

Adopt-A-Cow: Beef

LESSON 5: LIFE CYCLE

KEY TERMS

Carbohydrates, Fat, Fiber, Minerals, Nutrients, Proteins, Vitamins

EDUCATION STANDARDS

English Language Arts

- SL.1, SL.2, SL.3

Educational Technology

- ET.EL.2

Science

- S-LS1-1, 3-LS4-2

TIME NEEDED

Part 1: Video Calf Check-In (2 min)

Part 2: Lesson and Bull Sale Video (20 min)

Part 3: Activity TMR (15 min)

Videos to watch while eating TMR:
Feed Lot (6 min)

MATERIAL LIST

Materials for the whole class:

- Computer/Projector/TV/
Promethean board
- PowerPoint

Materials for the individual or teams of students

- Zip top bags
- Measuring spoons and cups
- Foodstuff listed in Lesson Preparation



EXPECTED LEARNER OUTCOMES

OBJECTIVE 1 – Youth will compare the growth of a calf and human baby in the first year of their life.

OBJECTIVE 2 – Youth will explore the different paths a calf may take depending on its gender and genetics.

OBJECTIVE 3 – Youth will compare the foods that humans eat to those consumed by cattle as well as explore the different diets cattle may have.

BACKGROUND

Once calves are weaned from their mother's milk, their lives can take multiple paths depending on their gender, their genetics, and the needs of the ranch they live on. Heifer calves with desirable genetics and dispositions may become replacement heifers and stay on the ranch to produce the next generation of calves. Other heifers may be sold to another ranch or be put into a feedlot setting where they will be prepared for marketing as meat animals. Similarly, bull calves follow similar paths. They can be kept (or sold) to produce the next generation, or they can be removed from production and into the feedlot for market. Depending on their path, these animals have different dietary requirements. We will look a bit more about the differences in this lesson.

VOCABULARY

Carbohydrates – A nutrient the body uses as its main source of energy. They come in three forms: starch, sugar, and fiber.

Castration – The act of removing the testes to stop the production of testosterone and prevent male animals from reproducing.



Dam or Cow – Mother cow.

Fat – A nutrient that provides calories (energy) for the body, carries vitamins to our cells, pads organs, and is used to make hormones.

Fiber – A form of carbohydrate that aids in digestion.

Heifer – A female cow that has not yet given birth.

Minerals – A nutrient that is needed for normal growth, development, and body functions such as bone strength and water balance.

Nutrients – A nutrient is something our bodies need to grow and function properly. We get nutrients from the foods we eat each day. Each nutrient does a special job in our bodies to keep us healthy.

Protein – A nutrient that the body uses to build and repair muscles as well as for energy.

Replacement Heifer – A female cow that is kept by a rancher to be bred and produce future generations of the herd.

Sire or Bull – An intact male calf.

Steer – A castrated male calf.

Total Mixed Ration (TMR) – A diet providing all the nutritional requirements a cow needs to be healthy and produce milk or meat.

Vitamins – A nutrient that helps our body use other nutrients like protein, carbohydrates, and fats.

LESSON PREPARATION

**Lesson is designed using a PowerPoint format. This is done to provide structure and speaking points. It also provides visual aids to help youth understand what is being discussed. In a less formal setting, a PowerPoint may not be appropriate, and educators may select not to use the formal presentation. Individual slides can be printed to provide visual aids.*

- Review the ingredients required for the Total Mixed Ration in Table 1 below. Consider dietary restrictions and consider alternatives as needed.

Table 1. What Do Cows Eat?

Item	What it represents	Example in Cow Diet	Example in Human Diet	Role it plays in the diet
Pretzels	Carbohydrate (Starch/Sugar)	Corn Silage and ground corn	Bread, pasta	Starches and sugars are used as the main source of energy.
Corn Chex	Carbohydrate (Fiber)	Corn Silage, DDG, Hay	Grains, Fruits, Vegetables	Aids in digestion and rumen function in cattle. Is an important part of gut health for humans as well.
Sunflower Seeds	Protein	Alfalfa, soybean meal and dried distillers' grain	Beef, pork, chicken, tofu	Provides slow release, long-term energy, which is used for muscle growth and support
Chocolate	Fat	Dried Distillers and Soybean meal	Avocados, Nuts, Peanut butter	Provides supplemented nutrients to the cow to meet requirements to keep them healthy. Your body needs fat for energy to absorb vitamins to protect heart and brain health. There is good fat (HDL) and bad fat (LDL)
Popcorn Seasoning	Vitamins/Minerals	Many ingredients including additional vitamins and minerals are added to feed.	Supplements and many foods provide an abundance of certain required vitamins/minerals. Milk provides 13 essential nutrients	Provides supplemented nutrients to the cow to meet requirements to keep them healthy



LESSON INSTRUCTIONS

**Detailed notes are contained within the PowerPoint notes section for each slide.*

- I. Lesson 4 Review (Slide 2)
- II. Calf Check-in Video (1:15 min) (Slide 3) – youtu.be/C4s5hXoj9kw
- III. Comparing calf development to human development (Slide 4)
- IV. What happens when your calf is 1 year – bull (Slide 5)
- V. Werning Cattle Co. Bull Sale Video (6 min) (Slide 6) – youtu.be/1kryELI-kwI
- VI. What happens when your calf is 1 year – heifer (Slide 7)
- VII. Balanced diets (slide 8)
- VIII. Protein (Slide 9)
- IX. Fat (Slide 10)
- X. Carbohydrates (starch/sugar) (Slide 11)
- XI. Carbohydrates (fiber) (Slide 12)
- XII. Vitamins & Minerals (Slide 13)
- XIII. Creating a Total Mixed Ration (Slide 14)
- XIV. Breeding vs. Feedlot Diets (Slide 15)
- XV. Creating Our Rations (Slide 16)
- XVI. VanderWal Feedlot Video (Slide 17) – youtu.be/Lqpvf738in8

LITERATURE TO EXPLORE

Looking for literature to further explore topics from this lesson? Check out these books:

Beef Strong by Amanda Radke

Learn from athletes about what it takes to be flexible, driven, and strong while learning about the nutrients provided by beef.

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