



Agricultural Celebrity Heads

Explaining Reasons for Plant and Animal Use in Agricultural Enterprises Considering Australian Markets and the Environment.

TEACHER GUIDE

YEAR 7-10

This resource has been developed by:



CONTENTS

<u>NSW curriculum outcomes</u>	3
<u>Australian Curriculum content Versions 8.4 & 9.0</u>	4
<u>Lesson objective</u>	5
<u>Lesson plan, sequence, timing, resources and equipment</u>	6
<u>Lesson Guide: Activities 1-6</u>	7 - 12
<u>Attribution</u>	13
<u>Bibliography</u>	14 - 15
<u>Student Workbook</u>	16
<u>Student worksheets: Worksheet 1 Brainstorm</u>	18
<u>Student worksheets: Worksheet 2 Research</u>	19 - 21
<u>Student worksheets: Worksheet 3 Evaluation</u>	22
<u>Student worksheets: Worksheet 4 Celebrity Headbands</u>	23 - 28
<u>Student worksheets: Worksheet 4 Celebrity Animals</u>	29
<u>Student worksheets: Worksheet 4 Celebrity Plants</u>	30
<u>Student worksheets: Worksheet 4 Extension Celebrities</u>	31 - 33
<u>Student worksheets: Worksheet 5 Classification</u>	34 - 35
<u>Teacher Guide: Answers</u>	36
<u>Teacher guide: Answers - Worksheet 1</u>	37
<u>Teacher guide: Answers - Worksheet 2</u>	38-39
<u>Teacher guide: Answers - Worksheet 3</u>	40
<u>Teacher guide: Answers - Worksheet 5</u>	41

NB: Double click on underlined text throughout the document to go directly to the website link and/or worksheet page.

PIEFA's Storm and Flood Industry Recovery Program (SFIRP) is jointly funded by the Australian and NSW Governments under the Disaster Recovery Funding Arrangements. Although funding for this product has been provided by both Australian and NSW Governments, the material contained herein does not necessarily represent the views of either Government.

SURVEYS

TEACHERS, CAREERS ADVISORS AND STUDENTS

We hope you find this resource valuable, relevant and enjoyable. We would be grateful for your feedback on things that you liked and worked well, and areas that you feel could be improved upon. We invite you to please complete the below survey/s after using the resource. Your responses will be used to continuously improve PIEFA's food and fibre education resources.

[ACCESS THE TEACHER AND CAREERS ADVISOR SURVEY HERE OR USE THIS QR CODE.](#)



[ACCESS THE STUDENT SURVEY HERE OR USE THIS QR CODE.](#)



This resource has been developed by:

LEARNING AREAS

NSW CURRICULUM OUTCOMES

STAGE 4 AGRICULTURAL TECHNOLOGY

Introduction to Agriculture

The use of plants and animals to produce food and fibre products.

- **AG4-1** describes a range of plant species and animal breeds used in agricultural enterprises

STAGE 4 TECHNOLOGY MANDATORY

Agriculture and Food Technologies

Plants and animals grown in managed environments

- **TE4-5AG** investigates how food and fibre are produced in managed environments

STAGE 4 SCIENCE

Living World - the Structure and Function of Living Things.

- **SC4-14LW** relates the structure and function of living things to their classification, survival and reproduction
- **SCLS-17LW** recognises features of living and non living things
- **SCLS -18LW** identifies structures of living things and their functions

STAGE 5 AGRICULTURAL TECHNOLOGY

Introduction to Agriculture

Reasons Why Specific Plants and Animals Are Used in Australian Agricultural Enterprises.

- **AG5-1** explains why identified plant species and animal breeds have been used in agricultural enterprises and developed for the Australian environment and/or markets
- **AGLS-1** experiences a range of plant and animal production enterprises



LEARNING AREAS

AUSTRALIAN CURRICULUM CONTENT - VERSION 8.4

YEAR 7 - 8 DESIGN AND TECHNOLOGIES

Knowledge and Understanding

- **ACTDEK032** Analyse how food and fibre are produced when designing managed environments and how these can become more sustainable

YEAR 9 - 10 DESIGN AND TECHNOLOGIES

Knowledge and Understanding

- **ACTDEK044** Investigate and make judgements on the ethical and sustainable production and marketing of food and fibre

YEAR 7 SCIENCE (V-8.4)

Science Understanding - Biological Sciences

- **ACSSU111** Classification helps organise the diverse group of organisms

AUSTRALIAN CURRICULUM CONTENT - VERSION 9.0

YEAR 7 - 8 DESIGN AND TECHNOLOGIES

Knowledge and Understanding - Food and Fibre Production

- **AC9TDE8K04** analyse how food and fibre are produced in managed environments and how these can become sustainable

YEAR 9 - 10 DESIGN AND TECHNOLOGIES

Knowledge and Understanding - Food and Fibre Production

- **AC9TDE10K04** analyse and make judgements on the ethical, secure and sustainable production and marketing of food and fibre enterprises

YEAR 7 SCIENCE

Science Understanding - Biological Sciences

- **AC9S7U01** investigate the role of classification in ordering and organising the diversity of life on Earth and use and develop classification tools including dichotomous keys

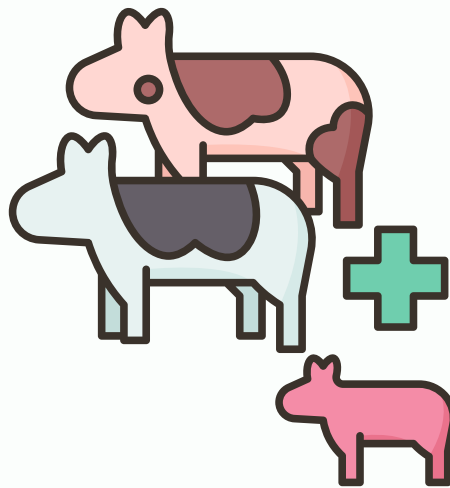


LESSON OBJECTIVE

Students will develop knowledge and understanding of living things that have been selected and developed for agricultural enterprises and explain why they are suited to Australian environments and/or developed for specific markets.

Students will play an adapted version of the ‘**Celebrity Heads**’ game as a class split into 2 groups to identify structures and functions of plants and animals produced in agriculture. Students will relate the classification, survival, and reproduction of living things to judgements on ethical, secure, sustainability and marketing factors in agriculture.

Groups will record progress using a **dichotomous key** to classify correct answers from each team on each specific agricultural organism featured in the game. The first group to correctly identify and classify a set of 10 plants and animals will use reference material to make judgements on ethical, secure, sustainability and marketing factors that relate to each organisms selection for production within Australian agricultural enterprises.



LESSON PLAN

Sequence of Activities, Timing, Resources and Equipment

Lesson plan - 60 minutes

Sequence of Activities	Time Guideline	Activities	Resources and Equipment
Activity 1 Brainstorm	1 x 5 minute Brainstorm	<ul style="list-style-type: none"> Brainstorm features of plants and animals suited for agricultural production. Complete - Worksheet 1: Food and Fibre From Living Things 	Student Workbook: Worksheet 1
Activity 2 Celebrity Teams	1 x 5 minute activity	<ul style="list-style-type: none"> Select captains of two teams <u>Use Career Harvest for career information</u> <ul style="list-style-type: none"> Agronomists (Horticultural experts) Veterinarians (livestock experts) Captains select teams and split into two groups on either side of the classroom identifying the team on Worksheet 2 Common Plants and Animals Used in Australian Agriculture. 	Student Workbook: Worksheet 2
Activity 3 Research	1 x 20 minute activity	<ul style="list-style-type: none"> Teams work in small groups to research answers to Worksheet 2: Common Plants and Animals Used in Australian Agriculture. Teams share answers and revise identified agricultural plants and animals. 	Student Workbook: Worksheet 2
Activity 4 Research Understanding	1 x 5 minute activity	<ul style="list-style-type: none"> Teams continue work in small groups to complete Worksheet 3: Evaluating Features of Plants and Animals Suitable for Agricultural Production. 	Student Workbook: Worksheet 3
Activity 5 Agricultural Celebrity Heads	1 x 20 minute lesson	<ul style="list-style-type: none"> Teams construct headbands using Worksheet 4: Celebrity Heads. Teams select celebrity volunteers to play the game. Correct identification of nine celebrities wins the game. Extension: use additional animals and plants provided to increase scope of learning. 	Student Workbook: Worksheet 4 - Headbands Celebrity Animals Celebrity Plants scissors/ glue
Activity 6 Classification Using Keys	1 x 5 minute lesson	<ul style="list-style-type: none"> Student groups complete Worksheet 5: Dichotomous Key - Identifying Breeds and Plant Types Developed for Australian Climate or Markets. 	Student Workbook: Worksheet 5



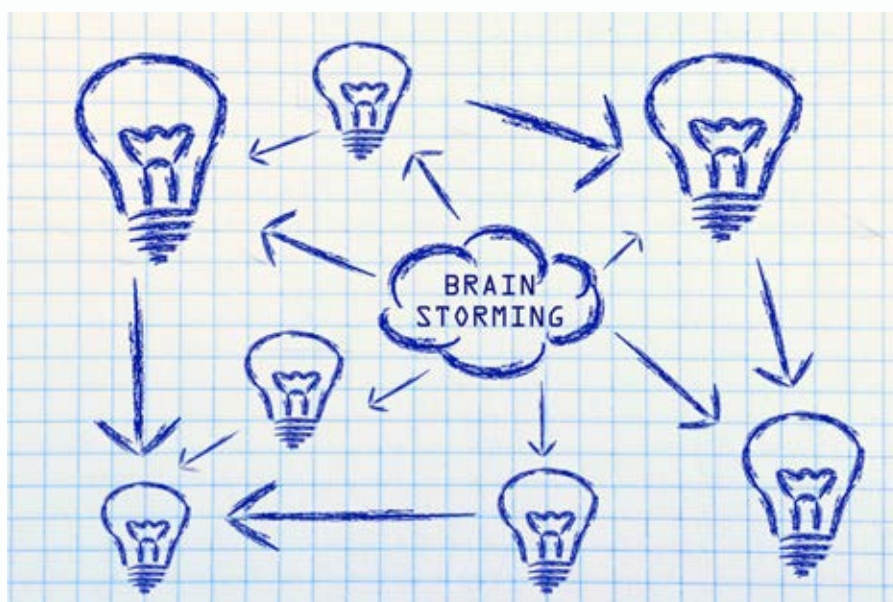
LESSON GUIDE

ACTIVITY 1: Brainstorm

Food and Fibre From Living Things

Students will engage in a short class discussion to establish prior knowledge and understanding relating to the topic and create links to local agricultural enterprises.

1. Provide students with a copy of the **Student Workbook** and outline the learning intention to “identify features of agricultural plants and animals that make them suited for food and fibre production, survival and reproduction.”
2. Initiate a class brainstorm and encourage students to present knowledge of locally relevant, common agricultural plant and animal groups for stage 4 and use specific breeds and varieties. (depending upon the ability of your students) for stage 5. Examples may include:
 - a. **Stage 4** - Layer chickens and cereal crops,
 - b. **Stage 5** - Specific layer breeds such as Australorp, Leghorn and specific plant cereals such as canola, wheat etc.
3. Collate student responses as a mind map on the whiteboard directing students to record and organise the information presented using **Worksheet 1**.
4. Guide students to identify specific **structures and functions** of the living things that make them suited to Australian agricultural production systems and assist their survival and reproduction.
5. This activity is designed to be a short introduction for 5 minutes duration.





LESSON GUIDE

ACTIVITY 2: Building Teamwork and Collaboration

Food and Fibre From Living Things

Students will divide into two separate teams to undertake teamwork in research and gameification of learning.

1. Teacher selects two agricultural experts as leaders (captains) of individual workforces (student teams) e.g. Agronomist (horticulture specialist) and Veterinarian (livestock specialist). Please use the [Career Harvest](#) website to investigate other career options and for supporting information.
2. Student captains select individuals teams and split into two groups on either side of the classroom. Teachers may decide on a range of strategies to select teams depending upon the class of students.
3. Students circle their team's name at the top of **Worksheet 2** after selection.
4. This activity is designed to be a short activity for 5 minutes duration.





LESSON GUIDE

ACTIVITY 3: Agricultural Biology Plants and Animals Used in Australian Agricultural Production Systems

Students will conduct research and collaborate with members of a team.

1. Provide students with computers or resource material to complete **Worksheet 2**.
2. Team captains must divide the team into individual research groups (delegate responsibility to share workload) to identify a range of plants and animals used in Australian agricultural enterprises.
3. Individual groups must share their research data with the team and revise the identified plants and animals to improve their performance in the **Celebrity Heads** game.
4. Alternate activity for differentiation: Identify a range of cattle breeds used in Australian beef production or dairy production: use industry resources **MLA Cowacteristics Worksheet** and **MLA Supporting Information** or use dairy cattle breeds from the **Dairy Australia Website**. Use the individual beef or dairy cattle breeds as animal labels in the **Celebrity Heads** game.
5. This activity is designed to build on existing student knowledge and has an expected 20 minute duration.





LESSON GUIDE

ACTIVITY 4: Science of Agronomy Evaluating Plants and Animals Used in Australian Agricultural Production Systems

Students will provide reasons to justify the suitability of identified agricultural plants and animals using criteria based on ethics, sustainability, food security or market factors.

1. Designated groups within teams must tabulate specific structures and functions for 2 agricultural plants and 2 agricultural animals and justify reasons for why they are suited to Australian agricultural production systems.
2. Direct students to record and organise the information into their student workbook using **Worksheet 3.**
3. This activity is expected to be short at a maximum 10 minutes in duration.





LESSON GUIDE

ACTIVITY 5: Where's Your Head at? Agricultural Celebrity Heads

Students will develop mastery of the content presented in the lesson by participating in a celebrity heads game in collaboration with a team.

1. Students use scissors and a stapler or glue to construct 9 headbands to play the Celebrity heads game using **Worksheet 4: Celebrity Headbands**, **Celebrity Animals** and **Celebrity Plants** in their **Student Workbook**.
2. Agronomists must make the Plant headbands and the Veterinarians must make the animal headbands. An extra strip of paper can be used to adjust headband size and fixed with a stapler (teams should make sure the volunteers do not see the headbands).
3. Teams select 2 volunteers to play the game and celebrities sit at the front of the room on four stools.
4. The Horticulture team must place 2 plant headbands on the Livestock celebrities and the livestock team places two headbands on the horticulture celebrities.
5. Celebrities must ask yes/no questions to classify and identify their organisms. Two rounds pass before you can guess your animal or plant. After two rounds a correct guess can ask another question.
6. Teachers should explicitly instruct students on closed questioning - e.g. Am I an animal? Do I have feathers?
7. Celebrities swap with another volunteer after a correct identification repeating the process above until one team achieves 9 correct guesses.
8. **Extension:** use the additional animals and plants provided to increase the scope of learning.
9. This activity is expected to be about 20 minutes in duration.





LESSON GUIDE

ACTIVITY 6: Shhhh! - It's Classified? Classifying Features of Agricultural Plants and Animals

Students will recognise features of agricultural organisms that enable their survival and reproduction in agricultural enterprises..

1. Student groups construct a dichotomous key using **Worksheet 5: Dichotomous Key - Identifying Breeds and Plant Types Developed for Australian Climate or Markets.**
2. Students classify nine Australian agricultural plants and animals.
3. Students have an additional page to design their own key.

NB: This activity is expected to be about 10 minutes in duration.

Do I have feathers? yes -
I'm a Hawk



Do I have feathers? No - I do
not have feathers.





ATTRIBUTION, CREDIT & SHARING



This resource was produced by Primary Industries Education Foundation Australia (PIEFA). Primary Industries Education Foundation Australia's resources support and facilitate effective teaching and learning about Australia's food and fibre industries. We are grateful for the support of our industry and member organisations for assisting in our research efforts and providing industry-specific information and imagery to benefit the development and accuracy of this educational resource.



While reasonable efforts have been made to ensure that the contents of this educational resource are factually correct, PIEFA, does not accept responsibility for the accuracy or completeness of the contents and shall not be liable for any loss or damage that may be occasioned directly or indirectly from using, or reliance on, the contents of this educational resource.

Schools and users of this resource are responsible for generating their own risk assessments and for their own compliance, procedures and reporting related to the use of animals, equipment and other materials for educational purposes.



This work is licensed under Creative Commons BY-NC 4.0.
To view a copy of this license, visit: <http://creativecommons.org/licenses/by-nc/4.0/>

PIEFA's Storm and Flood Industry Recovery Program (SFIRP) is jointly funded by the Australian and NSW Governments under the Disaster Recovery Funding Arrangements. Although funding for this product has been provided by both Australian and NSW Governments, the material contained herein does not necessarily represent the views of either Government.

REFERENCES

- Australian Eggs. (2017, June 20). *Egg Farming & Production in Australia: From Farm To Plate*. Australian Eggs. <https://www.australianeggs.org.au/farming>
- Australian Government Bureau of Rural Sciences. (2008). *Australian Forest profiles - Plantations*. Department of Agriculture, Fisheries and Forestry; BRS publications. <https://www.agriculture.gov.au/sites/default/files/abares/forestsaustralia/publishingimage>
- Australian Pork. (2018). *Changing conditions in the pig industry An Educational Unit for Junior Secondary Schools Acknowledgements*. https://australianpork.com.au/sites/default/files/2021-06/APL-Year-7_2018.pdf
- Canva. (2024). *Canva*. Canva; Canva. <https://www.canva.com/>
- Cotton Australia. (2020). *Cotton Australia | How is cotton grown?* Cotton Australia. <https://cottonaustralia.com.au/how-is-cotton-grown>
- Dairy Australia. (2023). *Dairy cow breeds in Australia | Discover Dairy*. www.dairy.edu.au. <https://www.dairy.edu.au/information/australian-dairy-cows>
- Department of Agriculture, Fisheries and Forestry. (2018). *Australia's forests - DAFF*. Agriculture.gov.au; Department of Agriculture, Fisheries and Forestry. <https://www.agriculture.gov.au/abares/forestsaustralia/australias-forests#:~:text=%E2%80%8BQueensland%20has%20the%20largest>
- Department of Agriculture, Fisheries and Forestry. (2022). *Forestry - DAFF*. Agriculture.gov.au; Department of Agriculture, Fisheries and Forestry. <https://www.agriculture.gov.au/agriculture-land/forestry>
- Fisheries Research and Development Corporation. (n.d.). *Aquaculture | FRDC*. www.frdc.com.au. Retrieved April 30, 2024, from <https://www.frdc.com.au/aquaculture>
- Groundcover GRDC. (2020, June 29). *Cereals*. Groundcover; Grains Research and Development Corporation. <https://groundcover.grdc.com.au/crops/cereals>
- Meat and Livestock Australia. (n.d.). *Cattle 'cow'acteristics*. Meat and Livestock Australia. Retrieved April 30, 2024, from <https://www.mla.com.au/globalassets/mla-corporate/extensions-training-and-tools/creative-commons/unit-of-work---cattle-cowacteristics---cc.pdf>

REFERENCES

- Meat and Livestock Australia. (2019). *Red Meat Integrity System* | *Meat & Livestock Australia*. MIA.com.au. <https://www.mla.com.au/meat-safety-and-traceability/red-meat-integrity-system/>
- Meat and Livestock Australia. (2023). *Meat Standards Australia* | *Meat & Livestock Australia*.
- MLA Corporate; Meat and Livestock Australia. <https://www.mla.com.au/marketing-beef-and-lamb/meat-standards-australia/>
- NSW Department of Primary Industries. (2017). *Beef cattle*. NSW.gov.au. <https://www.dpi.nsw.gov.au/animals-and-livestock/beef-cattle>
NSW DPI. (n.d.). *Pig breeds in Australia*. NSW Department of Primary Industries. Retrieved April 30, 2024, from https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0007/872683/Pig-breeds-brochure.pdf





Agricultural Celebrity Heads

**Explaining Reasons for Plant and
Animal Use in Agricultural Enterprises
Considering Australian Markets and
the Environment.**

Student Workbook

YEAR 7-10

This resource has been developed by:



CONTENTS

Student worksheets: Worksheet 1 Brainstorm	3
Student worksheets: Worksheet 2 Research	4
Student worksheets: Worksheet 3 Evaluation	7
Student worksheets: Worksheet 4 Celebrity Headbands	8-13
Student worksheets: Worksheet 4 Celebrity Animals	14
Student worksheets: Worksheet 4 Celebrity Plants	15
Student worksheets: Worksheet 4 Extension Celebrities	16-18
Student worksheets: Worksheet 5 Classification	19-20

NB: Double click on underlined text throughout the document to go directly to the website link and/or worksheet page.

PIEFA's Storm and Flood Industry Recovery Program (SFIRP) is jointly funded by the Australian and NSW Governments under the Disaster Recovery Funding Arrangements. Although funding for this product has been provided by both Australian and NSW Governments, the material contained herein does not necessarily represent the views of either Government.

FEEDBACK SURVEYS Students

We hope you find this resource valuable, relevant and enjoyable. We would be grateful for your feedback on things that you liked and worked well, and areas that you feel could be improved upon. We invite you to please complete the below survey/s after using the resource. Your responses will be used to continuously improve PIEFA's food and fibre education resources.



[ACCESS THE
STUDENT SURVEY
HERE OR USE THIS
QR CODE.](#)



This resource has been developed by:

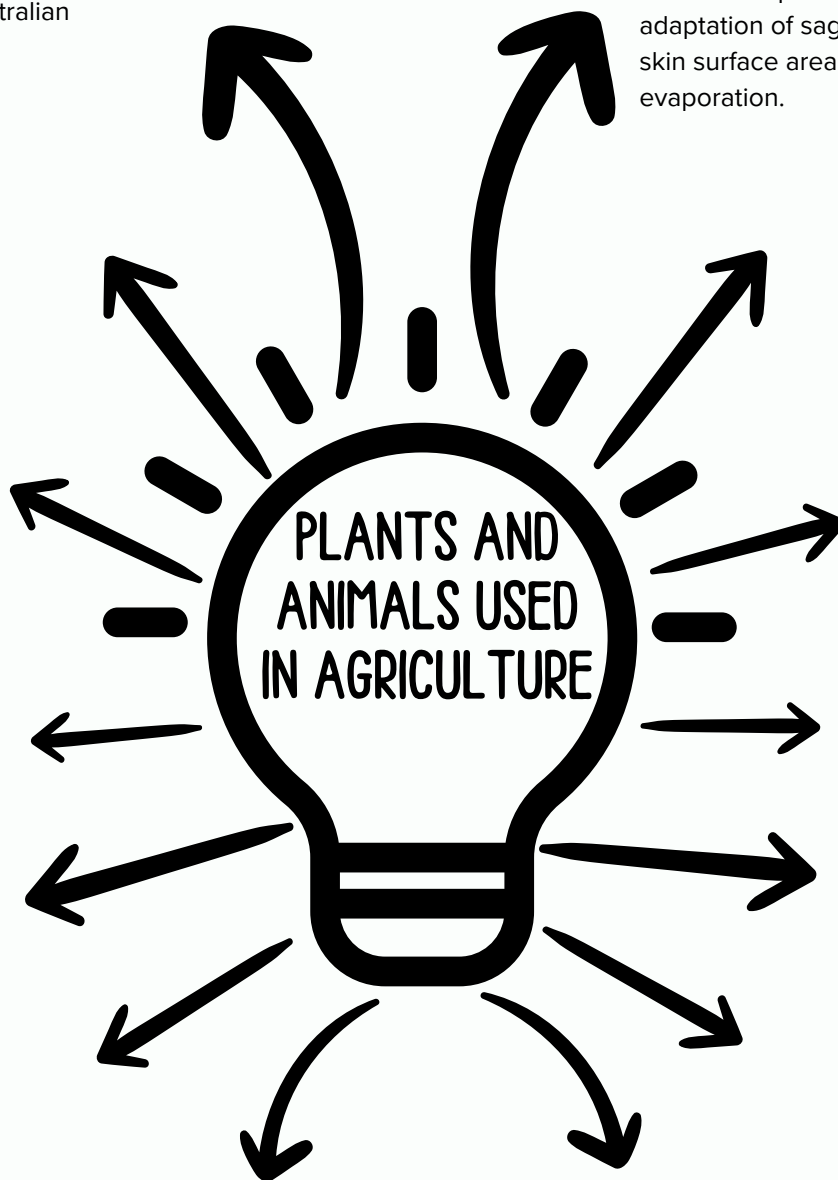


Worksheet 1: Food and Fibre From Living Things

Instructions: Refer to the diagram below with your class discussion to identify a range of agricultural plants and animals. Explain why they have been used in agriculture.

Year 7+8 example: Beef cattle, steak and leather, good muscularity provides high beef yield and good eating quality for Australian consumer markets

Year 9 + 10 example: *Bos indicus*
Brahman Beef Cattle - Eye fillet, Mince. Well suited to hot, dry conditions in northern tropical regions due to adaptation of saggy skin which increases skin surface area for cooling by evaporation.



Worksheet 2: Plants and Animals Used in Agriculture

Team: Agronomist or Veterinarian (circle one)

- Instructions:** Using the examples provided, research the missing information to identify characteristics and reasons why a range of plants and animals are commonly used in Australian agriculture.

Plant/ Animal	Features/ Structures	Example: Varieties/ Breeds	Products and Uses	Suitable Environment, Climate or Market Conditions
Animal: Bos indicus Cattle	Hump, droopy ears, light coat, short hair, loose skin, heat tolerant, resistant to parasites such as ticks and high fleshing ability in low quality pastures.	Brahman: Cross breeds include Droughtmaster, Braford, Brangus and Santa Gertrudis	Meat (lower eating quality to Bos Taurus cattle), leather, blood and bone fertiliser.	Adaptability to hot, humid, dry conditions and poor quality pastures. Good growth and reproduction in harsh conditions. Well suited to tropical, arid and semi arid northern Australian regions
Animal: Bos taurus Beef cattle			Raw products: Processed products:	Suited to cooler more temperate climates with higher rainfall and high quality pastures.
Animal: Bos taurus Dairy cattle		Guernsey, Ayrshire, Aussie Red, Illawarra. Jersey, Brown Swiss, Holstein.	Raw products: Processed products:	
Animal: Layer Chickens	Colour and size range e.g black/ brown, tolerate wide range of temperatures, gentle temperament, cope well with confinement, high egg laying ability	Commercial breeds: Domestic breeds:	Eggs, feathers, Some are dual purpose for meat, manure, pet food.	Chickens generally tolerate a wide range of temperatures, calm temperaments mean they can be produced in intensive and extensive egg production systems which provide a wide range of production regions in Australia to meet market demand.
Animal: Pigs	Range of colours and coats, monogastric, snout.	3 main commercial breeds used in Australia =	Raw product - Pork. Processed products - ham bacon, salami	Three types of pig production systems in Australia - Indoor housing, deep litter housing and free range systems across all states of Australia and usually close to grain growing regions.

Worksheet 2: Plants and Animals Used in Agriculture

- Instructions:** Using the examples provided, **research the missing information** to identify characteristics and reasons why a range of plants and animals are commonly used in Australian agriculture.

Plant/ Animal	Features/ Structures	Example: Varieties/ Breeds	Products and Uses	Suitable Environment, Climate or Market Conditions
Animal: Poultry (meat)	High meat yield, rapid growth, calm temperament, good foraging capability, tolerate wide range of temperatures.	Cornish Cross, Australorp, Pekin Duck		Barn (climate controlled) or free range production systems = wide range of suitable climates. Highest protein consumption demand in Australia 50kg+/year/person.
Animal: Sheep (meat, dairy and wool)	Fast growth, good reproduction, early maturing, good meat and wool yield.	Meat: Poll Dorset, Suffolk, White Suffolk & Dorper. Dairy: East Friesland Wool Breeds:	Meat, wool, milk, blood and bone, pet food	
Animal: Fin fish	Fast growth, High food conversion rate, tolerate a range of temperatures, calm temperament.			Wide range of production regions in Australia depending upon the species e.g. Atlantic Salmon suited to Cooler Temperate regions in Tasmania and Mulloway suited to more sub tropical regions and Barramundi suited to more tropical regions.
Animal: Bees	Insects, colonial species, hive, queen, workers and drones.	Introduced species: Native species:	Honey, wax, propolis, pollination.	Wide range of regions across Australia. native species have specific temperature limits to distribution.
Plants: Cereals	Annual plants: Fast growing, seasonal growth cycle, high reproductive yield, good root structure.	Cereal grains: Oil Seeds: Pulses and legumes:	Diverse range of raw and processed products - flour, cereals and grains, oil, livestock feeds	3 main growing regions in Australia - North (higher soil fertility), South (temperate climate) and West (winter rainfall).

Worksheet 2: Plants and Animals Used in Agriculture

- Instructions:** Using the examples provided, research the missing information to identify characteristics and reasons why a range of plants and animals are commonly used in Australian agriculture.

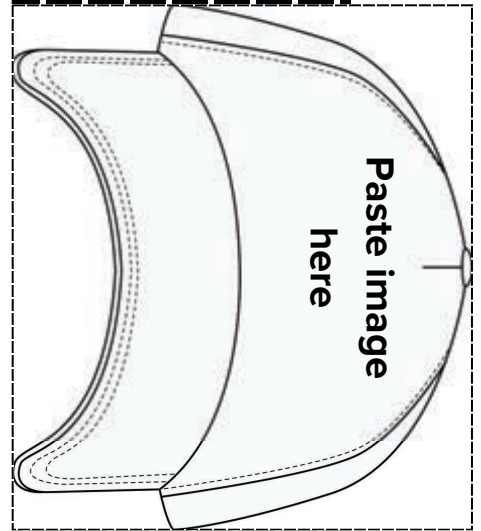
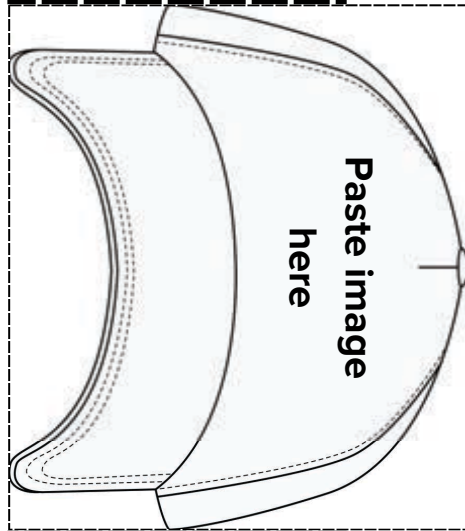
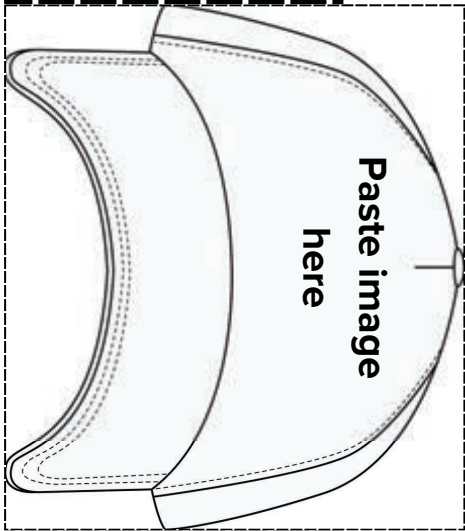
Plant/ Animal	Features/ Structures	Example: Varieties/ Breeds	Products and Uses	Suitable Environment, Climate or Market Conditions
Plants: Cotton	Hollow, soft, strong, absorbent lint fibres, temperature and abrasion resistant. Shrub 1.2m height, broad heart shaped, lobed leaves.	GM cotton varieties have been bred to achieve high yields and reduce pesticide use	Natural fibre textiles and clothing. Cotton seed used in livestock feeds and oil.	
Plants: Pastures/ forage crops	High vegetative composition, rapid germination, tolerate grazing pressure, rapid growth in seasonal conditions.	Winter: Summer:	Forage, hay, straw, silage, green manure.	Winter: cooler temperate conditions, high rainfall. Summer: warmer, humid subtropical, tropical and arid regions.
Plants: Vegetables /herbs	Annual plants: Edible plant parts with high nutrition e.g. roots - carrots, tubers - potatoes, leaves - lettuce, flowers - broccoli, fruits - tomatoes.	Lettuce: Brassica: Carrot: Asian greens: Solanaceae:	Fresh vegetables - salads, snacks, juices. Processed vegetables such as canned, frozen, dried or cooked products such as canned soup.	Suited to specific seasonal conditions and growing regions e.g. temperate vegetables include root crops, potatoes and carrots, tropical vegetables include cucumber, eggplant and sweet potato.
Plants: Forestry	Hardwood and softwood species	Hardwood: Softwood:	Wood chip for pulp and paper, timber and furniture	Rainfall regions of Eastern Queensland, NSW and Victoria, Northern region of Northern Territory, across Tasmania and in the south of Western Australia
Plants: Natives	Plants adapted to Australian climates and regions, usually suited to low fertility and pH soils.	Native Rosella, fingerlime, Pepperberry, Warrigal greens		Market suits consumer demand for sustainable products with ethical branding.

Worksheet 3: Characteristics of Plants and Animals Developed for Australian Agriculture

- Review the 2 examples provided then use the information gathered in your research for **Worksheet 2** and select 2 agricultural plants and 2 agricultural animals.
- Outline the important industry related **structures and functions** for each of your selections and **justify reasons for why they are suited** to Australian agricultural production systems.

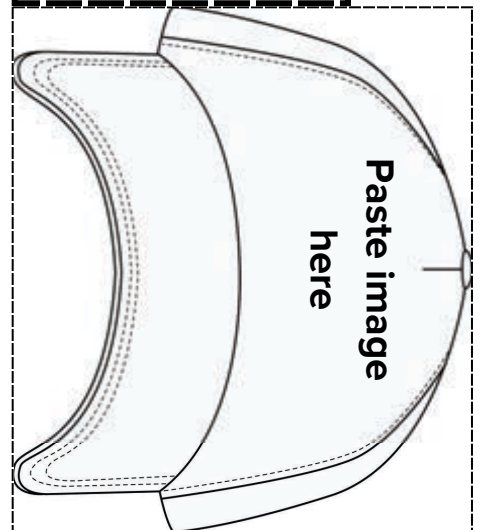
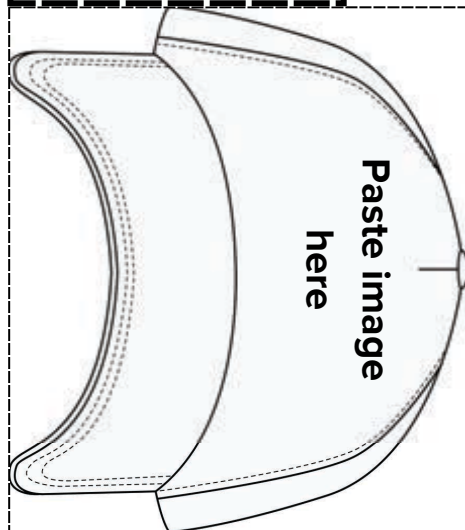
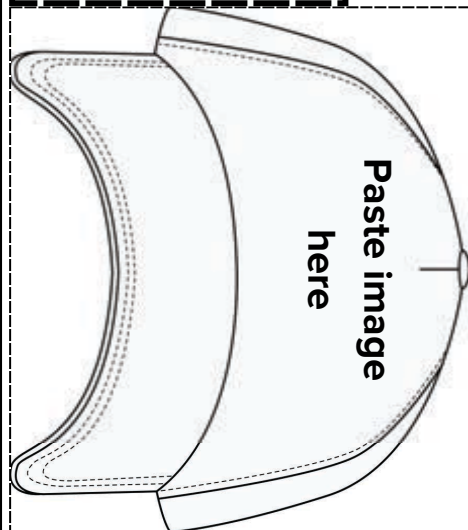
Plant/ Animal Variety or Breed	Structures	Functions	Justification for Use in Australian Conditions - Ethics, Sustainability, Food Security or Markets.
Angus Cattle	High muscularity and carcase quality	Supports strength and ability to forage for fodder, marbling increases palatability but supports energy storage for animal survival.	High muscularity increases beef yield and profitability, high marbling potential suits Australian domestic and international export markets and controlled by a quality assurance programs using the LPA standards, NLIS traceability and MSA eating quality standards.
Wheat	Hard grain, well filled, white colour	Low moisture content, easy milling for high flour yield	Suited to a wide range of wheat based products across domestic and international markets.

WORKSHEET 4: AGRICULTURE CELEBRITY HEADBANDS



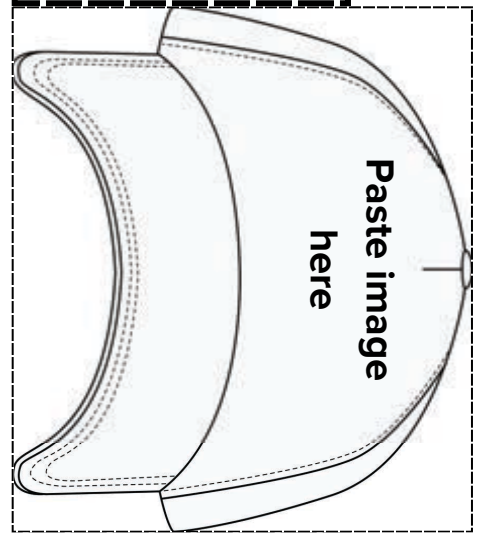
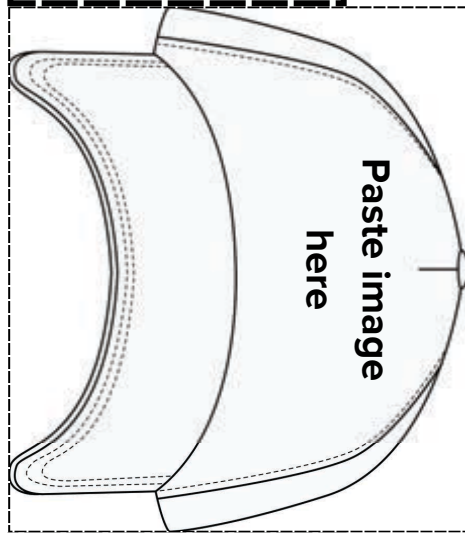
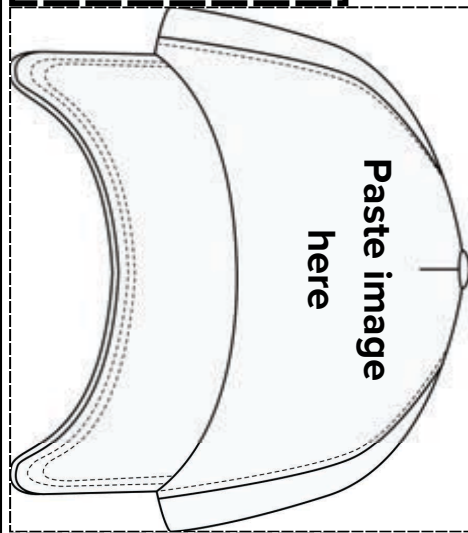
**Blank page for Activity 5:
Worksheet 4 - Celebrity
Headbands cut/paste**

Worksheet 4: AGRICULTURE CELEBRITY HEADBANDS



**Blank page for Activity 5:
Worksheet 4 - Celebrity
Headbands cut/paste**

Worksheet 4: AGRICULTURE CELEBRITY HEADBANDS



**Blank page for Activity 5:
Worksheet 4 - Celebrity
Headbands cut/paste**

WORKSHEET 4 - AGRICULTURE CELEBRITY ANIMALS



Layer Chickens



Broiler Chickens



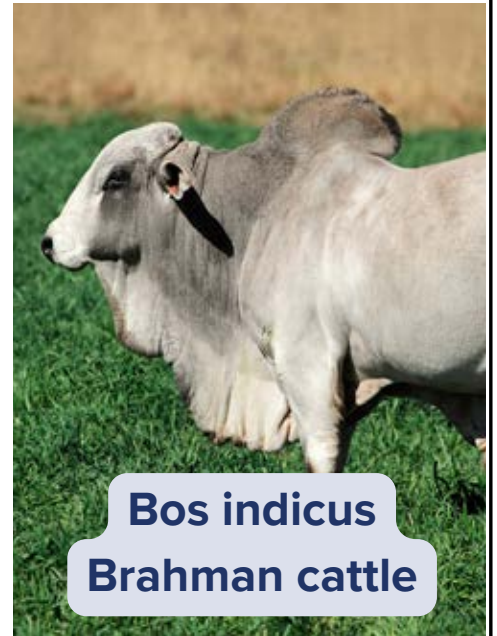
**Bos taurus
Angus Cattle**



Dairy Cattle



Merino Sheep



**Bos indicus
Brahman cattle**



Barramundi

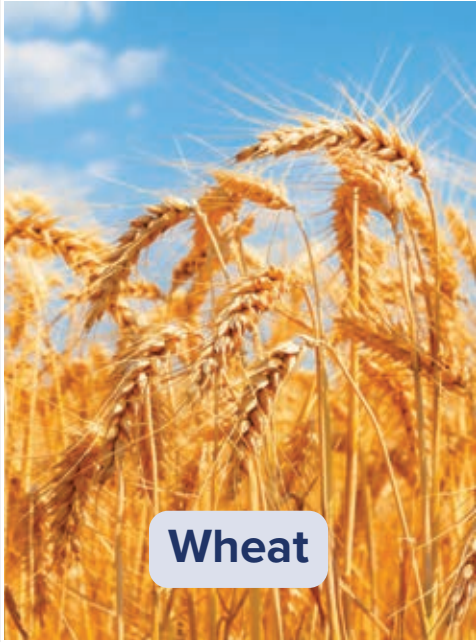


European Bees



Landrace Pig

WORKSHEET 4 - AGRICULTURE CELEBRITY PLANTS



Wheat



Rye Grass Pastures



Vegetables - Potato



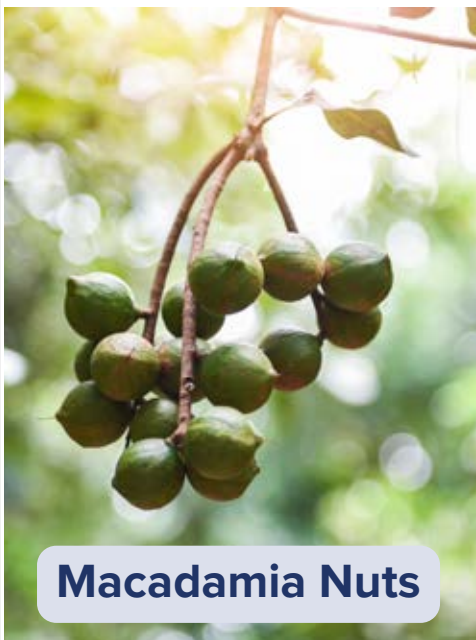
Softwood - Pinus radiata



Hardwood - Eucalyptus



GM Cotton



Macadamia Nuts



Canola



Vegetable - Broccoli

WORKSHEET 4 - EXTENSION: AGRICULTURE CELEBRITY ANIMALS



Buffalo



Deer



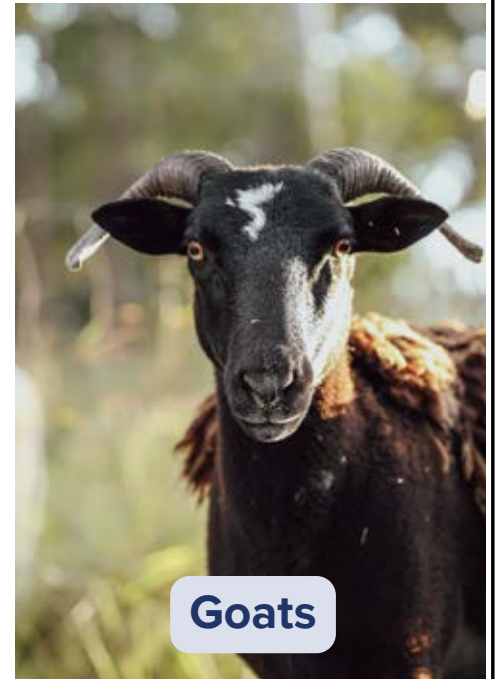
Oysters



Mulloway



Atlantic Salmon



Goats



Pekin Duck



Turkey



Alpaca

WORKSHEET 4 - EXTENSION: AGRICULTURE CELEBRITY PLANTS



Native Rosella



Canola



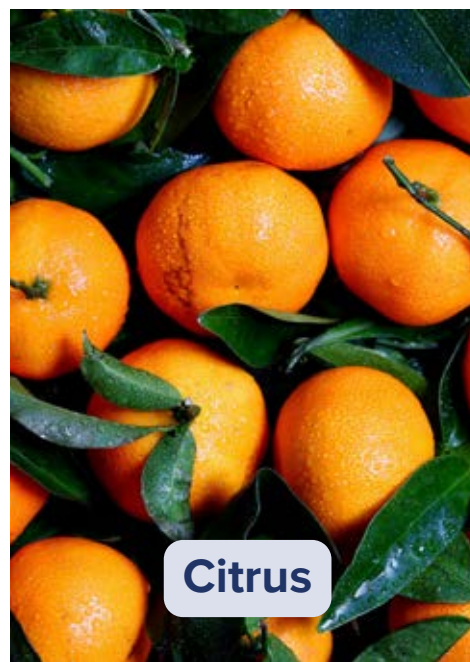
Corn



Rice



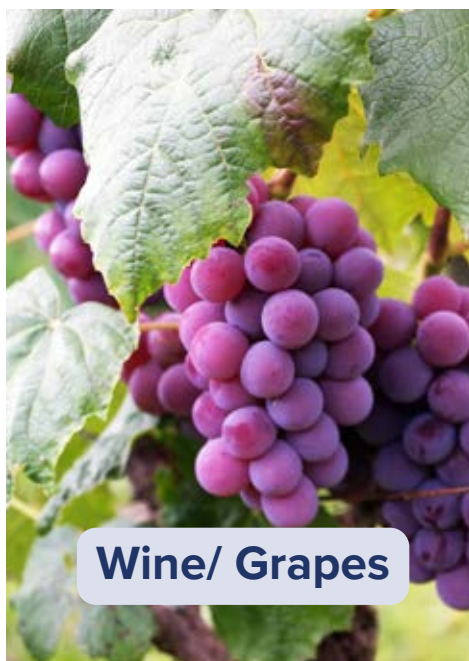
Sugar Cane



Citrus



Stonefruit



Wine/ Grapes

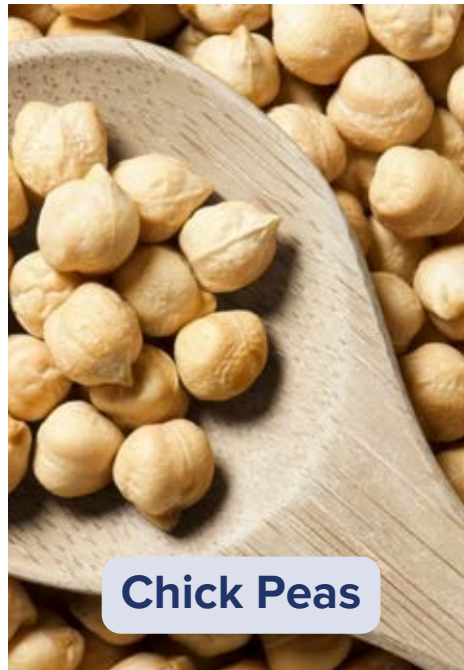


Almonds

WORKSHEET 4 - EXTENSION: AGRICULTURE CELEBRITY PLANTS/FUNGI



Oats



Chick Peas



Lentils



Apples



Mushrooms



Cos Lettuce



Tomato



Blueberry



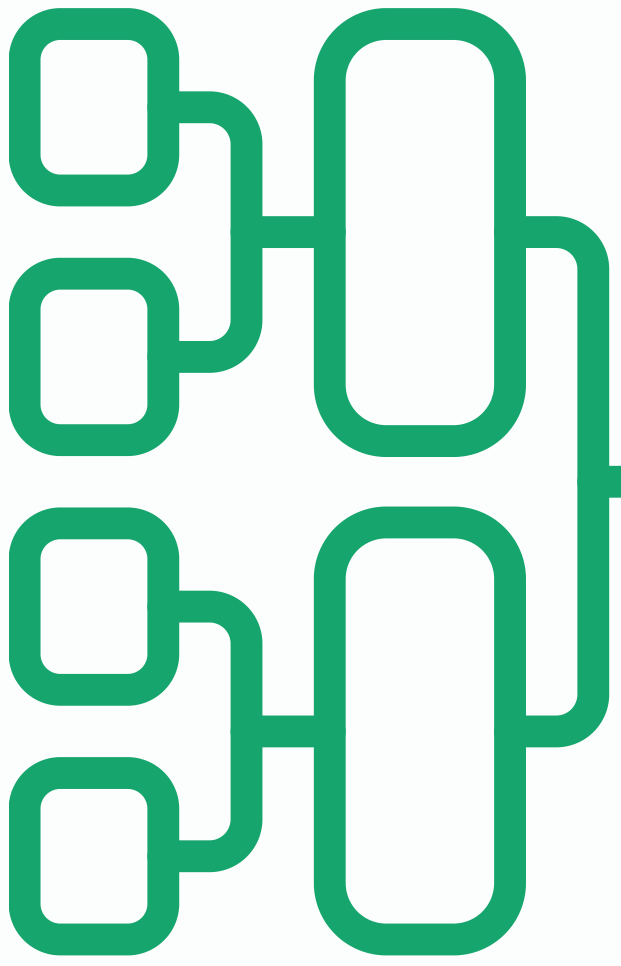
Banana

Worksheet 5: Dichotomous Key - Identifying Breeds and Plant Types Developed for Australian Climate or Markets.

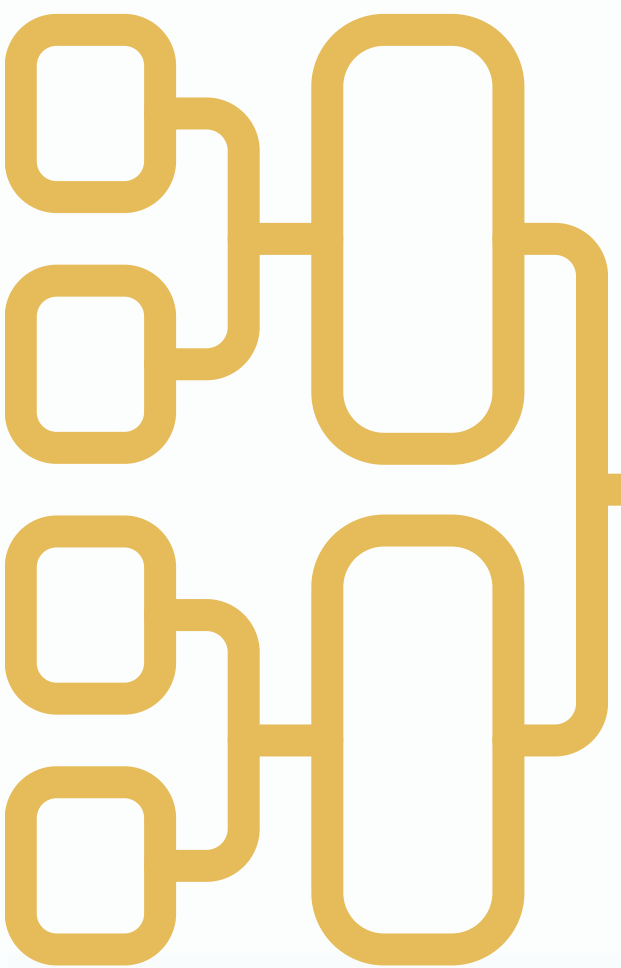
Living Thing



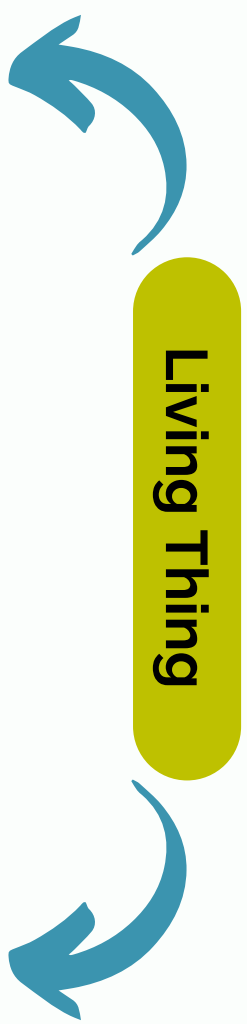
Leaves
(Plant)



No Leaves
(Animal)



Worksheet 5: Make Your Own Dichotomous Key - Identifying Breeds and Plant Types
Developed for Australian Climate or Markets.





Agricultural Celebrity Heads

Explaining Reasons for Plant and Animal Use in Agricultural Enterprises Considering Australian Markets and the Environment.

TEACHER GUIDE:

Answers

YEAR 7-10

This resource has been developed by:





Teacher Guide: Answers:

Worksheet 1: Food and Fibre From Living Things

Instructions: Using the diagram below with your class discussion, Identify a range of agricultural plants and animals and why they have been used in agriculture.

Stage 4 plant example: Grains - kernels/seeds suited to a variety of products such as flour and livestock feed.

Stage 5 animal examples: ISA Brown or other laying hens - well developed reproductive system, high reproductive rate, calm temperament reduces aggression in intensive production systems.

Stage 4 Fruit: Citrus fruits suited to a wide range of food products such as juice, fresh fruit and processed fruit such as flavourings for sweets

Stage 5 example: Brahman Beef Cattle - well suited to hot, dry conditions due to saggy skin increasing surface area for cooling by evaporation.

Stage 4 Vegetables: Wide variety of nutrition such as potatoes and carbohydrates, broccoli for vitamins and minerals.

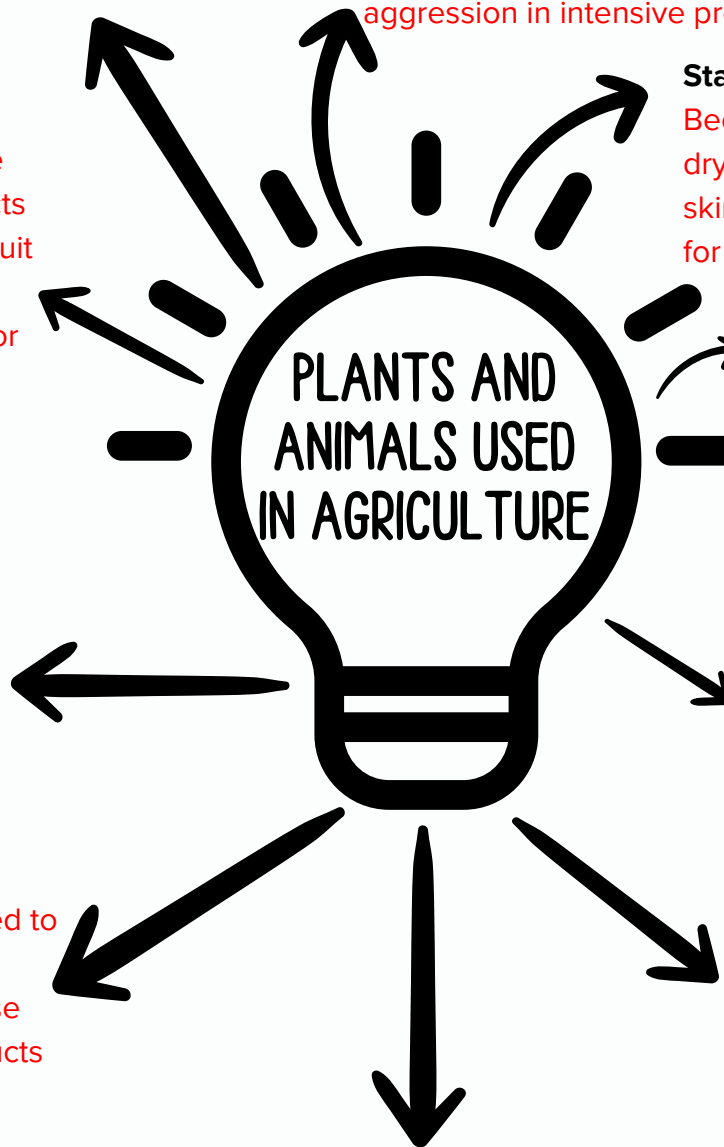
Stage 5 example: Atlantic salmon high metabolic efficiency F.C.R 1:1 maximises intensive production and suited to southern Australian water temperatures.

Stage 4 Sheep: Suited to cooler Australian climates, dual purpose meat and wool products

Stage 5 example: Holstein, high metabolic efficiency in mammary glands converting nutrition into milk production

Stage 5 example: Merino sheep high quality wool fibres and muscularity for dual purposes meat and wool production.

Stage 5 plant example: Macadamia nut, high quality nut, native plant suited to Australian growing conditions e.g. waxy cuticle on leaves restricts evapo-transpiration.



Teacher Guide: Answers:

Worksheet 2: Plants and Animals Used in Agriculture.

Team: Agronomist (horticulture specialist) or Veterinarian (livestock specialist) - circle one.

Instructions: Using the examples provided, research the missing information to identify characteristics and reasons why a range of plants and animals are commonly used in Australian agriculture.

Plant/ Animal	Features/ Structures	Example: Varieties/ Breeds	Products and Uses	Suitable Environment, Climate or Market Conditions
Bos taurus	High muscularity, early maturing, fertile cattle suited to temperate climates	Angus, Hereford, Limousin, Charolais, Shorthorn, Murray Grey	Raw: Meat, manure Processed: salami, jerky, beef stock, blood and bone.	
Bos taurus Dairy	High fertility, high milk production, good forager, calm temperament.		Raw: Raw milk Processed: Pasteurised and HT milk, cheese, butter, yogurt.	High rainfall areas, fertile soils, temperate climates.
Layer chickens		ISA Brown, Rhode Island Red		
Pigs		Landrace, Large White and Duroc		
Poultry meat			Meat, feathers, pet food, manure, blood and bone	
Sheep		Wool breeds: Merino, Border Leicester and Corriedale		Wide range of climates depending upon breed - arid to high rainfall regions with year round pasture grazing, finer wool in hotter and dryer regions.
Fin fish		Atlantic Salmon, Mulloway, Trout, Silver Perch, Barramundi	Fish, fish meal, caviar, livestock and pet foods.	
Bees		European and Stingless		

Teacher Guide: Answers.

Worksheet 2: Plants and Animals Used in Agriculture

Instructions: Using the examples provided, research the missing information to identify characteristics and reasons why a range of plants and animals are commonly used in Australian agriculture.

Plant/ Animal	Features/ Structures	Example: Varieties/ Breeds	Products and Uses	Suitable Environment, Climate or Market Conditions
Cereals		Cereal grains: Wheat, Barley Oats Oil Seeds: Canola, sunflower, linseed and safflower Pulses and legumes: Chickpea, lentil, lupin and soyabean		
Cotton				Bred for a variety of conditions, prefers hot and dry growing conditions with adequate soil moisture
Pastures/ Forage Crops		Summer: Kikuyu, Rhodes grasses, millet and chicory. Winter: Annual Ryegrass, Phalaris, clover, lucerne, oats		
Vegetables		Lettuce: Cos, Iceberg, Minionette Brassica: Broccoli, Cauliflower. Carrot: Nantes Chantenay, yellow. Asian greens: Pak and Bok Choy Solanaceae: eggplant, tomato, chilli, capsicum.		
Forestry		Hardwood: Eucalyptus species - Blue Gum, Dunns White gum, Flooded gum, Spotted Gum, Blackbutt. Softwood: Pinus species (conifers) - Radiata and Slash pine, native Hoop pine.		
Natives			Herbs, spices, vegetables and fruits, jams, sauces.	

Teacher Guide and Answers:

Worksheet 3: Characteristics of Plants and Animals Developed for Australian Agriculture

- Review the 2 examples provided then use the information gathered in your research for **Worksheet 2** and select 2 agricultural plants and 2 agricultural animals.
- Outline the important industry related **structures and functions** for each of your selections and **justify reasons for why they are suited** to Australian agricultural production systems.

Plant/ Animal Variety or Breed	Structures	Functions	Justification for Use in Australian Conditions - Ethics, Sustainability, Food Security or Markets.
Jersey Cattle	Small/ medium body size	Smaller size reduces maintenance requirements enabling higher stocking rates.	High butterfat and protein levels in milk, high fertility and calving ease make them suitable for crossbreeding dairy and beef programs.
Australorp Chickens	Large body size	Can tolerate cold conditions	Dual purpose meat and egg production, bred for Australian conditions and gentle/docile temperament.
Australian Stingless Bees	Pollen basket	collects and stores pollen for pollination	Native pollinator, suited to the Australian environment, not affected by Varroa mite.
Granny Smith Apples	Hard, firm, crisp juicy flesh	Hard and firm fruit reduce spoilage in packaging, storage and transport operations.	Excellent storage and packing characteristics preserve supply across seasons.
Macadamia Nut	Smooth hard shell on nut with white kernel	Hard shell protects kernel, shell pores enable kernel to dry for separation from shell	Well suited to Australian subtropical climate and a variety of topographical areas
GM Cotton	Hollow fibres	Strong, absorbent and temperature resistant.	High quality hollow fibres make clothing comfortable, abrasion resistant and breathable for cooling in hot Australian conditions

Teacher Guide: Example Answers:

Worksheet 5: Dichotomous Key- Identifying Breeds and Plant Types Developed for Australian Climate or Markets.

Living Thing

