

LEARNING AREAS: DESIGN AND TECHNOLOGIES, SCIENCE

Technology and Innovation in the Thoroughbred Industry



Technology and Innovation in the Thoroughbred Industry

The Australian thoroughbred industry has embraced technological advancements and innovative practices that have enhanced the way thoroughbreds are bred, trained, raced, and cared for. These innovations are important not only for the success of the industry but also for its social, economic, and environmental sustainability.



The role of technology and innovation in the thoroughbred industry

Technology and innovation allow Australia's thoroughbred industry to increase profitability and productivity, make production more sustainable, make workplaces safer, and meet challenges arising within the sector. The use of technology in breeding has led to the production of healthier and faster horses, which boosts the industry's economic performance. Socially, technologies have improved horse health and welfare, ensuring horses are trained and conditioned for racing in a way that is safe and ethical. Environmentally, the adoption of sustainable practices, such as efficient pasture management on stud farms, has minimised the industry's ecological footprint.



Breeding

Innovation plays an important role in breeding selection of thoroughbreds. Practices such as genetic testing allow breeders to select horses with the best genetic traits such as speed and strength, and reduce the risk of foals inheriting genetic diseases. Genetic testing helps to detect any health issues or desirable characteristics in potential broodmares and sires before breeding takes place. When a broodmare is pregnant, ultrasound technology is used to conduct health checks and determine the gender of the foal. This information is valuable for breeders in planning for future sales or racing prospects as well as ensuring the wellbeing and safety of the mare and foal throughout pregnancy.



Training

Advancements in technology have improved the training of thoroughbred horses. High-speed treadmills, heart rate monitors, and advanced tracking systems are examples of technologies used to allow trainers to closely monitor the fitness and performance of horses. These tools provide data that helps trainers tailor training programs to meet each horse's specific needs, optimising their physical conditioning and reducing the risk of injury.



Racing

In the racing industry, technology has improved the safety of the sport as well as the accuracy and fairness of competitions. High-definition cameras, GPS tracking, and advanced timing systems ensure that the results of races with close finishes are reliable. Innovations in the materials used for racetrack surfaces such as synthetic tracks have made racing conditions safer for horses and jockeys.



Health and welfare

The healthcare of thoroughbreds has seen significant improvements thanks to advancements in veterinary technology. Diagnostic tools such as digital X-rays, ultrasounds, and MRI machines allow for early detection and treatment of injuries, which is important for maintaining the health and welfare of racehorses. Advancements in equine nutrition have also contributed to the improved health and performance of thoroughbreds.

The adoption of technology and innovation in Australia's thoroughbred industry helps to ensure that horses are bred, trained, and raced in ways that maintain their health, safety, and welfare, while improving the productivity, profitability, and environmental sustainability of the industry.



Technology and innovation Case study

Click on the link or use the QR code to access a series of videos about the significance of technology and innovation in the Australian thoroughbred industry. After viewing the videos, answer the questions below



Sports Science & Data- Science Based Performance

<https://www.ciaronmaher.com.au/sports-science-and-data>

View the following videos to learn about the role of innovation in the thoroughbred industry.

- 1** Science Based Performance **2** Sports Science At CMR **3** Data & Insights At CMR

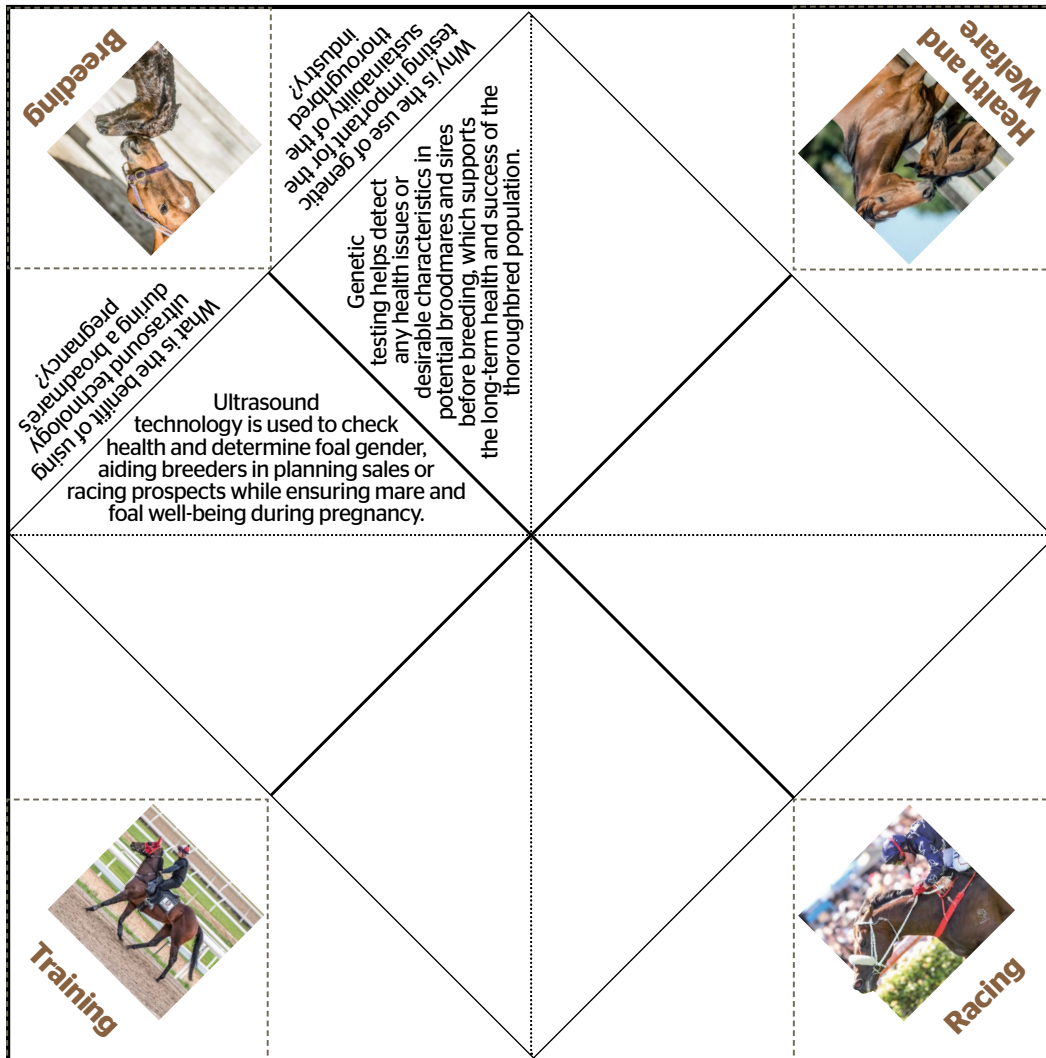
a) Identify up to three technologies featured in the videos that are used to collect or analyse Sports Science data in the thoroughbred industry.

b) Identify up to three types of data collected by Sports Science technologies (e.g., horse heart rates, etc.)

c) Justify how innovation in Sports Science improves productivity and/or profitability and/or animal welfare in the thoroughbred industry.

Chatterbox

d) Follow the instructions below to create a chatterbox.



1. Cut out the black square.
2. Design two questions and responses about the impact of technology and innovation on each aspect of the thoroughbred industry. The first aspect has been completed for you as an example.
3. Fold the square in half to make a crease.
4. Unfold the paper and fold it in half across the middle to create another crease.
5. Unfold the paper again and lay it flat on the table with the writing facing downwards. Fold the four corners of the paper to meet at the middle point of the two creased lines. Do not unfold.
6. Turn the square over again and fold the new four corners to meet in the middle point of the square.
7. Fold the square in half to create a rectangle shape, with the pictures facing outwards.
8. Put your fingers into the pockets of the chatterbox and test a partner's knowledge about technology and innovation in Australia's thoroughbred industry.

Learning Areas | Australian Curriculum Content:

Design and Technologies

Analyse how people in design and technologies occupations consider ethical and sustainability factors to design and produce products, services and environments (AC9TDE8K01)

Analyse how people in design and technologies occupations consider ethical, security and sustainability factors to innovate and improve products, services and environments (AC9TDE10K01)

Science

Explain how new evidence or different perspectives can lead to changes in scientific knowledge (AC9S7H01, AC9S8H01)

Explain how scientific knowledge is validated and refined, including the role of publication and peer review (AC9S9H01, AC9S10H01)

ATTRIBUTION, CREDIT & SHARING

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While reasonable efforts have been made to ensure that the contents of this educational resource are factually correct, PIEFA and Thoroughbred Breeders Australia do 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.

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