



Beef and Dairy Science Lesson

Time Required

45 minutes

Lesson Objectives

Students will use beef and dairy cow shapes to determine area and perimeter.

Materials Needed

Worksheet included

Introduction

All female cattle breeds produce milk and meat, but some cattle are better milk producers and others are better meat producers. Beef cows provide us with meat and other by-products, such as crayons, plastic, insulin and pet foods. Dairy cows produce milk products.

Because dairy cows produce milk, they usually have very large udders. For this reason, dairy cows are a different shape than beef cows. The basic shape of a dairy cow is a trapezoid. The basic shape of a beef cow is a rectangle.

Dairy cows must be milked two to three times a day, and because of this they are very scheduled animals. Most dairy cows will make their way to the barn from the pasture without the assistance of the farmer because of this routine they have become accustomed to. Beef cattle, on the other hand, do not have as rigid a schedule, so they can be seen out in the pasture for longer periods of time, and they will be moved from one pasture to another pasture more often. Some beef cattle will even be miles away from the main farm when they are put out to pasture.

Objectives

Students will learn the difference in shape between beef and dairy cattle. Students will also calculate the perimeter and area for a trapezoid and a rectangle.

Directions

Share Classroom AgVentures Livestock Video with students and discuss what dairy cows and beef cow produce.

- Introduce rectangles and trapezoids. Have students describe the features of each shape.
- Provide students with the Bovine Shapes worksheet and ask students to calculate the perimeter and area for each shape.
- As a class, review the answers. Have students explain how they found their answer.
- Extend the activity by having each student create a bovine-themed perimeter or area problem for others to solve.



References

Illinois Agriculture in the Classroom

http://www.agintheclassroom.org/TeacherResources/Lesson%20Booklets/AllAboutBeef_.pdf

Louisiana Standards Covered in This Lesson

- 2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
- 2-PS1-4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.
- 2-LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats.
- 3-LS1-1 Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
- 3-LS4-2 Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages for surviving, finding mates, and reproducing.
- 4-LS1-1 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
- 4-ESS2-1 Plan and conduct investigations on the effects of water, ice, wind, and vegetation on the relative rate of weathering and erosion. (specifically LC-4-ESS2-1b)
- 4-ESS2-3 Ask questions that can be investigated and predict reasonable outcomes about how living things affect the physical characteristics of their environment. (specifically LC-4-ESS2-3b)
- 5-PS3-1 Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.
- 5-LS2-1 Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
- 5-ESS3-1 Generate and compare multiple solutions about ways individual communities can use science to protect the Earth's resources and environment.
- 6-MS-LS2-1 Analyze and interpret data to provide evidence for the effects of resource availability to organisms and populations of organisms in an ecosystem.



Authors:

Adapted from Illinois Agriculture in the Classroom

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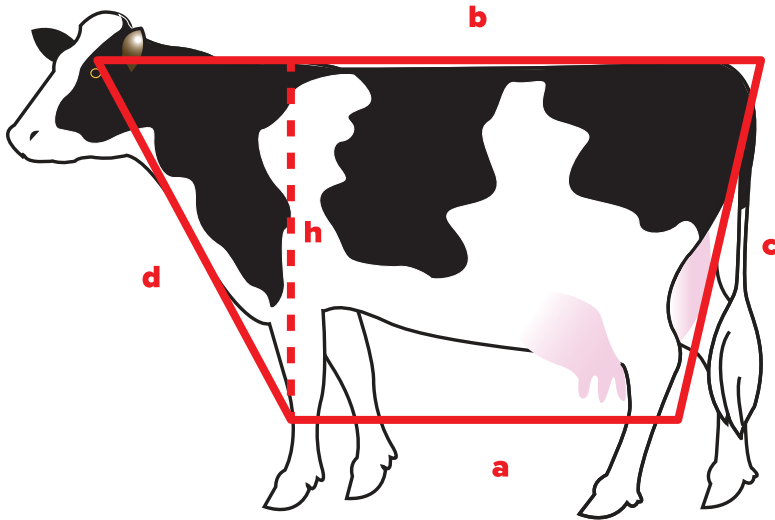
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William B. Richardson, LSU Vice President for Agriculture

Louisiana State University Agricultural Center, Louisiana Agricultural Experiment Station, Louisiana Cooperative Extension Service, LSU College of Agriculture

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BOVINE SHAPES WORKSHEET



KEY: $a=6$ $b=16$ $c=5$ $d=5$ $h=3$

1. Using the key, find the perimeter of a trapezoid:
 $a + b + c + d$.

Perimeter =

2. Using the key, find the area of a trapezoid: $(h / 2) \times (a+b)$.

Area =

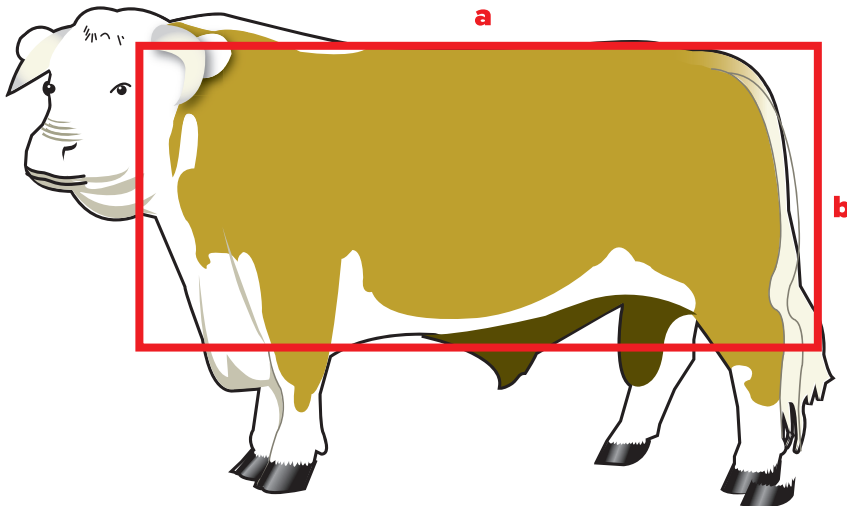
KEY: $a=9$ $b=14$ $c=6$ $d=8$ $h=6$

3. Using the key, find the perimeter of a trapezoid:
 $a + b + c + d$.

Perimeter =

4. Using the key, find the area of a trapezoid: $(h / 2) \times (a+b)$.

Area =



KEY: $a=8$ $b=5$

5. Using the key, find the perimeter of a rectangle:
 $2a + 2b$.

Perimeter =

6. Area of a rectangle: $a \times b$

Area =

KEY: $a=14$ $b=9$

7. Using the key, find the perimeter of a rectangle:
 $2a + 2b$.

Perimeter =

8. Area of a rectangle: $a \times b$

Area =