

RUMINANTS

Project Meeting



Digestive System



AGES

Junior - Senior

TIME

1 hour

COST

\$\$ - \$\$\$

SKILLS GAINED

Critical Thinking

Creativity

Collaboration

Observational

Communication

OBJECTIVE:

Youth will understand the structure and function of the four compartments of a ruminant stomach: Rumen, Reticulum, Omasum, and Abomasum by creating sensory bins to simulate each compartment

SUPPLIES

Plastic bins or containers (4 per group or table)

Painters tape to label containers

Gloves

Item ideas for containers (mix and match or add more of your own!)

Grass or hay

Bubble Wrap

Stones/ pebbles

Paper or washcloths

Slime, gelatin

Bubble wrap

Orbeez

Dawn dish soap on a damp t-shirt

Water

Silicone spray (to make things slippery)

Anything Else that you can think of!!



THINGS TO BRING

Youth don't need to bring anything

Step-by-Step Instructions



1

Intro: Discussion about ruminants, explain their digestive system and why it's adapted for processing fibrous plant material. Print and hand out diagram of ruminant stomach.

2

Creativity Time: Bring more materials than you think you would need! Allow them to each build their compartments using their own rationale for the materials they used.

3

Hand on assembly: In small groups, allow the youth to create their containers using the materials that they think work best. Give about 20 to 30 minutes for groups to discuss and build.

4

Display: After each group is done, have them tell what they used for each compartment and why. You can have each group go through all 4 compartments or have each group display the same compartment before moving to the next.

5

Discussion:
Exploration questions and topics (see next page for age group recommendations)

6

Wrap-Up: Recap the key points and concepts. Take photos of each group with their bins and then clean up.

Junior

- Why do cows, sheep, goats, etc need four stomach compartments?
- What kinds of foods would this digestive system be best for eating?
- Which was your favorite bin to feel and why?
- Can you think of another kind of animal besides cows, goats, and sheep that have this type of digestive system?

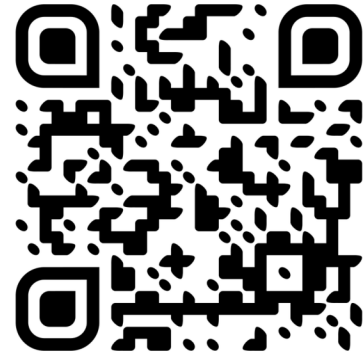
Intermediate

- How does a rumen turn grasses into energy?
- Why do ruminants chew their food more than once?
- What happens when if a ruminant eats a piece of metal like wire or a nail?
- Why is it important for people who own ruminants to know how their digestive system works?
- What careers might require knowledge of how a rumen digestive system works?

Senior

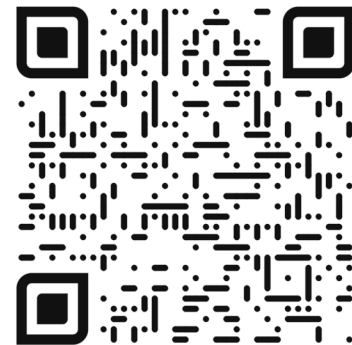
- How does a rumen compare to a single stomach of a monogastric animal?
- What role do microbes play in digestion for ruminants?
- What are key differences between the omasum and abomasum?
- How does the ruminant digestive system impact agriculture and food production?
- Looking at any career you want in the future, what role could a rumen play in that career? (*ie Ballerina: Needs ballet pointe shoes, wool is used in the toe, sheep are needed to produce the wool, sheep utilize a ruminant digestive system.*)

Do you have a project meeting idea? Submit it here:



**DID YOU LIKE THIS PROJECT?
SHARE YOUR THOUGHTS WITH US!**

Adults



Youth

