



BEEF + VEAL LESSON PLAN

OVERVIEW

- **Grade:** Can be adapted to Middle School, High School and Collegiate audiences.
- **Lesson Duration:** recommended over two class periods, two-45 minute lessons
 - **Day 1:** teaching and instruction
 - **Day 2:** cooking lab. Recipe contest and cooking/beef application could extend up to a week if desired.

MATERIALS

- Beef & Veal in the Classroom Toolkit
- Beef in the Classroom PowerPoint Presentation
- In-classroom worksheet and KEY
- Beef Checkoff Infographics (links found in Classroom Toolkit)
- Beef Contest Instructions
- Beef product and recipe ingredients

OBJECTIVES

- **Students will have a basic understanding of:**
 - The beef industry
 - A cow's life cycle and on-the-farm steps from farm to plate.
- **Students will be able to:**
 - Identify beef muscle cuts and proper cooking methods;
 - Understand grading and interpret ground beef labels;
 - Understand beef pricing and ways to save and store beef;
 - Identify nutrients found in beef and why beef can play a crucial role in supporting an active and healthy lifestyle.

STANDARDS

National FCS Standards

- 8.0, Food Production & Services
- 9.0, Food Science, Dietetics, & Nutrition
- 14.0, Nutrition & Wellness

National Science Standards

- ESS3-1: Earth and Human Activity
- LS4-5: Biological Evolution

Common Core

- RST 9-10.4
- RST 11-12.7

Middle School

- MS-LS2-2 Ecosystems: Interactions, Energy and Dynamics
- MS-LS1-3: From Molecules to Organisms

BACKGROUND

Beef cattle are raised in every state across the nation. **90% of farms and ranches across the US are family owned and operated.** Today's technology allows farmers and ranchers to do more with less.

Cattle are ruminant animals. Their four-compartment stomach allows them to eat forages and plants (that humans are unable to digest) in areas where it would be difficult to grow other food crops. Cows convert plants into high-quality protein for human consumption.

Beef's nutrient and flavor profile make it an excellent choice to support a healthy and active lifestyle.

The **Beef and Veal in the Classroom** lesson plan is designed to introduce the beef industry and production life cycle on the farm, while sharing practical skills around selecting beef cuts, understanding grades and labels, as well as how to properly handle and prepare beef.



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VOCABULARY

beef: Nutrient-rich meat with 10 essential nutrients produced from bovine animals (cows)

cow: a mature female bovine – and has one calf a year

calf: Young bovine, either male or female

ruminant: an animal that uses a series of stomach compartments and chews its cud in order to digest plant cellulose.

cellulose: the main component of green plants like grass and shrubs; not digestible by humans but nutritious to cows

nutrients: a substance that provides nourishment that is essential for growth and maintenance of life.

Students can explore types of farms and ranches, and the cow's life cycle through interactive videos, if time allows:

<https://www.beefitswhatsfordinner.com/raising-beef/production-story>

OBJECTIVE 1: BEEF PRODUCTION

Raising beef is a complex process, but throughout the entire journey, one thing remains constant – the shared commitment to raising cattle in a safe, humane and environmentally sustainable way by using the latest technology and resources.

Learn more about the beef and veal lifecycle and the farmers and ranchers who raise beef and veal in the US:

- The average herd size in the US is 40 head
- About 90% of what cattle eat cannot be digested by humans

The Beef Life Cycle

1. **Cow-Calf** - Beef cattle start off on cow-calf operations where cows give birth to calves yearly.
2. **Weaning** - Beef calves stop receiving milk from their mothers between 6 and 8 months of age.
3. Between steps 2 and 3, many cattle farmers take their calves to livestock auctions to be sold to stockers and backgrounders (the next step in the beef lifecycle).
4. **Stockers and Backgrounders** - Beef cattle spend time at stocker and backgrounder farms to gain weight before moving on to the next step of the beef lifecycle.
5. **Feedyard** - Cattle spend 4-6 months at feedyards being fed a scientifically-balanced diet before leaving the farm. Cattle are then harvested and processed,.
6. **Processing** - Inspectors of the United States Department of Agriculture are onsite to ensure cattle are harvested in a humane way, and beef is tested for safety. It is then transported to grocery stores, restaurants, and food suppliers.

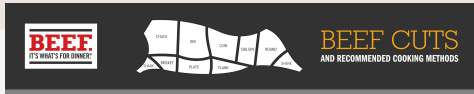
RAISING VEAL

America's **veal** farmers are committed to ensuring the health and well-being of their calves, taking care of the environment and providing safe, high-quality, nutritious food for consumers.

Veal farmers buy dairy bull calves at about 85-155 pounds and raise them for around 20-22 weeks, or until they reach 500 pounds. **Learn more at <https://www.veal.org>.**



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OBJECTIVE 2: BEEF CUTS, SELECTION AND GRADES

CHUCK	RIB	LOIN	SIRLOIN	ROUND	DISCREET CUTS
Arm Chuck Roast	Cross Rib Chuck Roast	Prime Rib Roast	Panhandle Steak	Top Sirloin Steak	Top Round*
Arm Chuck Steak	Shoulder Roast	Wagyu Steak, Bone-in	T Bone Steak	Top Sirloin Petite Roast	Top Round Steak
Blade Chuck Roast	Shoulder Steak	Back Rib	Strip Steak, Bone-in	Top Sirloin Filet	Bottom Round Roast
Blade Chuck Steak*	Brisket Steak	Wagyu Steak, Boneless	Strip Steak, Boneless	Cooktop Roast	Bottom Round Steak
Flank Chuck Roast	Flat Iron Steak	Wagyu Steak, Boneless	Strip Petite Roast	Cooktop Steak	Bottom Round Roast
Chuck Center Roast	Top Blade Steak	Wagyu Cap Steak	Strip Filet	To-Tip Roast	Eye of Round Roast
Denver Steak	Shoulder Petite Tender Medallions	Wagyu Petite Roast	Tenderloin Roast	To-Tip Steak	Eye of Round Steak
Chuck Eye Roast	Shoulder Petite Tender Medallions	Wagyu Filet	Tenderloin Steak (Flat Medallion)	Pot Roast	Tri-Tip
Chuck Eye Steak	Short Rib, Bone-in	Wagyu Short Rib	Strip Sirloin Steak	Short Rib	Flank Steak*
Country-Style Ribs			Strip Sirloin Steak	Short Rib, Bone-in*	Short Rib, Bone-in*

Beef Cut Infographic

Provide copies of the BEEF CUTS chart to individuals or in groups, as they explore cuts and identify cooking methods in objective two and four.

HOW MUCH BEEF COMES FROM ONE STEER?

A 1200-pound steer will result in a carcass weight of around 756 pounds, and 582 pounds of edible beef.

Beef cuts:

Many of America's favorite cuts are lean. Lean is defined as less than 10 grams of total fat, 4.5 grams or less of saturated fat and less than 95 mg of cholesterol per 3.5oz serving (look for loin and round). **Examples include** Round Roast (Top Round, Bottom Round), Strip Steak, Tenderloin Roast and Steak, T-Bone Steak

Ground beef is the most commonly purchased beef cut and extremely versatile, and can be the key ingredient to many recipe types.

Understanding beef labels: ask students what type of labels they have seen at the store or at home.

Ground beef labels at retail stores indicates lean-to-fat ratios. For example, 80/20 labeled ground beef indicates the following ratio:

- 80% lean
- 20% fat

Beef grading sets the standards for the various quality levels of beef. The beef grading program uses highly trained specialists and sometimes grading instruments to determine the official quality grade. Beef quality grading is voluntary and administered by the USDA and paid for by beef packers.

Beef Pricing:

Using the **Six Ways to Save** infographic (displayed in slideshow) ask students to highlight the ways shown. Ask for other ideas. Briefly share supply and demand impact on pricing. What other factors can determine price of beef? Allow them to share ideas, considering objectives learned in objective 1: weather, feed prices, number of cows raised.

- **Beef's nutrients** can support a healthy and active lifestyle at all ages and stages of life.
- The American Academy of Pediatrics, the Women Infants and Children's Program (WIC) and now for the first time ever, the Dietary Guidelines for Americans recommend introducing solid foods, like **beef, to infants and toddlers**, in order to pack in every bite with protein, iron, zinc and choline.
- **Beef can be part of a heart-healthy diet:** The American Heart Association has endorsed a recipe collection, as heart healthy. Learn more at <https://www.beefitswhatsfordinner.com>.

OBJECTIVE 3: NUTRITION

Beef/Veal contains ten essential nutrients, including b-vitamins, zinc, iron and protein. One serving of lean beef provides half of our daily protein! Students can review the **What does 25 grams of protein look like? graphic** to reinforce beef's nutritional value for Daily Value recommended calorie intake.



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OBJECTIVE 4: COOKING BEEF

There are a wide variety of cooking methods for beef. Allow students to explore “**Simple Steps**” **Cooking** Infographics (found in the toolkit’s infographic library). You can divide students into groups or task them individually to explore the following beef cooking tips and activities:

Cooking with beef and veal:

- Note cooking method suggestions by cut on the Beef Cut Chart.
- Some cuts are less tender and require slow roasting, etc. to ensure a positive eating experience.
- **Using the Beef Cut Chart resource**, ask students to select a cut best suited for grilling and roasting.
- **Marinades vs. Rubs** –Marinades are designed to help improve the tenderness and flavor of the beef, and often added to less tender cuts (for example, round and chuck). The beef marinates for an extended period of time (12-24 hours). A **rub** is designed for more tender cuts, like steaks – ribeye, strip, etc. A rub is placed on the surface of the beef directly prior to cooking.
- The only true way to know the doneness of beef is with a meat thermometer.
 - **Ground beef** must be cooked to an internal temperature of **160 degrees Fahrenheit** – this is because it is further processed and all beef is mixed together. Steaks and roasts can be cooked to a lower internal temperature, because the inside of the meat is sterile, bacteria would only be on the surface of the steak or roast.
- For **steaks, medium rare** the temperature should read **145°F**, the temperature for **medium** steaks should read **160°F**, and **well done** is **170°F**
- **To explore recipe collections by cut, visit:** <https://www.beefitswhatsfordinner.com/cuts>
- **To explore techniques and methods around cooking veal,** visit <https://www.veal.org/cooking/techniques-and-methods/>

CONCLUSION

Students can apply their beef knowledge through the following interactive exercises.

Review Worksheet: students can complete the Beef and Veal in the Classroom Worksheet during the slide presentation or following slide presentation.

Beef/Veal Recipe Contest: The Beef recipe contest guidelines rubric and scoring sheet can be found in the toolkit folder. Students can engage in beef preparation, selecting cuts, while preparing balanced meals.

Beef + Veal BINGO Review: Beef BINGO cards and instructions can be found in the toolkit, as a fun and interactive way to reinforce lesson objectives.

Additional links and resources:

The Northeast Beef Promotion Initiative

www.NortheastBeef.org

Pennsylvania Beef Council

www.pabeef.org

Beef. It's What's for Dinner

www.beefitswhatsfordinner.com.

About the Northeast Beef Promotion Initiative:

The Northeast Beef Promotion Initiative (NEBPI), founded in 2004, extends nationally developed Beef Checkoff content and messaging into the heavily populated Northeast region extending Maine to Virginia. Learn more at NortheastBeef.org

