

SCIENCE AND AGRICULTURE

STEM CHALLENGE

A PIEFA MEMBERS COLLABORATION



FOR
YEAR 5

MLA
ADAPTATIONS IN CATTLE

TEACHER OVERVIEW

ADAPTATIONS IN CATTLE

Year: Year 5

Outcomes:

Living things have structural features and adaptations that help them to survive in their environment (ACSSU043).

Introduction:

During these activities, students will gain an understanding of some of the adaptations that important breeds of cattle have to make to be suitable to Australian conditions. Students will learn about the features of Bos Indicus and Bos Taurus breeds (with an extension task centred on crossbreeding). They will participate in an engaging collaboration with their peers to create a series of life-size models of bulls, with a focus on breed adaptations.

Tasks:

Activity One: Student Comprehension Task - Breeds of Cattle

Students read the provided information about the Bos Taurus and Bos Indicus breeds of cattle and highlight the main differences.

Activity Two: Build a Bull Task

Students create a life-size model of a selected breed of bull.

Students research adaptations of their particular breed and annotate their models. Students compare adaptations with other class members and discuss the features, height and length of the different breeds of bulls.

Activity Three: Extension | What's so special about Braford's?

Students will research information about a crossbreed of cattle and learn about their importance as a breed.

STUDENT ACTIVITY

BREEDS OF CATTLE

Activity One

a) Read and highlight the most important information about *Bos Taurus* and *Bos Indicus* types of cattle.

There are many different breeds of beef cattle in Australia and they fall into two species:

Bos Taurus | These breeds originate from the temperate climate of Europe and are better suited to southern Australia (cooler climates with higher rainfall). Examples of *Bos Taurus* breeds are Hereford and Angus.



Hereford



Angus

Bos Indicus | These breeds have been bred from cattle originating from southern Asia (hot climate, seasonal rain with high humidity). They have loose skin and are able to tolerate high temperatures without getting stressed. Typical *Bos Indicus* breeds include Brahman and Droughtmaster.



Brahman



Droughtmaster

TEACHER INSTRUCTIONS

BREEDS OF CATTLE

Activity Two: Build a Bull

Equipment:

Option One:

- Cattle dimension datasheet
- Multiple pieces of butcher's paper
- Sticky tape
- Textas
- Metre rulers/tape measure
- Lead pencil

Option Two:

- Cattle dimension datasheet
- Cement area/cement wall
- Chalk
- Metre rulers/tape measure

Activity Instructions:

1. Divide students into groups (4 groups is recommended).
2. Nominate a type of bull to each group: Droughtmaster, Brahman, Angus or Belted Galloway. *(For large groups, assign 2 groups to draw each breed).*
3. Allocate an appropriate concrete area (or provide students with large pieces of butcher's paper that can be taped together) to allow students to draw (with chalk on the concrete) multiple life-sized diagrams of each cattle breed.
4. Using the provided dimensions on the datasheet, assist students in creating models of the bulls to their real height and length dimensions *(if using butcher's paper, encourage students to use a lead pencil first to allow them to practice the shape of the animal).*
5. When students have completed their model, they should label the breed and indicate if it is a Bos Taurus or Bos Indicus breed.
6. Students should be given time to each research one characteristic about their breed of bull and record these facts inside the outlines of their bull models - then display them in the classroom/school. Discuss with students the possible key terms they could use to search their breed of bull (key + features + characteristics + 'name' bull).
7. Engage in a discussion about the comparative size of the different breeds of cattle and the similarities and differences in features that students have researched.

STUDENT ACTIVITY

BREEDS OF CATTLE

Student Datasheet | Build a Bull

a) Complete the questions below using the information from the datasheet.

- What is the height order of the bulls, from tallest to shortest?
-

- What is the length order of the bulls, from longest to smallest?
-



Brahman Bull (Bos Indicus)
Length = 234cm
Height = 205cm



Droughtmaster Bull (Bos Indicus)
Length = 234cm
Height = 196cm



Belted Galloway Bull (Bos Taurus)
Length = 176cm
Height = 135cm



Angus Bull (Bos Taurus)
Length = 230cm
Height = 187cm

STUDENT ACTIVITY

BREEDS OF CATTLE

Activity Two: Build a Bull

Equipment:

Option One:

- Cattle dimension datasheet
- Multiple pieces of butcher's paper
- Sticky tape
- Textas
- Metre rulers/tape measure

Option Two:

- Cattle dimension datasheet
- Cement area./cement wall
- Chalk
- Metre rulers/tape measure

Activity Instructions:

- Your teacher will nominate a breed of cattle to your group: Droughtmaster, Brahman, Angus or Belted Galloway.
- Use the datasheet to study the dimensions of your animal.
- In an appropriate concreted area or on butchers paper, use a ruler to set the height and length dimensions of your animal. The length is measured from head to tail of the animal and the height is measured from the hooves to the top of the back of the animal.
- With your group, draw an outline of your bull and use the datasheet to model the shape and any features you notice about the animal. Label your diagram.
- Using the internet, search for facts about your breed of animal (features, adaptations, etc.) and allow each group member to record one fact each inside the body of the bull diagram.
- Either take a photo of your animal (if you have drawn it on cement) or hang your butcher's paper on display.
- Take a gallery walk around the models of the other groups to observe and compare the size and shape, similarities and differences and information about each breed. Answer the questions provided.

STUDENT ACTIVITY

BREEDS OF CATTLE

Student Questions | Build a Bull

Activity Two: Build a Bull

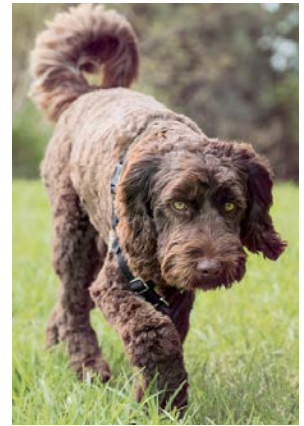
- List one way that your group's bull was similar to another group.

- List one way that your bull was different.

- Were you surprised by the differences in sizes between the bulls?

- Why or why not?

Consider the Labradoodle. It is a crossbreed dog that has one parent that is a Labrador Retriever and another parent that is a Poodle. This has resulted in a breed that grows into dogs that are good-natured and have a low-shedding coat - a mix of features from both breeds!



Think about what would happen if a farmer crossed the breeds of a Brahman bull with an Angus cow and they had a calf? What might their baby look like and be called?

STUDENT ACTIVITY
BREEDS OF CATTLE

What's so special about: Braford's?

Activity Three: Extension Task



What is a Braford?

What are 3 features/adaptations of Braford's?

Feature 1 _____

Feature 2 _____

Feature 3 _____

TEACHER ANSWERS

BREEDS OF CATTLE

Activity Two

a)

Height order - Brahman, Droughtmaster, Angus, Belted Galloway.

Length order - Brahman + Droughtmaster, Angus, Belted Galloway.

Brahman bull and Angus cow results in a Brangus crossbreed.

Activity Three

Brafords originated when Brahman bulls and Hereford cows were crossed to help combat the effects of drought and ticks.

Breed characteristics

- Smooth sleek coats.
- Have a hump and droopy ears.
- Hooded eyes and good pigmentation around the eyes, providing protection and resistance to eye cancer, pinkeye and blight.
- High tolerance to bloat. The value of such an attribute is greatly appreciated when cattle are grazed on clover and bloat-producing pastures.
- Heat-tolerant and relatively tick-resistant.
- Can be either polled or horned.

References

Source: New South Wales, Department of Primary Industries Cattle breeds: Braford (date viewed 15/10/2021)

URL: <https://www.dpi.nsw.gov.au/animals-and-livestock/beef-cattle/breeding/beef-cattle-breeds/braford>