

#1 Pasture/ Mouth

Directions:

1. One person from each group will be "the cow" and go collect the grass from the other students in your group and place it in the mouth bag.
2. Swallow and eat a cracker: **Do you think chewing would be easy without saliva?**
3. Add water/ saliva and seal the bag.
4. Then use fingers to mimic the cow chewing the grass to form a wad.



Fun Facts

- 🐮 Cows spend about 6–8 hours every day eating!
- 🌱 A cow uses its rough tongue to wrap around grass and pull it into its mouth.
- 😬 Cows don't have top front teeth! Instead, they have a hard dental pad that helps them tear grass.
- 💧 Just like people, cows make saliva when they chew. A cow can produce up to 50 gallons of saliva a day!

Question:

"Have you ever tried chewing food without saliva? Why do you think saliva is important?"



#2 Esophagus

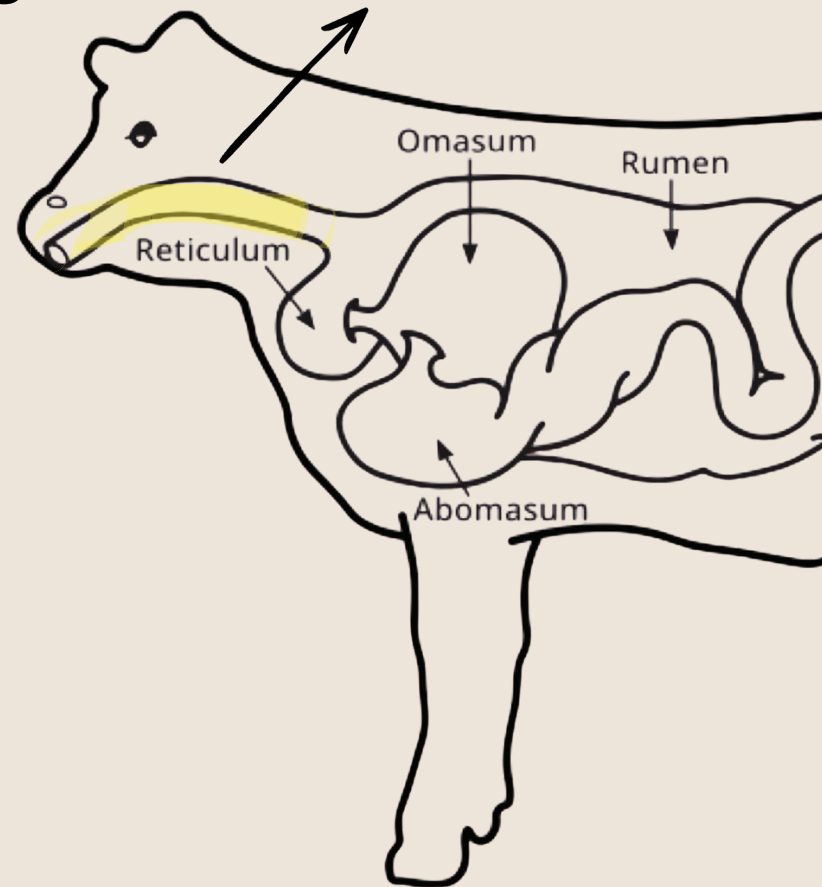
ih-SOF-uh-gus

Esophagus

Directions:

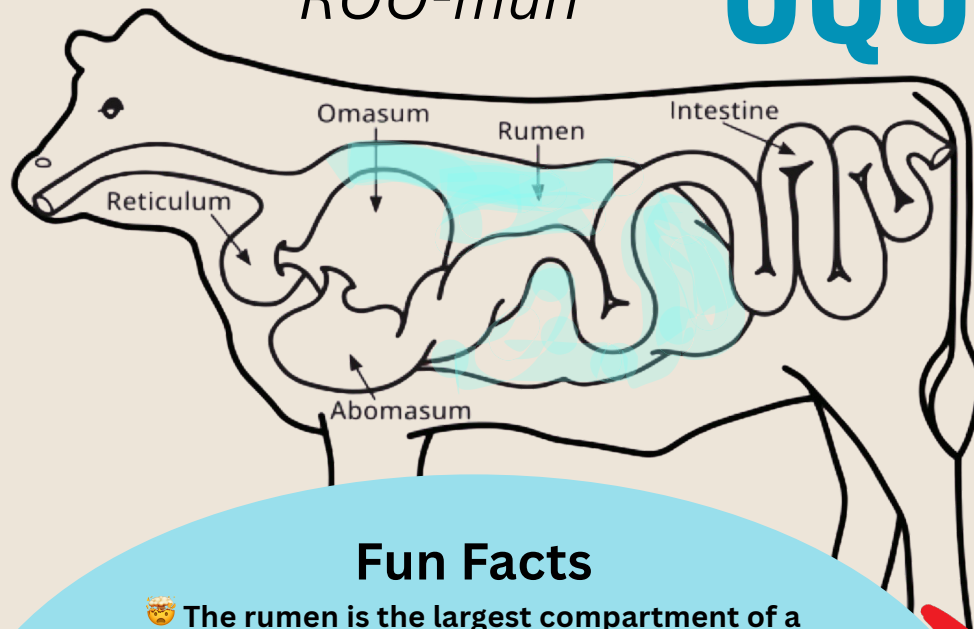
1. Using the **esophagus(spoon)**, move the wad of food from the mouth and into the rumen.
2. Have the students swallow.

The esophagus is a part of the body that transports food from the mouth to the stomach.



#3 Rumen SQUISH

ROO-mun



Fun Facts

- 🍽️ The rumen is the largest compartment of a cow's stomach.
- 🐄 An adult cow's rumen can hold up to 50 gallons of partially digested food and liquid.
- 🦠 The rumen is home to billions of tiny microbes.
- 🌿 These microbes help cows digest cellulose, the tough material that makes up plant cell walls.
- 🚫 Humans can't digest grass, but cows can because of their microbial helpers.

Directions:

1. The rumen liquids and walls are home to millions of microorganisms that are now starting to eat the food that the cow just swallowed.
2. Add the Pop Rocks candy and listen to them 'eating'! Walk around to show them.
3. Seal that baggie closed and set it on your table. Lightly pull up on the top of the baggie and then let go.
4. Ask: What just happened?
5. The rumen just had a contraction, which moved the liquids, food, and microorganisms around so that they all came into contact. Kind of like stirring ingredients together when cooking!

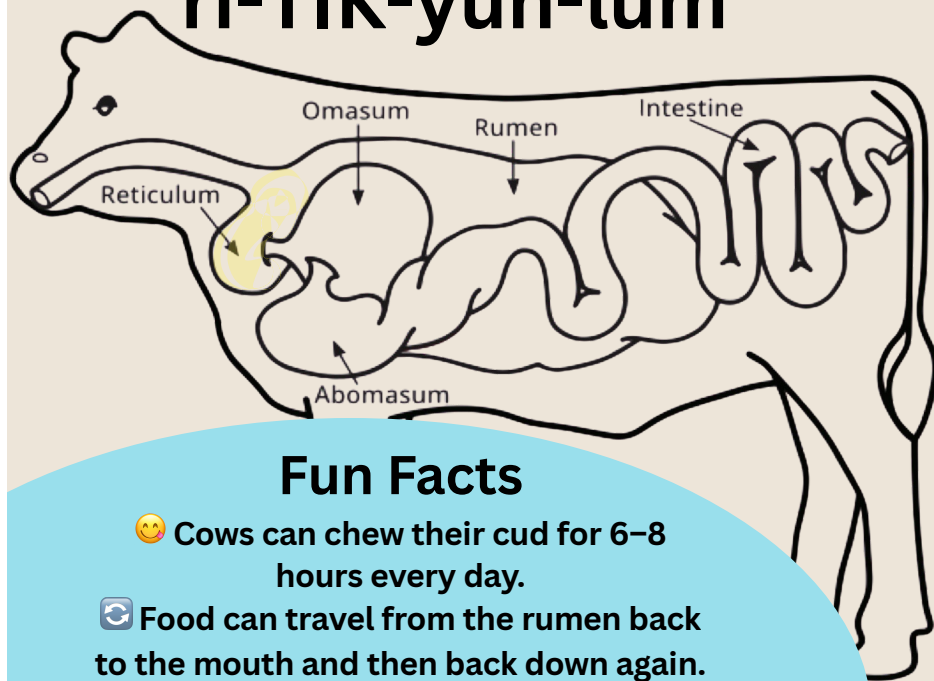
"Who is really doing most of the work—the cow or the microbes?"

Optional Movement

- Everyone squishes an imaginary bag with both hands. Sound effects BUBBLE!, FIZZ!, BURP!, SQUISH!
- Then gently bounce up and down.

#4 Reticulum

ri-TIK-yuh-lum



Fun Facts

- 😊 Cows can chew their cud for 6–8 hours every day.
- 🔄 Food can travel from the rumen back to the mouth and then back down again.
- 🐮 Some cows chew their cud while resting in the shade.
- 🧩 The reticulum works like a sorting station and helps form cud.

"Would you want to eat your lunch twice?"

CHEW

A contraction spilled some rumen liquids and a wad of food into the reticulum.

1. Put the reticulum over the opened omasum. Then cut the corner of the rumen bag and squeeze it into the reticulum. The reticulum is like a sifter; hold up the sifter.

Oh no! The grass needs more chewing!
This is called chewing their cud!

1. Use the esophagus to "regurgitate" the wad of food to the mouth!– Go back to the mouth*

Optional Movement

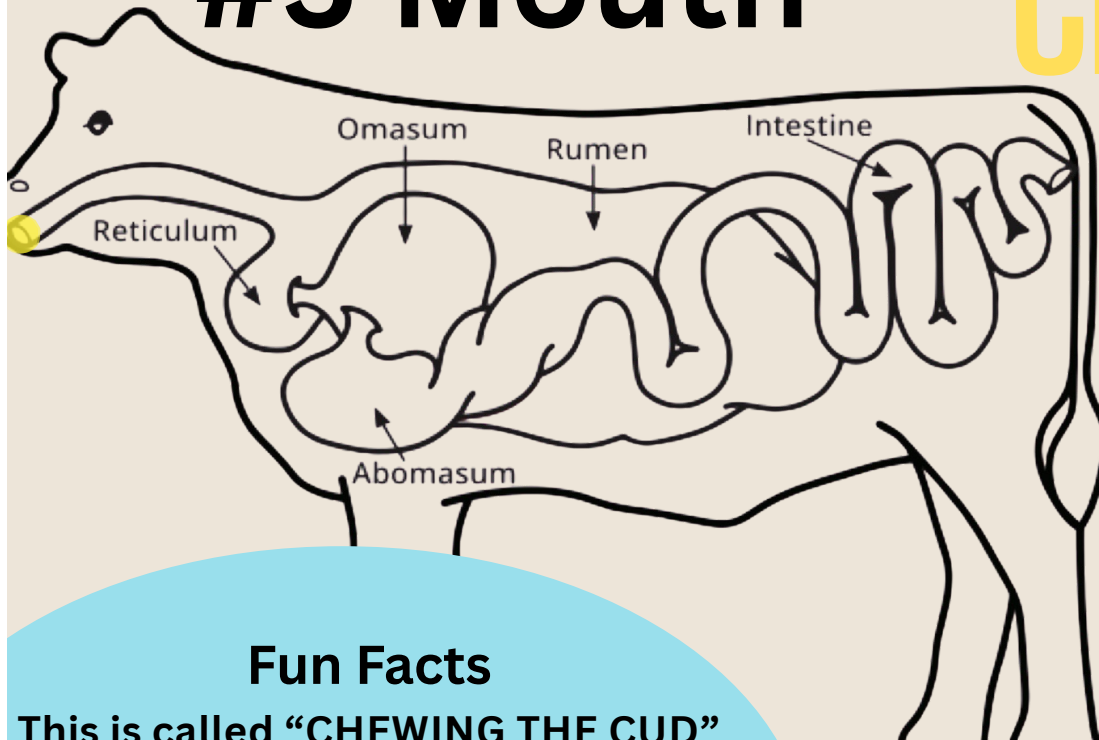
Students pretend food is coming back up.

- Place your hands over your mouth and make a surprised face.
- Then dramatically chew.
- Chew like a cow for 10 seconds.
- Move jaws side to side.

Sound Effect: "MUNCH! MUNCH! MUNCH!"

#5 Mouth

CHEW



Fun Facts

This is called “CHEWING THE CUD”

Cows spend 6-8 hours a day
chewing their cud!

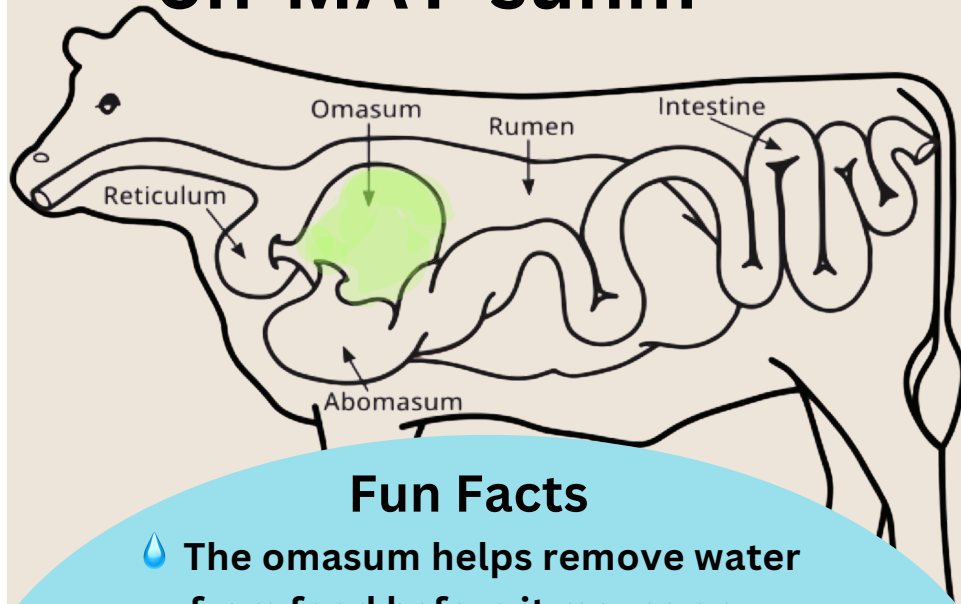


Directions

1. Close the mouth and use the bottom of your measuring cup to lightly smash the food into smaller pieces—it will get a little mushy!
2. In real life, the cow would re-chew the food, swallow it, and the wad of food would go back into the rumen to be further broken down by the microorganisms. The food can only pass through the reticulum once it's broken down, or digested, enough. This would be a repeat of the previous process we just did, but today we are going to fast-forward to the omasum!
3. Form the food into a wad! Walk over to the omasum station.
4. Using the esophagus, move the wad of food from the mouth and into the omasum!

#6 Omasum

oh-MAY-suhm



Fun Facts

- 💧 The omasum helps remove water from food before it moves on.
- 📖 The inside of the omasum has many folds that look like pages in a book.
- 📖 Because of these folds, it is sometimes called the "book stomach."
- 💧 Cows recycle water by absorbing it to keep them hydrated.

SQUEEZE

Now it's time to squeeze out extra water.

1. Lay all the food in the paper towel and squeeze.

The omasum helps save water for the cow. The inside of the omasum looks like pages in a book.

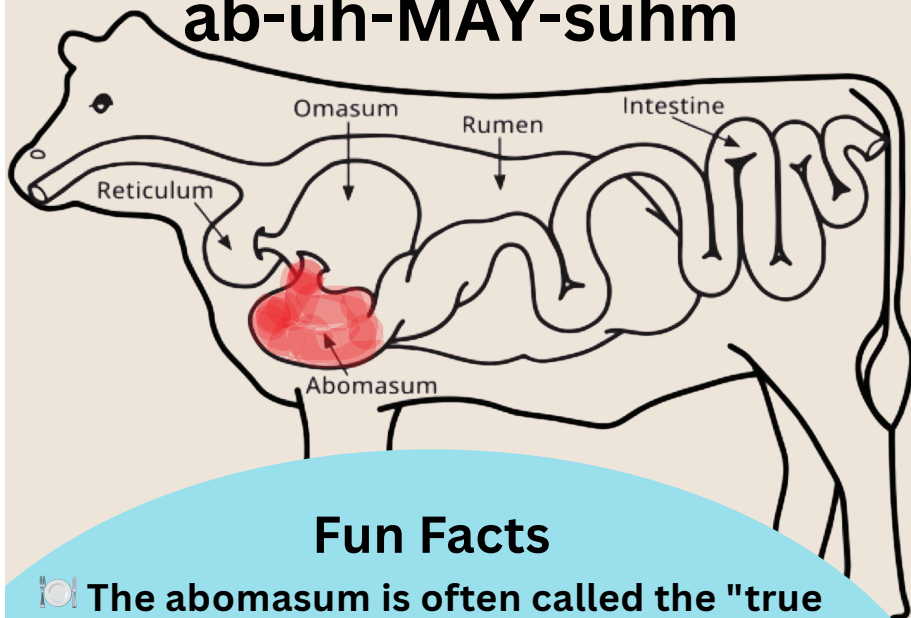
"Why do you think animals need water?"

Optional Movement

- Students pretend they are giant sponges. Stretch arms wide. Then, squeeze arms tightly against the body. Repeat 3 times.
- Sound Effect: "Squeeze!"

#7 Abomasum

ab-uh-MAY-suhm



Fun Facts

-  The abomasum is often called the "true stomach."
-  It contains acids and enzymes that help finish breaking down food.
-  It works very similarly to your own stomach.
-  Calves rely heavily on this compartment when they are drinking milk.

DIGEST

Welcome to the true stomach.

1. Carefully dump the wad of food from the omasum into the abomasum!
2. Add a little bit of soda. This represents the acids in the stomach.

The abomasum is most like the human stomach and produces acidic liquids to break down the food even further!

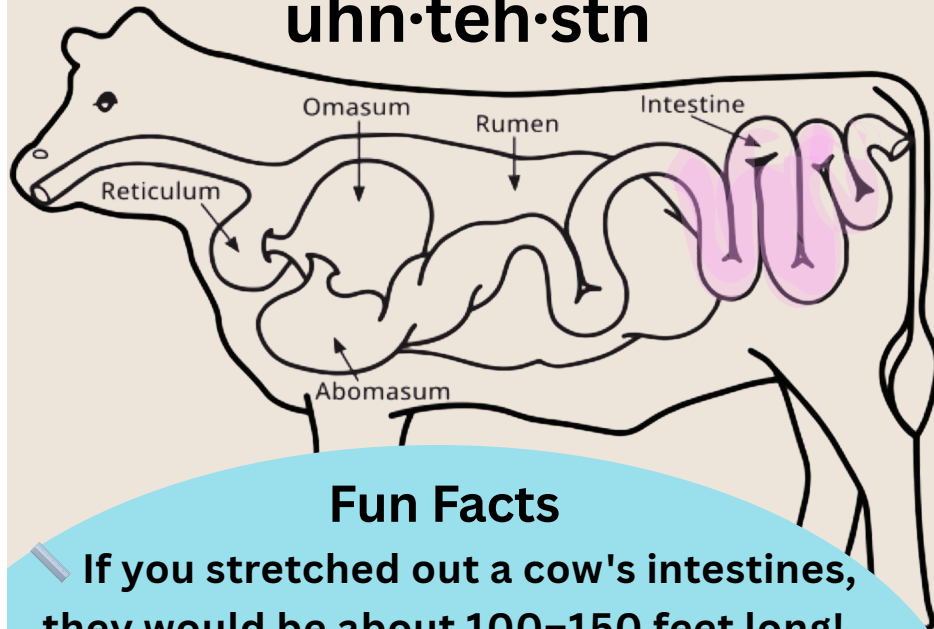
"What happens if your stomach doesn't digest food properly?"

Optional Movement

Students rub their bellies in circles.
Then gently stomp their feet.
This is where special stomach juices help finish digestion.
Sound Effect: "GLURP!" "GURGLE!"

#8 Intestines

uhn·teh·stn



Fun Facts

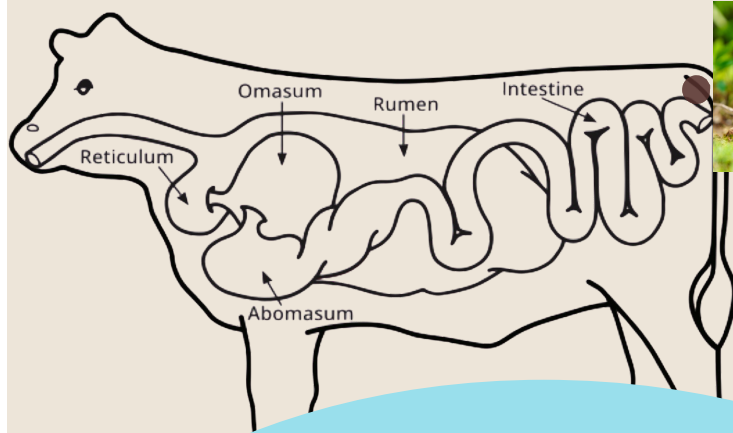
-  If you stretched out a cow's intestines, they would be about 100–150 feet long!
-  Nutrients travel from the intestines into the bloodstream.
-  Those nutrients help cows grow muscles, bones, and energy.
-  Nutrients from feed help cows produce milk for calves.

ABSORB

1. Carefully dump everything from the abomasum into the intestine! Add the sponge pieces into the mixture. So, just like a sponge, the small intestine will absorb the rest of the water and nutrients.
 2. At this time, lay the long rope around the room. The intestines are where nutrients are absorbed. The students slowly walk along the rope pathway, collecting nutrient cards.
- Do the pose that it says on the nutrient card.

"What nutrients do you think help your body grow?"

#9 Poop Happens!



"What grows
when manure
adds nutrients
to the soil?"

Fun Facts

- 🌱 Cow manure contains nutrients that plants need.
- 🚜 Farmers often use manure as a natural fertilizer.
- ♻️ Manure helps return nutrients to the soil.
- 🌾 Healthy soil helps grow healthy crops.
- 🐮 One cow can produce more than 50 pounds of manure in a single day!

The cow used all the nutrients it needed.

1. Give each student a brown pom-pom. Lay the green tablecloth on the floor.
2. What happens to what the cow doesn't use? Poop! Yes! But cow manure helps farmers and gardeners.
3. Have students toss their pom-poms into the tablecloth that looks like grass.

