

NPSC1003 Integrating Indigenous Science and STEM



Curtin University

Workshop 5 – Indigenous Astronomy

Centre for Aboriginal Studies & Faculty of Science and Engineering

Western Australia | Dubai | Malaysia | Mauritius | Singapore

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Acknowledgement

Here at Curtin, we are learning on Whadjuk Noongar boodja. I would like to acknowledge the Whadjuk Noongar people, and their culture and connection to country.

I offer the class's respects to the Whadjuk Noongar Elders, past present and emerging.

! Aboriginal and Torres Strait Islander users of this material are advised there may be images, viewings, stories, photos and written materials of people which could be disturbing and/or of persons who are deceased.

Last Time Noongar Seasons

Birak
Bunuru
Djeran
Makuru
Djilba
Kambarang



Figure 1. Six Seasons of the South West <https://www.australiassouthwest.com/south-west-inspo/six-seasons-south-west>

This week

To share knowledge about Indigenous astronomy.

How Indigenous astronomy is connected to agriculture, land management and technology used by Aboriginal people.

Gain more knowledge on just how complex and complicated Aboriginal knowledge is and how many layers of knowledge exists.

Skills: Paraphrasing and Referencing



Figure 2. One of the paintings from the Ilgarjiri (which means “things belonging to the sky” in the Wajarri Yamatji language) art exhibition. This painting is entitled Seven Sisters and is reproduced here by courtesy of the artist, Christine Collard. Photo: Curtin University.

Prepare

WATCH -Highlights from a lecture and interview with Dr Duane Hamacher from the Monash Indigenous Studies Centre, recorded at the Royal Society of Victoria in February 2018

- The Royal Society of Victoria (Jul 2018). Australian Indigenous Astronomy – 65,000 years of science. Youtube. July 11, 2018. (10 minutes & 17 Seconds). <https://youtu.be/kkjf0hCKOCE>

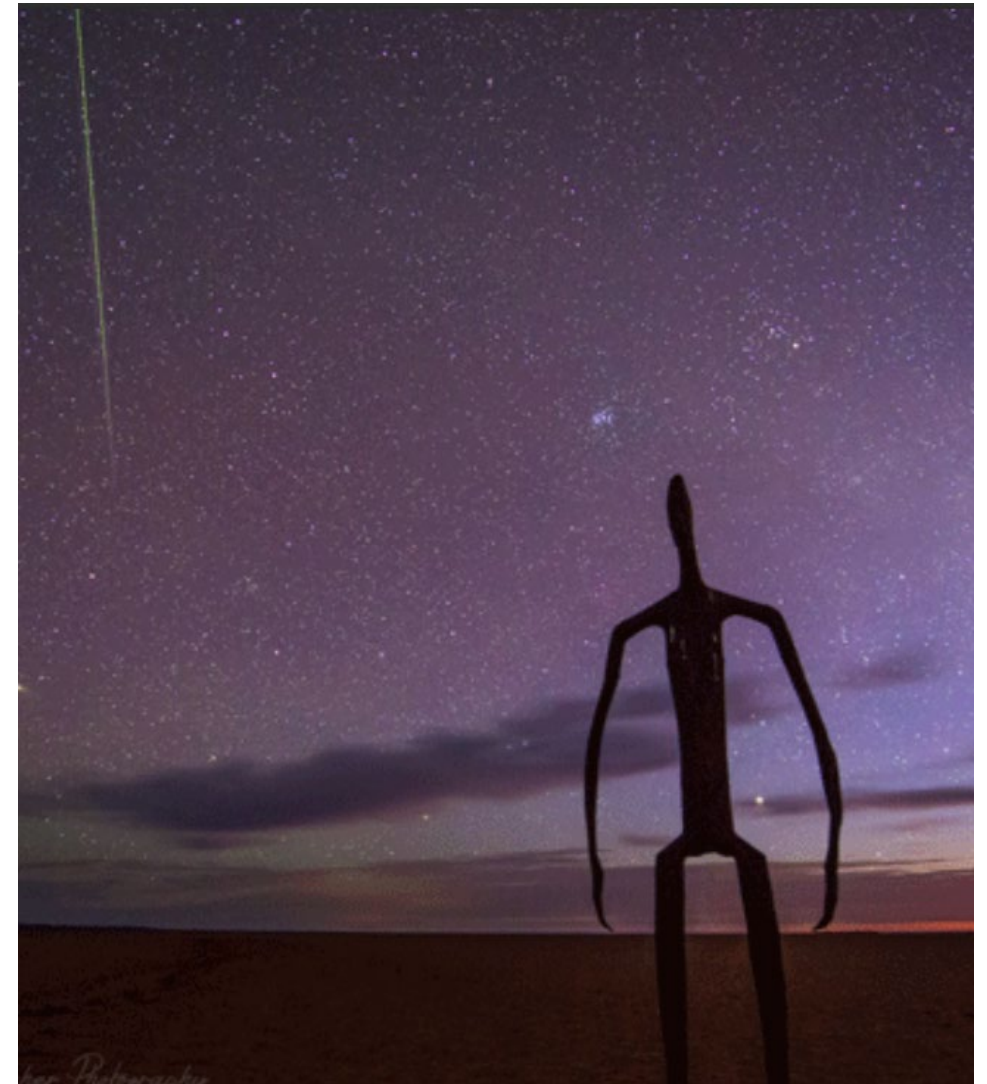
WATCH - Kirsten Banks an Aboriginal Astrophysicist

The talk includes the story of the Emu in the sky

- “65,000 years – The great history of Australian Aboriginal Astronomy”. Youtube. (11 minutes and 41 seconds). <https://www.youtube.com/watch?v=mYr7ZCn04eA>

READ - Astronomy in Aboriginal culture

- Bhathal, R. (2006). Astronomy in Aboriginal culture. *Astronomy & Geophysics*, 47(5), 5-27. <https://doi.org/10.1111/j.1468-4004.2006.47527.x>



Astronomy and Stargazing in Western Australia
<http://perthgirl.com.au/astronomy-stargazing-in-western-australia/>

Emu in the Sky

The Emu in the Sky by Barnaby Norris.

Composed of dark clouds of dust in the Milky Way, the Emu rises above an Aboriginal rock engraving in Ku-ring-gai Chase National Park, Sydney, Australia.

She stands upright above her engraving only at the time each year when the emus lay their eggs — an important food for the Ku-ring-gai Aboriginal people.

Unlike European constellations, which are traced out by stars, the Emu is traced by the mysterious dark spaces between the stars.

Can you identify her head, body and legs?



Figure 1. The Emu in the Sky Photo by Barnaby Norris. Australian Aboriginal Astronomy in the International Year of Astronomy 2009

Activity 1

Research an Aboriginal story of a constellation.

Covering the following points:

- What is the story?
- Which language group and part of Australia?
- What messages are in the stories? ie. lore, information about food, weather, etc.

Group 1. Milky Way

Group 2. Pleiades

Group 3. Southern Cross

Group 4. Sun and Moon (Eclipse)

Group 5. Clouds of Magellan



Figure 2. One of the paintings from the Ilgarjiri (which means “things belonging to the sky” in the Wajarri Yamatji language) art exhibition. This painting is entitled Seven Sisters and is reproduced here by courtesy of the artist, Christine Collard. Photo: Curtin University.

Activity 1 - feedback



Figure 2. One of the paintings from the Ilgarjiri (which means “things belonging to the sky” in the Wajarri Yamatji language) art exhibition. This painting is entitled Seven Sisters and is reproduced here by courtesy of the artist, Christine Collard. Photo: Curtin University.

Activity 2

In your groups, answer the questions on part 2 of your worksheet.

You will need to read:

Bhathal, R. (2006). Astronomy in Aboriginal culture. *Astronomy & Geophysics*, 47(5), 5-27.

<https://doi.org/10.1111/j.1468-4004.2006.47527.x>



Australian Geographic (2017) Aboriginal Australians are the world's oldest astronomers.
<https://www.australiangeographic.com.au/topics/science-environment/2017/07/a-guide-to-aboriginal-astronomy/> Image: Barbara Merritt

Activity 2 - feedback



Australian Geographic (2017) Aboriginal Australians are the world's oldest astronomers.
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Citations – Information vs Author prominent

INFORMATION PROMINENT - USUAL

In the desert regions of central Australia the Southern Cross represents the footprints of an eagle, while the Pointers are his throwing stick and the Coal Sack his nest (Mountford 1976).

AUTHOR PROMINENT - AVOID

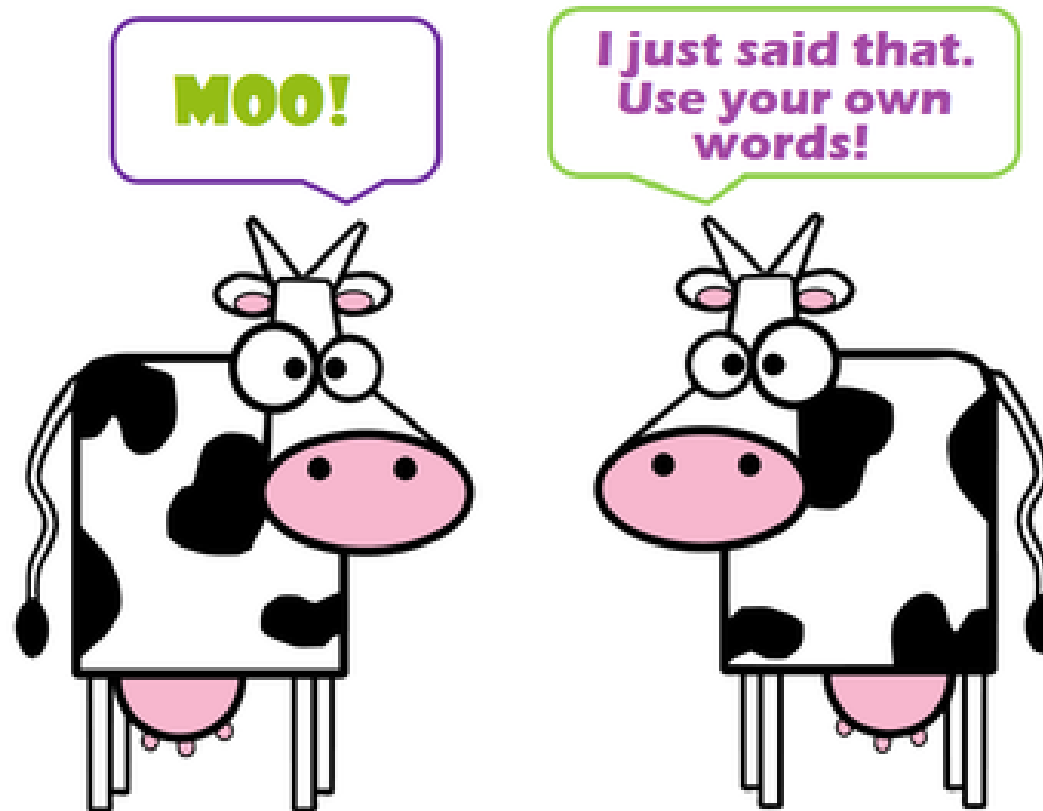
According to Dawson (1881) “Of such importance is a knowledge of the stars to the Aborigines in their night journeys and of their positions denoting particular seasons of the year, that astronomy is considered

QUOTES RARE - BUT WILL BE USED FOR INDIGENOUS VOICES

“And the tribes could look up to him from the Earth and see the stars which were Mirrabooka’s eyes gazing down on them,” (Walker 1972). However,



Paraphrasing in academic writing



Paraphrasing in academic writing

PARAPHRASING	SUMMARISING
<ul style="list-style-type: none">• does not match the source word for word• involves putting a passage from a source into your own words• changes the words or phrasing of a passage, but retains and fully communicates the original meaning• MUST be attributed to the original source with an in-text citation and corresponding reference.	<ul style="list-style-type: none">• does not match the source word for word• involves putting the main idea(s) into your own words, but including only the main point(s)• presents a broad overview, so is usually much shorter than the original text• MUST be attributed to the original source with an in-text citation and corresponding reference.

In your groups, complete part 3 of your worksheet

Before Next Week

Complete part 4 of your worksheet

Upload the part 4 *Paraphrasing & Referencing task* to Blackboard, as part of your Portfolio Assessment.

THANK YOU

Make tomorrow better.