotted over to me and rubbed his head against me like a cat. I scratched between his shoulders and brushed his coat. His tail stood straight up and wagged back and forth the whole time. I didn't want him to move while I took his temperature, so I tried to keep brushing him at the same time. It didn't work because I couldn't hold onto the brush while I put in the thermometer. Eventually I got him to stand still long enough to get a reading: 102.8°F. I scratched his ears a little until he needed to scratch them with his back legs. Then I raked his pen while he followed me around, butting me once in a while. When I left, he was scratching his ears again.

Sunday was lounging around this afternoon. He was drinking water when I came in to see him. He walked over to me with bright eyes and a flicking tail. After a short scratching session, I pulled out his lead and pack. He didn't let me put on the lead; I think he wanted to play since he kept pulling away every time I got close to him. I finally got his lead and pack on. I walked him on a nearby trail this time. He tried to chase some birds but I had to remind him that we weren't playing. He urinated near some bushes and ate a dandelion plant. He finally calmed down near the end of our walk. After he got back into his pen, he went straight for his food. I followed him so I could brush the sweat out of his coat. I noticed that some of the older hay on the bottom had some black spots on it. Sunday didn't mind; he just took a big bite out of it. He kept eating as I left.

## Journal 4

**Goat Name:** Sunday  
**Breed:** Alpine  
**Gender:** Male, fixed (wether)  
**Age:** 9 months



<http://www.flickr.com/photos/7326810@N08/2564245533/>

## Journal Entry 3

It was not as hot this morning. Sunday tried to chase down a falling leaf when I came out. He came toward me when I walked in. There were a lot of droppings all over the pen. As I was cleaning, he followed me like we were playing a game. Every time I turned around, he would jump backward and be ready to run. I decided to give him more water and food before playing with him. I could tell he enjoyed being chased because he kept bleating at me every time I stopped. Finally he let me catch him and give him a giant hug. He felt really warm and sweaty. His smooth coat wasn't really dirty, but I brushed it anyways. He was too tired to run so I took his temperature; it was 103.6°F. He leaned on me and was breathing loudly for a while. I scratched him while his tail flickered quickly back and forth. Then he went to drink water and I had to go to school.

When I came in to see Sunday after school, he looked up at me from his spot on the ground. I petted him for a while and then pulled out his pack and lead. He bleated when I put on the lead, but there was no resistance. I put his brush in his pack to increase the weight. We walked around the property. He seemed less interested in walking, since he walked slowly behind me with his head drooping down. He sniffed at a plant but didn't eat it. Some birds landed near him and he didn't even look up. When we got back to his pen, I decided to brush him again. Most of his coat was smooth except for a big wet spot under his chin. After I finished brushing him, he circled around and then sat down. He looked tired. He sneezed and then got up, walked in a circle, and lay down again.

## Journal 4

**Goat Name:** Sunday  
**Breed:** Alpine  
**Gender:** Male, fixed (wether)  
**Age:** 9 months



<http://www.flickr.com/photos/7326810@N08/2564245533/>

## Journal Entry 4

This morning, Sunday bleated when I came into the pen. He didn't get up to greet me; he just stared at me from his shelter. I noticed that he had not eaten any of his food so I didn't give him any more. When I raked his pen, the droppings were pellet-like and all around his bed. I noticed that he got up and sat down really often. When I pulled out his brush, he walked toward me and stood nearby to be brushed. His coat looked slightly dull, and there was a giant wet patch under his chin. He was drooling a little, too. Sunday bleated loudly and his tail flickered slowly as I scratched between his shoulders. He didn't even try to resist when I took his temperature, which was 103°F. When I left him, he went back to sit down again.

As I came up to the pen in the afternoon, I noticed that Sunday looked tired. His back looked like it curved up in the middle and he looked skinny. I tried to play chase with him, but he didn't feel like playing. Since he didn't want to play, I put the lead and pack, with the brush in it, on him. We went on the trail again. He walked slowly the whole time with his head drooping and his tail barely moved. When the birds flew by, he barely looked up. After getting back to the pen, I noticed that he was drooling all over himself. When I brushed his coat, that wet spot was still there. Even after I finished brushing him, his coat was not very shiny. He looked up at me with sad eyes before walking back to lie down. I saw that he still hadn't touched his food; some of the food still had dark spots on it. He got up and lay back down several times before I left the pen.



## Journal 4

**Goat Name:** Sunday  
**Breed:** Alpine  
**Gender:** Male, fixed (wether)  
**Age:** 9 months



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## Journal Entry 5

As I got near the pen, Sunday was crying out loudly. His tail was droopy and he was drooling all over himself. As he lay there watching me come in, I noticed that his stomach was contracting and expanding severely for several minutes. He could not seem to control it. His pen didn't take very long to clean since there were very few droppings. When I checked his food and water, I noticed that all the food was still there. He hadn't eaten any. He came up to me, bleating, when he saw his brush. I brushed his coat and scratched him between his shoulders, but he still seemed really upset. There was still a wet spot under his chin and down his neck. I took his temperature; it was 102.9°F. After I finished brushing him, he just sat down and put his head down, too. He blinked at me a couple times before crying out some more. When I left, he just looked up and then put his head down again.

Walking toward Sunday, I noticed that his back looked arched. His head was hanging down even before I walked in. I saw that he was drooling a lot. When he looked up at me, I could see sadness in his eyes. I thought I could cheer him up by walking him out near the fields. He loves trying to eat the flowers. He didn't even notice that I put the pack on him. He followed far behind the lead, walking with his head down the whole time. He didn't seem interested in anything. He looked up once at some birds, but then looked back toward the ground again. Once we got back, he walked into his shelter and sat down. As I brushed him, I noticed that his coat was slightly knotted and dull. The wet spot had picked up a lot of dirt, but it was still wet. Sunday looked like he wanted to sleep, so I left him alone. He had his head down on the floor when I left.

## GOAT DISEASE INFORMATION SHEET

### Acidosis

A goat can get acidosis (as-i-doh-sis) when the amount of forage (e.g., hay) or grain in its feed is changed rapidly; when it eats too much grain; or when it eats grain before eating forage. Goats are ruminants, which means that they have a four-part stomach. The main compartment of these four parts, the rumen, contains microbes that break down food. These microbes can be killed by a sudden change in the acidity of the rumen. If too many of the microbes die, the goat will no longer be able to digest its food.

Acidosis damages the rumen and can cause secondary infections of the liver. If diagnosed early, veterinarians can treat acidosis with antibiotics, by transferring rumen “juice” from a healthy animal, or by adding basic (non-acidic) solutions to the rumen. In severe cases, the veterinarian may have to surgically empty the rumen, a procedure called a rumenotomy.

The best way to prevent acidosis is to correctly balance and formulate grains and forage in the feed. Forage should be fed before grain. The daily grain ration should be split into a few feedings in order to not overwhelm the rumen. If the feed needs to be changed, do it gradually and over several days to allow time for the microbes in the rumen to adapt. Fiber is very important in a goat’s diet because it makes the goat chew more. This results in an increased production of saliva, which is basic (non-acidic) and can balance out the acidity in the rumen. Symptoms of acidosis may include

- changes in appetite (going off feed)
- fast growth of the hooves (developing “rings”)
- flaky or brittle horns
- depressed behavior such as decreased activity, hanging head
- erratic behavior or trouble standing straight or walking
- diarrhea that smells acidic and is yellow in color
- bloat, or swelling on left flank (the side of the rumen)

### Mycotoxicosis

Mycotoxicosis (my-koh-tok-si-koh-sis) is poisoning caused by mycotoxins. Mycotoxins are not a specific kind of toxin; rather, they are a variety of toxins produced by fungi and molds. These toxins occur more often in hot and humid

areas because of the favorable conditions for mold growth. Exposure to mycotoxin is usually through ingestion of old and probably moldy hay or feed.

The best way to prevent mycotoxicosis is to avoid feeding your goat moldy grain and hay. If your goat shows signs of mycotoxicosis, remove the bad feed and contact your veterinarian immediately. The veterinarian may treat your goat with activated charcoal or mineral oil in order to stop additional uptake of the toxin. Symptoms of mycotoxicosis may include

- excessive salivation
- depressed behavior such as decreased activity, hanging head
- anorexia (going off feed)
- convulsions (involuntary spastic movements)
- arched back

### Pneumonia

Pneumonia (noo-mohn-yuh) is a common respiratory disease that is a threat to goats year-round. Summer is the peak pneumonia season for goats. Pneumonia is caused by a variety of microorganisms; the most common are bacteria such as *Pasteurella* and *Corynebacterium*. Pneumonia can cause death; in fact, it is one of the leading killers of goat kids every year. Environmental stress as well as any other kind of stress can increase an animal’s chances of getting pneumonia.

Once a goat has been properly diagnosed as having pneumonia by a veterinarian, make sure that it is isolated from the herd. The infection can be spread from animal to animal through the air. Keep the sick animal in a dry, draft-free location with plenty of fresh water and food. Antibiotics should be given as directed, as well as any other medications that the veterinarian recommends.

The best way to prevent pneumonia is to minimize stress. Make sure the goat housing has plenty of fresh air and is not too overcrowded. Sudden temperature changes can also make the goat more susceptible to disease.

Symptoms of pneumonia may include

- fever
- depressed behavior such as decreased activity, hanging head

- short and rapid breathing or difficulty breathing
- loss of appetite (going off feed)
- weakened body condition
- Breathing that sounds congested
- noises in the chest when breathing

## Goat Pox

Goat pox is a contagious viral disease that affects goats of all ages and breeds. The disease is more common and severe in younger animals, lactating females, and older goats.

Because the virus affects the lungs, it is usually contracted through inhalation and is most likely to occur in areas where goats are crowded or gathered together. However, the virus can be spread directly through contact with skin lesions and may even be passed between animals by biting flies. Skin lesions caused by the virus may become infected and can lead to death.

Currently there is no vaccine for goat pox. The best method of prevention is isolation of infected animals. Once an animal is infected it must be isolated and treated with antibiotics to keep the infection from spreading further.

Symptoms of goat pox include

- fever
- congestion

- nasal discharge
- pockets of pus on ear, nose, or udder
- skin lesions (sores)

## Mange

Mange is a skin disease of mammals caused by a mange mite. The mites cannot be seen with the naked eye, but their effect on the skin can be great. Mange mites spread to new hosts through direct body contact or by transfer from common nests, burrows, and sleeping quarters. The mite lives and burrows in the skin layers. Females deposit eggs as they bore through the skin; the eggs hatch within a few days.

If you suspect that your goat has mange, seek veterinary attention immediately. Treatment includes injections of an antiparasite medication. Symptoms of mange may include

- flaky, scruffy dandruff on the skin
- severe itching
- balding
- thickening of the skin
- scabbing
- weight loss in severe cases

# HEALTH ASSESSMENT CHECKLIST



Goat Name: \_\_\_\_\_ Breed: \_\_\_\_\_

Gender: \_\_\_\_\_ Age: \_\_\_\_\_

## General Symptoms

*Is there anything you notice that you should be concerned about?*

Journal Entry 1: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Journal Entry 2: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Journal Entry 3: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Journal Entry 4: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Journal Entry 5: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Suspected Diagnosis: \_\_\_\_\_

*(Use the goat disease information sheet)*

**Observations**

*Explain which symptoms from the above journal helped you indicate a problem, and explain why.*

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*What other observations do you think might be important?*

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*Why do you think recording daily observations of your goat would be helpful in monitoring your goat's health?*

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## Your Goat's Health

### Subject Overview and Background Information

Youth should use the skills and knowledge acquired from the previous activity to assess their goat's health in this application activity. As important as it is to teach the youth about animal health assessments, it is even more vital for the youth to apply their knowledge in the real world. This application activity allows the youth with animals to evaluate their pets' health and determine the right time to consult a veterinarian. The youth should be in a regular habit of checking their animal's overall health and notice any signs of abnormality.

The best way to assess the health of a goat is through observation. There is no clear-cut definition of normal; normal varies from goat to goat, so abnormal depends on your goat as well. Observing your goat daily is the best way to really know it and be able to identify changes that might be symptoms of disease or injury.

In this activity youth will fill out the health assessment charts used in the previous activity, except that they will make observations on their own goats. In addition, they should write a short journal entry on the back of the chart about what they did with their goat daily. The daily observations should last a minimum of 14 days.

Goats can be difficult animals to handle and take vital measurements from. We suggest developing an inexpensive kit that may help the youth in their observation and measuring process. This kit could include the following:

- **Latex gloves:** for general use every time they examine the goat, especially when they make personal contact with sensitive areas of the goat. Wearing disposable gloves is highly recommended when performing any of these procedures to prevent the spread of disease from human to goat and vice versa.
- **Penlight:** for use when examining the goat's eyes and nostrils. Encourage youth to note anything that looks abnormal in these areas and compare this with observations from previous days.

- **Magnifying glass:** for use when looking at the goat's coat. Youth can look closely at the skin and coat and note any interesting observations.

Checking a goat's vitals is important in order to assess its health. Before checking the goat's vitals, make sure youth understand how to take each of these measurements.

- **Respiration (breathing) rate:** Get your goat in a comfortable position and watch your goat's chest move in and out as it breathes. One breath is equivalent to the goat's chest moving in and out once. Count how many breaths the goat takes in 1 minute; or count the number of breaths it takes in 15 seconds (using a stopwatch or watch with minute hand) and multiply the number by 4 to get the number of breaths in 1 minute. The normal respiration rate at rest for adult goats is approximately 10 to 30 breaths per minutes; for kids it is approximately 20 to 40 breaths per minute. If you have a hard time watching your goat breathe in and out, you can put a tissue or mirror by your goat's nose and watch for tissue movement or fog on the mirror. The normal respiration rate for goats is from 10 to 30 breaths in 1 minute. Contact your veterinarian if your goat's respiration rate is out of this normal range.
- **Heart rate:** Place your fingers on each side of the goat's lower ribcage. (A stethoscope can be used instead of feeling with fingers by the ribcage or in the inner thigh.) Feel for the heartbeat and count for 1 minute; or count for 30 seconds and multiply the number by 2. The heart rate can also be counted by placing a hand on the inside of the upper thigh of the rear leg, locating the artery there, and counting the pulse for 1 minute. The normal heart rate for an adult goat is approximately 60-80 beats per minute; for active kids, the heart rate may be up to twice as fast as adults.

The growth of a kid or young goat can be measured in addition to its heart rate and respiration rate. Use a tape measure to measure the goat's height by measuring from its hoof to the top of its shoulder. A goat's girth (width) can be measured by pulling the measuring tape around its stomach (or the widest part of the goat). The goat's length can be measured from its head to tail.

The penlight and magnifying glass can be used to get a closer look at any part of the goat. Youth should use the light to look at the ears, eyes, and mouth. Do not flash the light directly in the goat's eyes; rather, pass the light back and forth slowly and steadily across the eyes. **Do not substitute a laser pointer for the light.** The magnifying glass allows youth to take a closer look at the skin and coat, as well as any abnormalities in the goat's ears and mouth.

It is important to let the youth know that they should not make immediate conclusions about their animal's health. Most of the youth will probably have perfectly healthy goats. Do not give them the impression that they must find something wrong with their animal. Emphasize the concept of **health care maintenance** rather than health diagnosis.

Working with animals can get dirty, so appropriate clothing is required (new clothes are not recommended). Make sure the clothes and shoes are comfortable, so that the youth can move around and work in them. The recommended dress includes

- closed-toed shoes
- long pants
- long-sleeved shirt
- tie for long hair, if necessary
- no free-hanging earrings
- secure glasses

Since working with goats usually means working outdoors, sun protection is recommended as well. It would be a good idea to apply sunscreen and wear a hat and sunglasses. A painter's mask may be needed for those who are asthmatic, sensitive, or allergic to dust and small particles in the air

### ◆ Activity Concepts and Vocabulary

- **Health care maintenance:** The regular monitoring of an animal's health.

### ◆ Life Skills

- **Head:** Keeping records, problem solving, decision making, critical thinking
- **Heart:** Sharing, communication, concern for others, empathy
- **Hands:** Self-motivation
- **Health:** Disease prevention, self responsibility, personal safety

### ◆ Subject Links

Science and Language Arts

### ◆ State Content Standards

#### Science

- Third Grade
  - *Investigation and Experimentation: 5e*
- Fourth Grade
  - *Investigation and Experimentation: 6c*
- Fifth Grade
  - *Investigation and Experimentation: 6h, 6i*
- Sixth Grade
  - *Investigation and Experimentation: 7d*

#### Language Arts

- Fourth Grade
  - *Listening and Speaking Strategies: 1.7*
- Fifth Grade
  - *Listening and Speaking Strategies: 1.5*
- Sixth Grade
  - *Listening and Speaking Strategies: 1.5*

### ◆ Purpose of Activities

The purpose of this activity is to have youth record observations of their own goat over a period of time.

## ACTIVITY 2

# Goat Health Journal



### Overview of the Activity

Youth will have the opportunity to assess the health of their goat for a minimum of 14 days.

They will make observations of their animal and record what they observed for each day. They

will also write a journal entry each day on their animal's activity. During their group meetings, youth will have a chance to share their observations of their animal and discuss any potential diseases or illnesses with their group.

### ◆ Time Required

Approximately 15 minutes daily for at least 2 weeks

### ◆ Suggested Grouping

Individual

### ◆ Materials Needed for Each Youth

(\*Materials provided in curriculum)

- Flip chart paper
- \*Animal health journal:
  - *Animal background information sheet*
  - *Animal health daily recording sheet for each day of observation*
- Health assessment kit:
  - *Latex (disposable) gloves*
  - *Penlight*
  - *Magnifying glass*
- Stethoscope
- Tape measure
- Rectal thermometer
- Writing tool (pencil, pen, etc.)
- Lubricant
- Stopwatch or watch with second hand
- Disinfectant
- Painter's mask (if sensitive or allergic)

### ◆ Getting Ready

Each individual is expected to observe their goat for 14 to 28 days. Make an animal health journal for each youth, which consists of an animal background information sheet for each youth and one blank animal health daily recording sheet for each day the youth will observe their goat.

### Opening Questions

Ask the youth to respond to each question below by sharing their ideas verbally and/or by recording them on the flip chart paper provided.

1. When you are sick, what observations might your parents make that would lead them to take you to see the doctor?
2. Describe what you might notice about goats that are not feeling well.
3. What kinds of observations about your goat would prompt you to call your veterinarian?
4. Why might keeping a daily journal about you or your goat be helpful to a doctor or veterinarian?

### Procedure (Experiencing)

1. Give each individual an animal health journal packet, which includes an animal background information sheet and one animal health daily recording sheet for each day of observation.
2. Review the terms on the checklist and how to properly take the heart rate and respiration rate. Make sure the youth know the proper dress code for working with animals.
3. Explain to the youth that they are to fill out the animal background information sheet. If they have more than one animal, they may choose one to work with for this activity. They may need to work with their parents to answer the background information questions.
4. Youth will also fill out an animal health daily recording sheet every day for the chosen number of days (14 days are recommended). Youth should also include a brief journal entry on the back of the recording sheet, describing what they did with their animal each day.



5. Ask the youth to prepare to share a report with their peers at the next group meeting. Reports should include an oral description on observations along with any potential symptoms of illness. Youth may want to graph heart rates and respiration rates. If they have a kid or young goat, they may want to graph its growth. Youth could also create a poster or PowerPoint presentation to share their findings.

## Sharing, Processing, and Generalizing

Have each youth share his or her report with the group. 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:

1. What are some advantages of keeping a daily health journal for your goat? Were there any challenges? Please explain.
2. Did your goat present any symptoms of concern? If so, what were they, and what did you do?

3. In what ways are graphs of heart rate and respiration rate helpful in assessing your goat's health? What kind of information can you get from a growth chart? Please explain.
4. What similarities, if any, were there between your goat and others' goats? What differences, if any, were there? Please explain.

## Concept and Term Discovery/ Introduction

Volunteers need to ensure that the concept of **health care monitoring** has been introduced or discovered by the youth.

- **Note:** The goal is to have the youth develop concepts through their exploration and define terms using their own words.

## References

- Blackburn, L. Normal values. National Pygmy Goat Association Web site, [http://www.npga-pygmy.com/resources/health/normal\\_values.asp](http://www.npga-pygmy.com/resources/health/normal_values.asp).
- Stanton, T. 1999. Routine health care for your wether. New York State 4-H Meat Goat Project Fact Sheet 6. Cornell University, New York State 4-H Youth Meat Goat Projects Web site, <http://www.ansci.cornell.edu/4H/meatgoats/meatgoatfs6.htm>.

# Animal Health Journal

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## ANIMAL BACKGROUND INFORMATION SHEET

Date: \_\_\_\_\_ Youth's name: \_\_\_\_\_

Animal's name: \_\_\_\_\_ Species: \_\_\_\_\_

Breed: \_\_\_\_\_ Date of birth or age of animal: \_\_\_\_\_

Gender (male, female, or unknown/fixed or intact): \_\_\_\_\_ Has this animal been bred? \_\_\_\_\_

If yes, how many times? \_\_\_\_\_ Date of last breeding? \_\_\_\_\_

**Health history:** Is this animal on any medications? \_\_\_\_\_ If yes, please list. \_\_\_\_\_

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Does this animal have current vaccinations? \_\_\_\_\_

Does this animal have any allergies? \_\_\_\_\_ If yes, please list. \_\_\_\_\_

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Has this animal had any major illnesses or surgeries? \_\_\_\_\_ If yes, describe. \_\_\_\_\_

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Date of last veterinary checkup: \_\_\_\_\_

**Environment:** Please describe the housing for this animal (indoor/outdoor, with other animals/alone, size of enclosure).

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**Diet:** Please describe the diet and the feeding schedule for this animal. Describe how water is provided (bowl, automatic waterer, etc.)

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## ANIMAL HEALTH DAILY RECORDING SHEET

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Animal name: \_\_\_\_\_

### MEASUREMENTS

Heart rate: \_\_\_\_\_ Respiration (breathing) rate: \_\_\_\_\_

### OBSERVATIONS

Behavior: \_\_\_\_\_

\_\_\_\_\_

Activity level: \_\_\_\_\_

\_\_\_\_\_

Appetite: \_\_\_\_\_

\_\_\_\_\_

Body condition: \_\_\_\_\_

\_\_\_\_\_

Posture and flight: \_\_\_\_\_

\_\_\_\_\_

Skin, coat, and hooves: \_\_\_\_\_

\_\_\_\_\_

Eyes: \_\_\_\_\_

Ears: \_\_\_\_\_

Nose: \_\_\_\_\_

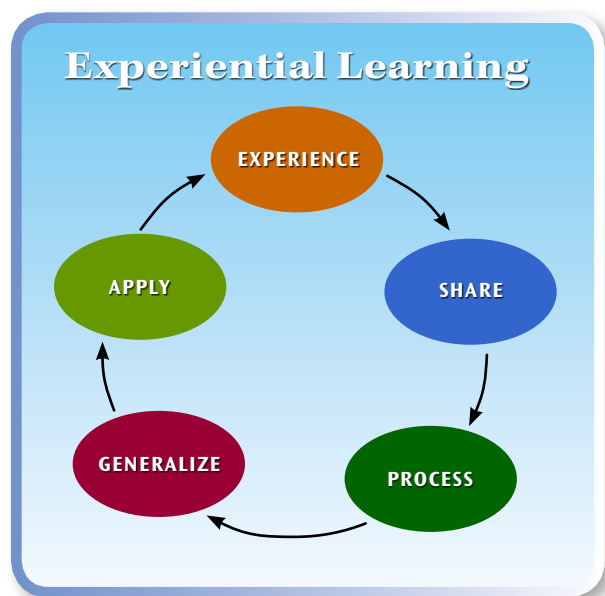
Body waste: \_\_\_\_\_

Other: \_\_\_\_\_

\_\_\_\_\_

## APPENDIX

The activity in this curriculum is 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, <http://www.experientiallearning.ucdavis.edu/default.shtml>.

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