

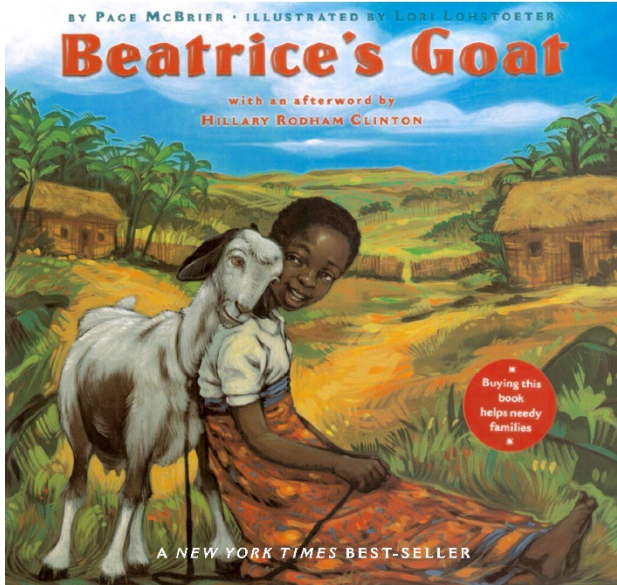


# The Book Planter



## Ag in the Classroom

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August 2024

## *Beatrice's Goat*

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Based on a true story, this heartwarming book shows how one gift changed the fate of a poor Ugandan family—especially the young girl who wanted to go to school. More than anything, Beatrice longs to be a schoolgirl. But in her small African village, only children who can afford uniforms and books can go to school. Beatrice knows that with six children to care for, her family is much too poor. But then Beatrice receives a

wonderful gift from some people far away—a goat! Fat and sleek as a ripe mango, Mugisa (“luck”) gives milk that Beatrice can sell. With Mugisa’s help, Beatrice’s dream may come true after all!

### Goat Facts:

- A goat’s average lifespan is 8-12 years.
- Goats are burpers! The rumen (their digestive system), which in a mature goat holds four to five gallons of plant material, breaks down cellulose and acts as a fermentation vat. Fermentation produces gas, and this gas escapes in the form of loud, healthy burps.
  - **Ruminants** have a four compartment stomach. They are **herbivores** (biologically destined to eat plant materials) and “cud chewers.” This includes cows, sheep, goats, llamas, and alpacas.
- Goats are grown for meat, milk, and fiber. The meat from a young goat is called **cabrito**, and the meat from a mature goat is called **chevron**.
- The pupil in a goat’s eye is rectangular in shape instead of being round like other animals.

### Goat Vocabulary

**Buck (Billy):** a male goat used for breeding.

**Cabrito:** meat from a young goat.

**Chevron:** meat from a mature goat.

**Doe (Nanny):** a female goat

**Kid:** a newborn or young goat.

**Market goat:** a goat ready for sale as meat.

**Ruminant:** a herbivorous grazing mammal that have four compartment digestive systems.

**Yearling:** a goat that is at least 12 months old, but younger than 24 months.

### Activity 1: Snack Time<sup>2</sup>

#### Materials

- Paper plate with grass and weeds
- Paper plate with some sort of snack, e.g. an apple, some chips, some jerky, etc.
- *Chew It Twice activity sheet*
- *Chew It Twice Poster*
- Two round magnets per student, one with a pompom attached

#### Procedure

1. Explain to the students that you have a snack for them. Place a plate of grass and weeds and a plate of the other snack on a table. Instruct the students to line up behind their choice.
2. Discuss their choices. Did anyone choose the grass? Why or why not?
3. Explain that people don't usually eat grass because it contains cellulose that cannot be digested by humans.
4. Ask the students to make a list of products we get from goats. (Students may not know the answer to this, so prompt them.) Explain to the students that get goat meat, milk, and fiber because of grass. Discuss the fact that goats graze pastures and rangelands. The goats eat the grass and other plant material and convert the plant cellulose into meat, milk and fiber.
5. Introduce the word **ruminant** to the students. A ruminant is an animal that has multiple compartments in its stomach. When eating, a ruminant chews their food to soften it, swallows it, and then regurgitates the food to its mouth and continues chewing. This is called chewing the cud or ruminating.
6. Ask each student to follow the digestive process of goats using the *Chew It Twice activity sheet* and their magnets. Use the pompom magnet to represent the goat's food. The other magnet will magnetize the pompom magnet from underneath the paper and will be used to move the "food" through the goat's digestive system.

### Activity 2: Understanding Economic Concepts<sup>1</sup>

Students will:

- define income, opportunity cost, saving, savings goal, and short-term and long-term savings goals
- identify the opportunity cost of a decision
- give an example of a savings goal
- explain the difference between long- and short-term savings goals

#### Materials

- *Handouts 1, 2, and 3* (attached)
- One small jar

- Tokens (such as beans)

### Procedure

1. Tell students that you want to buy a new car. Your current car is 10 years old. Explain that you don't have enough money right now to buy a new car. Ask the students if they have ever wanted something but couldn't buy it because they didn't have enough money. Have students explain how they handled their problem. (*Answers will vary but students may say they went without, saved money until they had enough, or asked for a wanted item as a gift.*)
2. Point out that the students' solutions are good ones. Explain that you are leaning toward saving each month for your new car. Explain that **saving** means not spending money now and keeping that money to use in the future.
3. Explain that you have saved for things in the past. Tell students that you wanted a new pair of shoes. The price of the shoes was \$69.99. You didn't have \$69.99, so you decided to save. Your savings goal was \$69.99, enough to buy the shoes. You put some money aside each week and didn't spend it until you reached your goal. A **savings goal** is a good or service that you want to buy in the future.
4. Explain that saving for the shoes was a **short-term savings goal**. It was a relatively small amount of money, and it only took a few weeks for you to reach your goal. However, your new savings goal—a new car—is a **long-term savings goal**. A long-term savings goal involves a larger amount of money and requires a longer time to reach.
5. Tell students that they will listen to a story about a girl named Beatrice who didn't have enough money to get something she wanted very much. Ask students to listen for Beatrice's savings goal and how she achieved her goal.
6. Read the book, *Beatrice's Goat*. Discuss the following:
  - What did Beatrice yearn to do? (*Beatrice yearned to go to school.*)
  - Why couldn't Beatrice go to school? (*Beatrice's family didn't have the money to buy the uniform and books she needed to attend school.*)
  - How did the goat, Mugisa, help Beatrice's family? (*The goat's milk provided the family with nutrition, so they were healthier, and it also provided an income because the family sold the milk they didn't drink.*)
7. Explain that **income** is payment people earn for work that they do.
  - How did Beatrice earn income? (*Beatrice milked the goat and sold the milk.*)
  - What did Beatrice do with the coins that people paid her for the milk? (*She saved the coins in a small woven purse.*)
  - What was Beatrice's savings goal? (*Beatrice wanted to save enough to buy a new shirt for Moses and a warm blanket for the bed she shared with Grace.*)
  - What was Beatrice's mother's short-term savings goal? (*Beatrice's mother wanted to save enough money to pay for a uniform and books so Beatrice could go to school.*)
  - What was Beatrice's mother's long-term savings goal? (*Beatrice's mother wanted to build a house with a steel roof that didn't leak when it rained.*)

- Beatrice named the goat Mugisa because it means luck. Was this a good name for the goat? Explain. (*Yes, the goat brought good luck to the family. By selling the goat's milk, the family was able to save enough money to buy a uniform and books for Beatrice to go to school and to build a new house.*)
8. Distribute a copy of *Handout 1: Estimation* to each student. Read the instructions and allow time for students to complete the worksheet individually, with a partner, or as a class. Review student answers. (*Josh: No; Tina: Yes; Sam: Yes; Chantelle: No.*) Ask students to explain their procedures for estimating.
  9. Remind students that there are several ways to solve math problems. On the handout they just completed, they used addition and estimation skills to determine if enough money had been saved. Explain that student will use subtraction on the next handout to determine how much more money must be saved to meet the savings goals noted.
  10. Distribute a copy of *Handout 2: How Much More?* to each student. Read the instructions and allow time for students to complete the worksheet. Review student answers. (*Teddy bear: \$9.33; Yo-yo: \$8.43; Toy airplane: \$12.94.*) Ask students to explain their procedures for determining answers.
  11. Explain that students will now have an opportunity to set their own savings goal for the class. List three activities on the board such as a popcorn party, watching a video, and an extra outdoor recess.
  12. Explain that students will have to vote for the one activity they would most like to do. Remind students that they may vote only once. Allow students to vote. Circle the activity that receives the most votes.
  13. Explain that this activity is the class's savings goal and that they will have an opportunity to earn and save in order to have the activity. Display a small jar. Explain that to earn the activity, the class must fill the jar. Students will be rewarded with beans (or other small tokens) for good behavior. Generate a list of good behaviors for which the students can be paid. These might include following class rules or receiving compliments for behavior from teachers in the hallways, lunchroom, or during special classes.
  14. Explain that each time students complete one of the behaviors on the list, a small handful of beans will be added to the jar as payment. When the jar is full, the students will have saved enough beans to earn their chosen activity.
  15. Review the following with the students:
    - What is the class's savings goal? (*The class's saving goal is to save enough beans to earn the activity they voted for as their first choice.*)
    - How will the class reach their savings goal? (*The class will earn a small handful of beans each time they practice agreed-upon behaviors.*)
  16. Ask the students to determine what the class gave up when it selected the activity that received the most votes. (*They gave up their second choice.*) Point out that by choosing the activity that received the most votes, students lost the opportunity to do their second choice. The second choice was the cost of getting their first choice. Explain that what is given up to get

the first choice is called the **opportunity cost**. Opportunity cost is the highest-valued alternative given up when a decision is made; it is your second choice.

17. Give students an example. Tell them that you had to decide how to use an hour of time. You could have read a book, gone shopping, or gone to the gym. You didn't have enough time to do all three because you had limited time. You decided to read a book. Your opportunity cost was going to the gym because that was your second choice; it was what you would have done had you not decided to read the book.
18. Ask students what they would choose to do if there were an extra 30 minutes of recess: Would they play soccer or run races? Ask a student to share his or her choice and his or her opportunity cost. Allow other students to share.
19. Ask students to share examples of choices they have made, tell why they had to make a choice, and identify the opportunity cost.
20. Remind the students that Beatrice and her family made choices. Discuss the following:
  - What was the opportunity cost for Beatrice's family of saving coins? (*The family didn't use the money to buy things they needed or wanted immediately.*)
  - What was the opportunity cost of using the savings for Beatrice's uniform and books? (*The family's opportunity cost was the blanket for the bed, a new shirt for Moses, and having to save longer for a house.*)

## 21. Closure

- What is **income**? (Income is payment people receive for work they do.)
- How do people earn income? (People earn income by working.)
- What is **saving**? (Saving is not spending money now and keeping that money to use in the future.)
- What is a **savings goal**? (A savings goal is a good or service that you want to buy in the future.) • What have you saved for? (Answers will vary but may include games, toys, books, movies, or candy.)
- How are **short- and long-term savings goals** different? (Usually short-term savings goals cost less and can be reached in a shorter time than long-term savings goals.)
- Give an example of a short-term savings goal for you. (Answers will vary but may include candy, a movie ticket, or a small toy.)
- Give an example of a long-term savings goal for you. (Answers will vary but may include a video game system, a movie on DVD, or money to spend on vacation.)
- What is **opportunity cost**? (Opportunity cost is the highest-valued alternative given up when a decision is made; it is your second choice.)
- What is the opportunity cost of saving? (The opportunity cost of saving is the things that you don't buy now.)
- On Friday night, you could spend the night with a friend or go for pizza and a movie with your family. What would you choose to do? (Answers will vary.)

- What would your opportunity cost be? (If they choose to spend the night with a friend, the opportunity cost is pizza and a movie. If they choose pizza and a movie, their opportunity cost is spending the night with a friend.)

## 22. Assessment

- Distribute a copy of *Handout 3: Savings Goal Assessment* to each student. Allow time for students to complete the activity. Review student answers.
- *Handout 3: Savings Goal Assessment—Teacher Answer Key*
  - 1. Students will circle either the book or movie DVD.
  - 2. The opportunity cost is the item not circled.
  - 3. \$18.95 4. \$7.63 5.
  - 4 weeks 6. Answers will vary.

## Sources

1. [https://www.stlouisfed.org/education/-/media/project/frbstl/stlouisfed/education/ga/q\\_and\\_a\\_beatrices\\_goat.pdf](https://www.stlouisfed.org/education/-/media/project/frbstl/stlouisfed/education/ga/q_and_a_beatrices_goat.pdf)
2. <https://agclassroom.org/matrix/lesson/284/>

## K-5 Subject Areas: English Language Arts, Social Studies, and Science

### English Language Arts

- RL.K.1 With prompting and support, ask and answer questions about key details in a text.
- RL.K.2 With prompting and support, identify the main topic and retell key details of a text.
- RL.K.3 With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.
- RL.1.1 Ask and answer questions about key details in a text.
- RL.1.2 Identify the main topic and retell key details of a text.
- RL.1.3 Describe the connection between two individuals, events, ideas, or pieces of information in a text.
- RL.1.4 Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.
- RL.1.5 Know and use various text features to locate key facts or information in a text.
- RL.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
- RL.2.4 Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.
- RL.2.5 Know and use various text features to locate key facts or information in a text efficiently.
- RL.2.7 Explain how specific images contribute to and clarify a text.
- RL.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- RL.3.2 Determine the main idea of a text; recount the key details and explain how they support the main idea.
- RL.3.4 Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area.
- RL.3.5 Use text features and search tools to locate information relevant to a given topic efficiently.
- RL.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
- RL.4.2 Determine the main idea of a text and explain how it is supported by key details; summarize the text.
- RL.4.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
- RL.4.4 Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.
- RL.4.5 Describe the overall structure of events, ideas, concepts, or information in a text or part of a text.
- RL.4.7 Interpret information presented visually, orally, or quantitatively and explain how the information contributes to an understanding of the text in which it appears.
- RL.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
- RL.5.4 Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.

### Social Studies

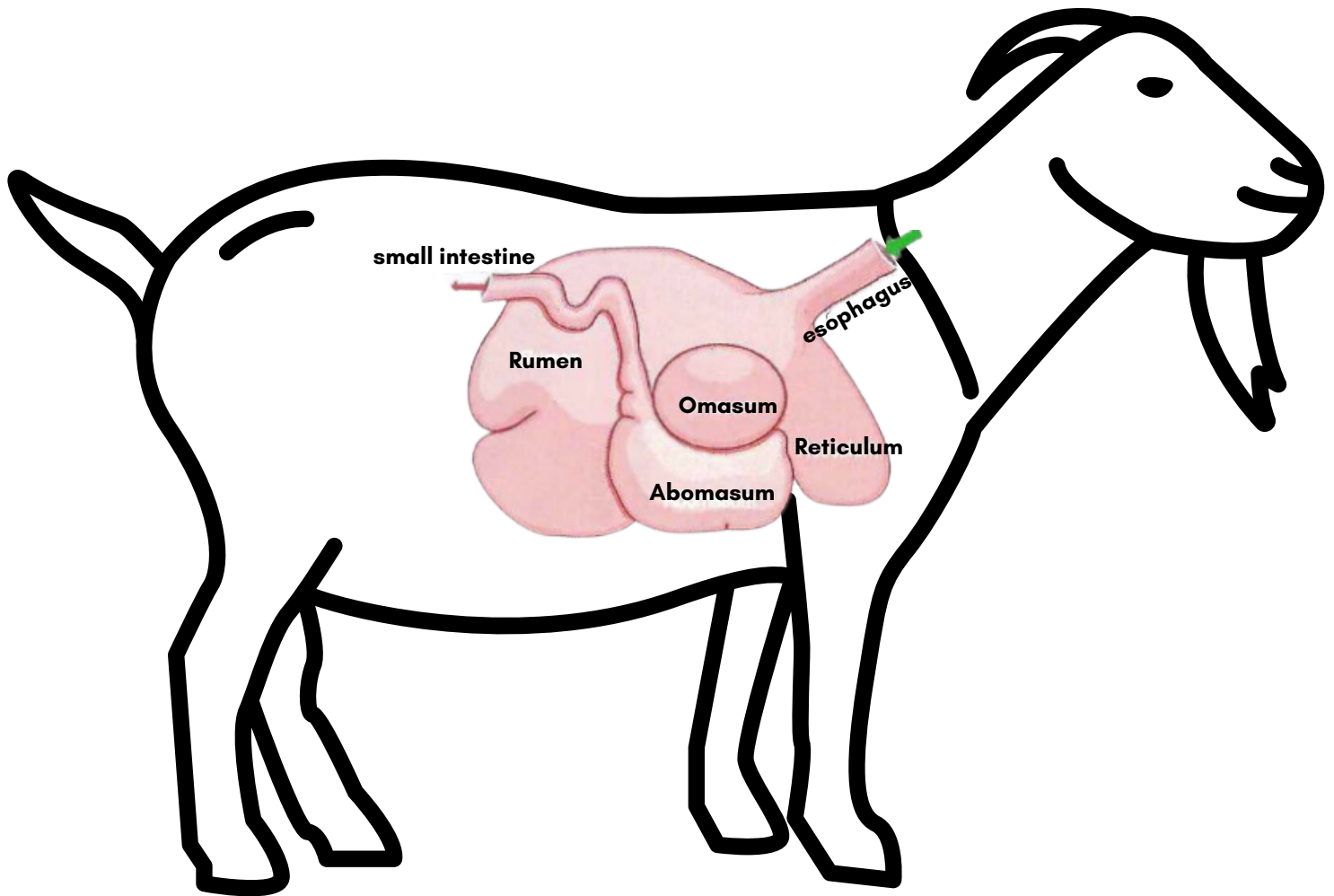
- K.B.1.1 Identify cultural practices in local communities and around the world.

- K.B.1.2 Compare cultural practices of people in local communities and around the world.
- K.E.1 Analyze basic economic concepts.
- K.G.2 Understand interactions between humans and the environment.
- 1 B.11 Identify cultural practices and traditions in local communities and places around the world.
- 1.C&G.1.1 Exemplify ways individuals and groups play a role in shaping communities.
- 1.E.1 Understand the role of basic economic concepts in the decisions people make.
- 1.G.2 Understand interactions between humans and the environment in different places and regions around the world.
- 2.B.1 Understand how values and beliefs shape culture in America.
- 2.E.1 Understand how the availability of resources impacts economic decisions.
- 3.B.1 Understand how values and beliefs of individuals and groups influence communities
- 3.E.1 Understand how economic decisions and resources affect the local economy.
- 3.G.1 Understand how geography impacts the development of regions and communities.
- 4.E.2 Understand the impact of personal financial decisions.
- 5.E.2 Understand the impact of personal financial decisions.

#### **Science**

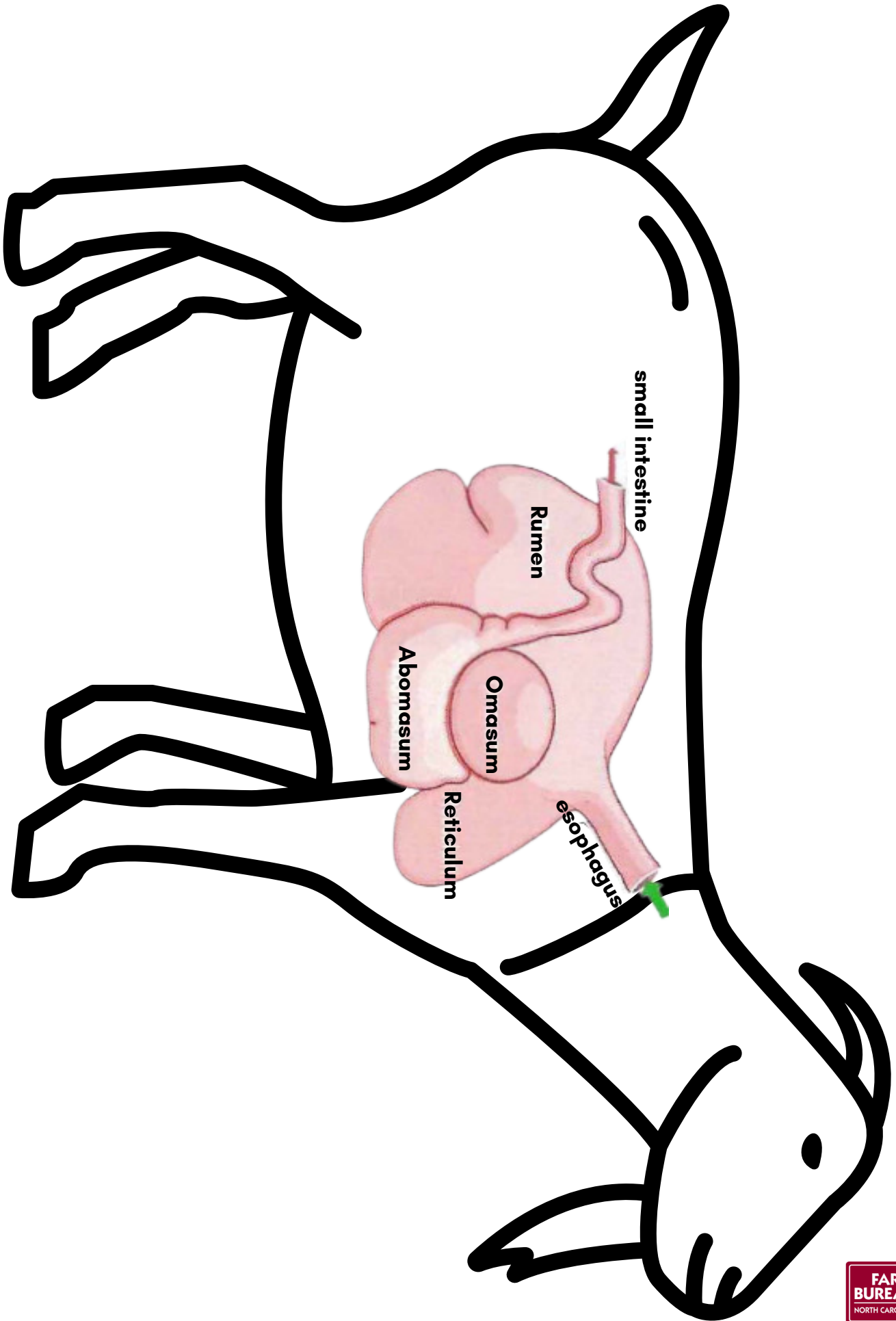
- PS.K.1 Understand how objects are described based on their physical properties and how they are used.
- LS.K.1 Understand the characteristics of living organisms and nonliving things.
- LS.K.2 Understand characteristics or organisms that make them alike and different.
- LS.1.1 Understand the basic needs of a variety of plants and animals in different ecosystems.

# Chew It Twice



As goats eat, the food passes from the mouth into the **rumen** (roo mihn), where the food is partly digested by tiny bacteria. The food is then passed to the **reticulum** (ruh tik yu lum), which is a membrane with honeycomb-shaped ridges. These ridges break the food down into smaller pieces called cud. The cud comes back into the cow's mouth. The goat chews its cud with powerful back teeth to break the food down even more. As the goat swallows, the saliva washes the cud back into the goat's system. The food now flows into the **omasum** (o mey sum). This is where the food breaks down into vitamins and nutrients that the goat's body needs. The final digestive process takes place in the **abomasum** (ab o mey sum). Here the goat's system gets all the remaining food value it needs before the food passes into the intestines. The intestines continue to absorb nutrients and store the unused food portions until there is enough to be removed as goat manure.





## Handout 1: Estimation

Directions: Use estimation to determine if each student has enough saved to reach his or her savings goal.

Student	Savings goal	Amount saved	Enough saved?
Josh	\$20.00	\$8.96 \$10.02	<input type="checkbox"/> Yes <input type="checkbox"/> No
Tina	\$15.00	\$0.79 \$3.00 \$11.51	<input type="checkbox"/> Yes <input type="checkbox"/> No
Sam	\$10.00	\$4.25 \$5.50 \$0.75	<input type="checkbox"/> Yes <input type="checkbox"/> No
Chantelle	\$25.00	\$7.96 \$12.59 \$2.99	<input type="checkbox"/> Yes <input type="checkbox"/> No

Directions: Work with a partner. Create a similar estimation problem in the chart below. Exchange with your neighbors. Use estimation to solve your neighbor's problem.

Student	Savings goal	Amount saved	Enough saved?
			<input type="checkbox"/> Yes <input type="checkbox"/> No

## Handout 2: How Much More?

Directions: Determine how much more must be saved to meet each savings goal.

Savings goal	Amount saved	Amount needed
 <p><b>Teddy bear</b> <b>\$15.78</b></p>	\$6.45	
<p><b>Yo-yo</b> <b>\$ 9.32</b></p> 	\$0.89	
 <p><b>Toy airplane</b> <b>\$25.96</b></p>	\$13.02	

**Handout 3: Savings Goal Assessment**

**Book**  
**\$18.95**



**Movie DVD**  
**\$18.95**

1. Circle the item you would like to have.
2. What is the opportunity cost of your choice? \_\_\_\_\_
3. What is your savings goal? \_\_\_\_\_
4. If you have \$11.32, how much more do you need to reach your savings goal?  
Show how you reached your answer.
5. If you save \$2.00 each week, how long will it take you to reach your savings goal?  
Show how you reached your answer.
6. Write a sentence describing a long-term savings goal for you, and explain why this is a long-term savings goal.