

Teaching About Flying Foxes and Microbats: English

About this teaching resource:

The following are teacher resources that align with Year 8 to Year 10 Australian Curriculum English. This is one of ten educational resources that provide detailed, teacher-friendly discipline content knowledge and pedagogical content knowledge for all discipline areas (Maths, English, Science, Humanities and the Social Sciences). The goal of these resources is to help teachers, who are already competent, experienced and skilled in teaching, develop the knowledge and confidence to increase awareness and build capacity of communities to understand and effectively live with local Microbats and Flying Foxes (FF), including the nationally vulnerable Grey-Headed Flying Fox (GHFF).



The teaching resources all offer student-centred, constructivist-based teaching suggestions and have been developed by teachers and overseen by a University academic who specialises in the teaching and learning of Science. Even though school-based education is identified as a key factor in building community capacity, there are few online educational resources promoting the teaching and learning of bats. Those that are available, rarely link to all discipline areas within the Australian Curriculum. Bats Qld believes that any formal education teaching resources must be directly linked to the National Australian Curriculum. This resource provides teacher and student friendly lesson suggestions and resources that directly link to the Australian Curriculum. This teaching resource mobilises expertise and knowledge of Flying Foxes and Microbats in relation to the latest Scientific and Statistical information and Health and Safety information. It improves awareness and understanding of the changing migratory paths of bats and offers support to Scientists' belief that Australian forests will only survive Climate Change with the help of Flying Foxes.

Because of their importance in Australia's ecosystems, and general misunderstandings within the populous, it is imperative that people are informed and well educated around Flying Foxes, so they can support the aim of finding the balance between reducing conflict associated with Flying Foxes roosting in urban areas, and the conservation and the conservation and welfare of these important native species.



The purpose and structure of this teaching resource

Education plays a significant and unique role in constructing public understanding and opinion about Bats, as well as informing policy. Therefore, we developed this teaching resource to support educators who would like to introduce 'Bats' (Flying Foxes and Microbats) to their students while teaching required aspects of the Australian Curriculum. Our goal is to assist you with teaching suggestions: linked to the Australian Curriculum; that provide background Scientific information; that offer activity specific teaching resources; and that present a vast array of web-links all relating to the teaching and learning of Bats.

As you will see in our *Notes for Teachers* (below), Flying Foxes are considered by scientists to be a keystone species (one of the most important species in an ecosystem), and yet in Australian culture, Flying Foxes [are misunderstood and vilified](#). Therefore, we developed these educational resources to promote scientific, as well as Health & Safety knowledge about Bats, and we invite students to challenge erroneous social stereotypes promoted in Australian media and wider society.

This educational resource is structured in the following way:

- An overview of each activity and their links to the Australian Curriculum (our curricular links are not definitive, as you may identify other Content Descriptors these activities are transferable to);
- Scientifically-based background *Notes for Teachers* about Flying Foxes and Microbats;
- A detailed outline of each activity that includes resources and discussion points to guide learning;
- An extensive online resource list; and Attachments of the printable resources suggested for the activities.

This teaching resource was developed by Australian teachers, for Australian teachers, and so we *do* understand that it can be difficult introducing controversial concepts into classrooms. We celebrate your commitment to ecological sustainability, and we stand beside you in your decision to advocate and education for change, not only for these important and wonderful mammals, but for wider Australian Ecosystem. Even though these teaching suggestions present factual information, we believe it is essential for students to emotionally connect with bats in order for them to be open to learning and making a difference. The following video illustrate how cute and wonderful Flying Foxes and Microbats are! We hope you enjoy this resource.

<https://www.youtube.com/watch?v=T84jdO8YrYA> <https://www.youtube.com/watch?v=Uuvaos1WHTk>
<https://www.youtube.com/watch?v=T84jdO8YrYA> <https://www.youtube.com/watch?v=aMuWgN2DVD4>
<https://www.youtube.com/watch?v=Io3y10OhTSY> <https://www.youtube.com/watch?v=2GncgfPNNms>



Project Leader and Head developer/writer: Dr. Alison Sammel. *Please reference Dr Alison Sammel when using this material.* Please direct questions to: a.sammel@griffith.edu.au

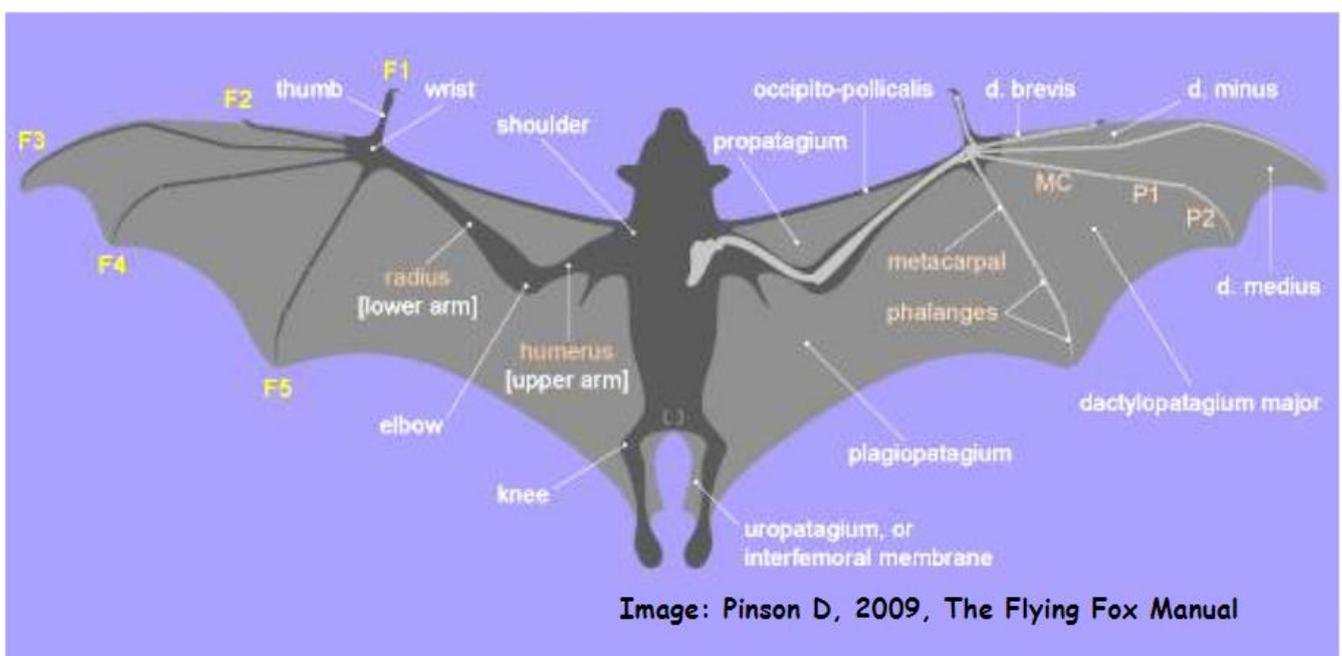
Dr. Sammel would like to thank the Gold Coast City Council (for the K-10 curriculum) and the Logan City Council (the 11 & 12 curriculum) for supporting this project and the creative teachers who collaborated on the following teaching suggestions for every subject of the Australian Curriculum from Foundation Year to Year 10 and for selected subjects within the Year 11 and 12 curriculum. Thank you Merima Celahmetovic, Cherise Davis, Bonnie Gibson, Tara Hart and Carolyn Keepa.

Notes for Teachers about Flying Foxes and Microbats

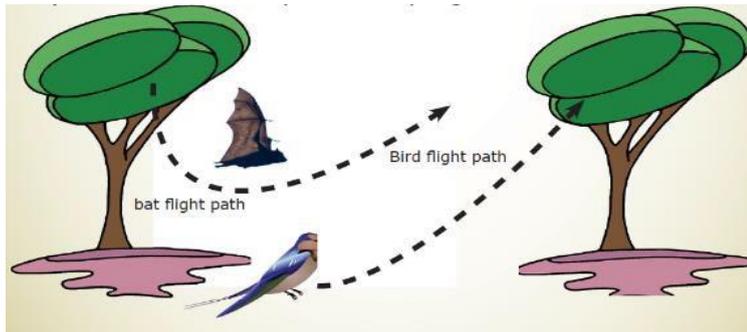
For far too long, bats have instilled fear and inspired bad omens in many cultures around the world. Vilified in the media, these deeply misunderstood and misrepresented creatures are incredibly unique animals that play a vital role in Australia's ecosystem. In a world where attitudes towards sustainability are continuously changing and evolving, it is vital that students of today move away from misinformed historical stereotypes in order to develop a strong understanding and appreciation for this amazing creature, the only mammal capable of sustained flight.



There are over 1000 different species of bats worldwide. Bats are classified into two major groups: Flying Foxes and Microbats. Both share many similarities with humans: they have a similar skeletal structure (they have elongated fingers, not wings that they fly with), are warm-blooded, give birth and suckle their young, are devoted and caring mothers and even leave their children (called pups) at 'childcare' as they go in search of food! Most species can only give birth to one pup per year. Infants are carried everywhere by their mothers and suckled for up to five months.



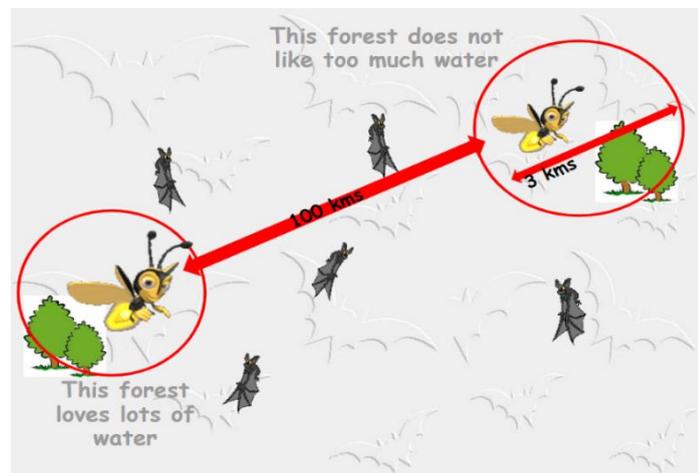
Bats are not aggressive animals. Bats do not 'swoop' or 'attack'. If spooked, a bat will fly away but because they have hands and fingers rather than wings, they must drop or fall in order to catch the wind that will provide them with the lift necessary to sustain their flight.

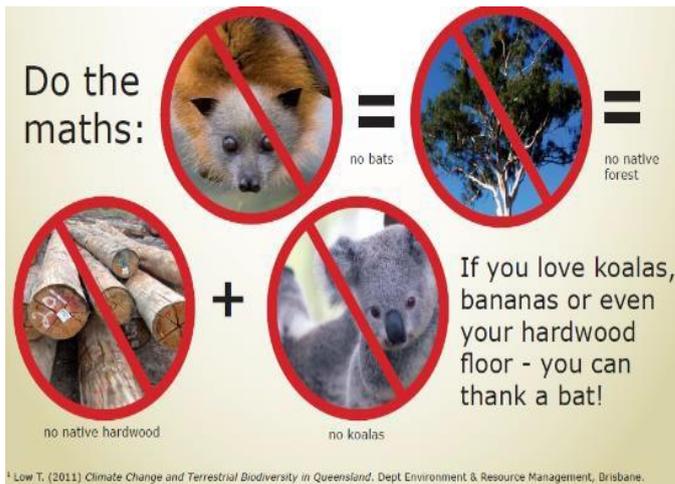


Flying Foxes or Megabats, are the largest sized bats (they also used to be known as Fruit Bats, but Flying Fox is the term that is used today). A Flying Fox has extremely good eyesight (the same as ours during the day and 25% better at night) and hearing and use these, and their strong sense of smell, to navigate the world. They are not blind and do not use echolocation. Flying Foxes are a keystone species in Australia meaning they are one of the most vital animals in our ecosystem. Flying Foxes play a key role in ensuring we have healthy coastal forests. Australian native trees reproduce by releasing and accepting pollen for fertilisation. After a flower on a tree is fertilised via pollination, the new genetic materials combine to produce seeds that then need to be distributed to other locations, away from the parent trees. Flying Foxes play an essential role in these processes. The study of science reveals that Flying Foxes and our native forests work together in an amazing and unique way that enhances the process of forest reproduction. Our native trees only release their flowers' pollen at night, specifically for the Flying Foxes to pick up. Flying Foxes have the exact soft belly fur needed to collect and carry as much pollen as possible while they fly from flower to flower. As the Flying Foxes move from flower to flower, drinking nectar, they pass along the pollen they collect on their bellies. This process fertilises the plant's flowers. Bees also do this role: however, as pollination occurs at night, Flying Foxes are more effective.



Furthermore, bees can only travel up to three kilometres and so cannot introduce new genetic material from other forest locations. The Flying Fox can travel over 100 kilometres per night and can fly from one forest to another, introducing new genetic material that will strengthen the resilience of the new generation of forests. Indeed, it is predicted that Australia's forests will only survive climate change due to Flying Foxes introducing new genetic material to the next generation of trees. For example, one forest might not like much water, and a bee will keep that gene pool the same, but a Flying Fox might fly from a forest that likes lots of water, 100 kilometres away, and introduce this new gene to the area. In doing so, the new generation of trees in that forest will be resilient to both drought or flood conditions.





Not only do Flying Foxes pollinate our native forests, they also eat the seeds from the fruit and disperse them to new areas so that the young trees can grow. Other animals do this, but a Flying Fox can digest the seed in a way that does not harm the seed, and when it is excreted, it can grow into a new plant. The process of chewing and digestion in other animals can ruin the seed, making it unviable for growth. A Flying Fox can distribute up to 3000 seeds in a single night! Their role as a keystone species means that Australian tree species, all Australian mammals such as koalas who seek shelter and food in these trees, Australian fruit trees and the Australian hardwood industry are all reliant upon the existence of the Flying Fox. In this way, humans are also dependent on Flying Foxes via the forests they sustain, as the forests supply us with oxygen, food and resources.

The second category of bat in Australia is the Microbat. This small bat plays an equally important role in the Australian ecosystem. Unlike the Flying Fox, the Microbat has extremely bad eyesight and relies on echolocation for travel and food. Microbats are insectivorous and can catch up to 500 insects per hour. The Microbats' incredible ability to consume large numbers of insects such as mosquitos and fruit flies means that life would be far less tolerable for both humans and plant species without them. It is interesting to know that Microbat boxes are being installed by universities, schools, farmers and the general public to reduce the use of pesticides within the environment and eradicate mosquito related diseases such as ross-river fever.



Considering the key role both Flying Foxes and Microbats play in Australia's ecosystem, it is unfortunate that the biggest threats to the species are habitat loss and ignorance and misinformation leading to poor human perception. People usually hold the misconception that bats carry lots of diseases. This is untrue. Science shows that there is only ONE disease that a human can catch from a bat: the Australian Bat Lyssavirus (ABLV). It is a form of rabies, but it is really, really rare. There have only been three reported cases in Australia. ABLV is very rare in the bat community, and most bats that contract this disease leave the colony and die within a few days. A person would have to be bitten by a bat within a small window of time (within those few days) to become infected. Therefore, the World Health Organisation considers it one of the rarest diseases on the planet! Contact with bat excrement, bat-eaten fruit, or having a bat fly above you will NOT transmit this disease. However, if bitten or scratched by ANY bat, all Australian government departments and bat groups strongly recommend people go to the hospital where they will receive a series of three post-bite injections (free of charge) that will ensure they do not get ABLV. There is no reason why any person should contract or die of ABLV as injections are available in Australia to stop this disease. If you do catch ABLV and do not receive the injections, you WILL die. It is important that students learn that if bitten or scratched by ANY animal, they must tell an adult, and if it is a bat, they should get the injections from the hospital.

It would be interesting to look at the Australian Bureau of Statistics to see the statistics associated with animal related deaths. This investigation would highlight that horses, cows, dogs and cats are dramatically more likely to cause human deaths than bats are. However, the most important message that students need to learn is: never touch a sick or injured bat, tell an adult if you get bitten or scratched by a bat and if you find a bat, it is best to notify your local bat (or animal) rescue and conservation organisation



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This summary was written by Dr. Alison Sammel. If you have any questions, please email a.sammel@griffith.edu.au

Australian Curriculum English: Foundation

Literature:

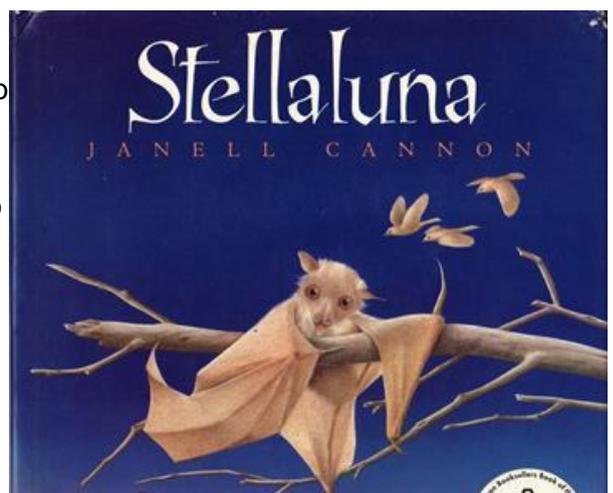
Examining literature: Identify some features of texts including events and characters and retell events from a text ([ACELT1578](#))

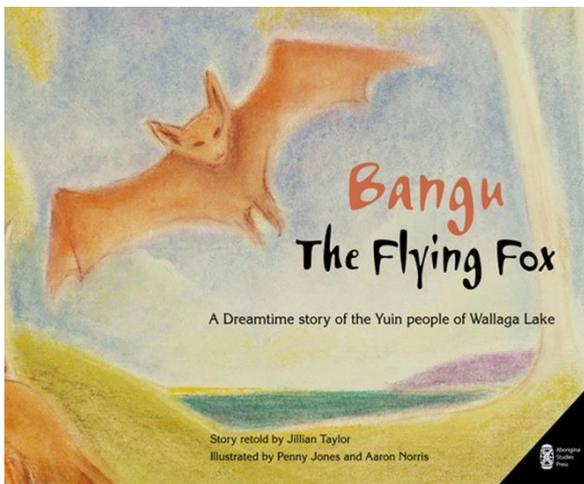
Creating literature: Retell familiar literary texts through performance, use of illustrations and images (ACELT1580)

Teaching suggestions and links to the curriculum:

The Australian Curriculum states that students will engage with a variety of texts as they participate in shared reading, viewing and storytelling. By the end of the Foundation year they should be able to use predicting and questioning strategies to make meaning from texts and recall one or two events from texts. To achieve this the following unit has been designed to enable students to retell events from a book, while using texts where the main character is a Flying Fox or Microbat will enable the students to connect with these animals. This will enable the students to develop empathy towards bats as they are able to relate that the emotional responses they feel are felt by bats (Flying Foxes and Microbats) as well.

This lesson suggestion will base content on *Stellaluna* by Janell Cannon, however you may choose from one of the many other picture books which discuss Flying Foxes or Microbats (such as *Bangu the Flying Fox* - an Indigenous story as retold by Jillian Taylor; *KUN-MUN- GUR the Rainbow Serpent* by James Cowan; or *Nightsong* by Ari Berk). If you choose “*Bangu the Flying Fox*” this provides an opportunity to incorporate Australia’s First peoples’ perspectives, therefore it would be a great time to touch base with your local Aboriginal or Torres Straits Islander community and/or Elders and find out more about the traditional people who lived in your area.





This will enable them to share valuable knowledge, when appropriate, and to build relationships, you could invite someone from your local Aboriginal or Torres Straits Islander community to come and speak with your students about the local knowledge of the importance of building relationships, passing on knowledge through oral traditions and connecting with nature.

Before reading the book get students to look at the cover for clues to use predicting strategies. You can prompt students through questions such as, “who do you think might be the main character? What kind of animal is the main character? Have you heard of or read any books written by Janell Cannon? Are there any other characters in the book? What do you think is going to happen?” Get the students to pay attention to the colour of the background, is this night or day? While the “bat” on the front cover looks like it is in an awkward position, why could that be? Pay attention to the students’ perceptions of “bats” at this time and any feelings that they may have towards them. It is quite common for people to have negative images of Flying Foxes or Microbats due to Halloween, movies or the media. Point out to students that the “bat” has large eyes and ask them if they know a type of bat that has large eyes. On the first page when they reveal that Stellaluna is a ‘fruit bat’; however, please note that the correct term is Flying Fox and they have large eyes because like us they have the same vision and hearing as us but at night their vision is 25% better than ours so they do not use echolocation to find their food (nectar and fruit). While the other classification of “bats” are Microbats who are very small with large ears and small eyes as they have poor vision and use echolocation to find their food (insects).

When reading the book to the students, take time to reflect on different emotional responses presented throughout the book such as love, scared, fear, curious, anxious, embarrassed, ashamed or happy and why they are experiencing them. It is also important to link the story to the student’s own experiences. How would they feel if they lost their mother while shopping in a store? Have they ever been lost or felt like they might get lost? How did that make them feel? Have they ever had to stay at someone else’s house? What was it like sleeping in a different bed or eating different food? As you read through the book think aloud posing questions such as, “I wonder how I would feel if I was Stellaluna and I lost my mum?”

How did Stellaluna feel when she was trying to be a bird compared to when she found her mum and realised she could do all the thing Flying Foxes can do? As students connect with the story and characters, they will be more likely able to retell the story.

Also make note of any predictions that they made if they were correct and provide opportunities for the students to alter any predictions that they have. Also make note of the characters and how they feel.

Once the story is finishes recall with the students the sequence of the story. You may also wish to do a short role play with the students to help them recall the story. Take time to pause the role play and tap the ‘characters’ to get them to reveal how they may be feeling. Students can then do an activity

Stellaluna Sequencing
Answer Sheet

| | |
|--|---|
| 1.  An owl attacks Steallaluna's mother. | 2.  Stellaluna falls into a birds nest. |
| 3.  Mother bird fed Stellaluna. | 4.  Stellaluna meets other bats. She finds out bats and birds are different. |
| 5.  Stellaluna finds her mother. | 6.  Stellaluna helped her friends at nights when they couldn't see. |

<http://www.mindinapredator.com/wordpress/>

where they will order the events in the story into the correct sequence. To do this you may choose to use the activity in the picture or students could draw the events.

Image retrieved from: <https://www.teacherspayteachers.com/Product/Book-Study-Bats-Nonfiction-and-Stellaluna-6-Day-Lesson-and-Activities-387218>

Australian Curriculum English: Year One

Language:

- Expressing and developing ideas: Compare different kinds of images in narrative and informative texts and discuss how they contribute to meaning (ACELA1453)

Literature:

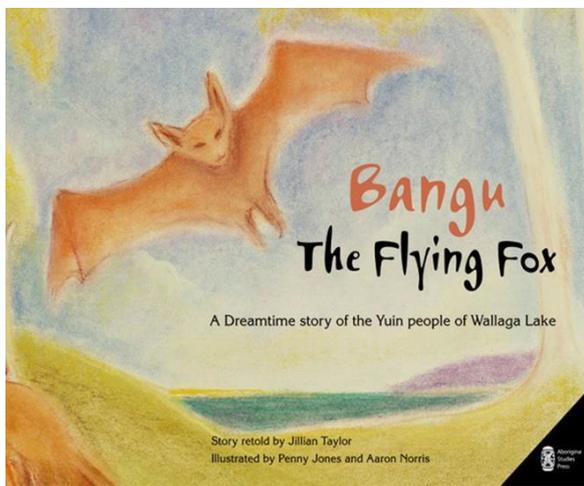
- Literature and context: Discuss how authors create characters using language and images (ACELT1581)
- Responding to literature: Discuss characters and events in a range of literary texts and share personal responses to these texts, making connections with students' own experiences (ACELT1582)

Literacy

- Interacting with others: Engage in conversations and discussions, using active listening behaviours, showing interest, and contributing ideas, information and questions (ACELY1656)
- Interpreting, analysing, evaluating: Use comprehension strategies to build literal and inferred meaning about key events, ideas and information in texts that they listen to, view and read by drawing on growing knowledge of context, text structures and language features (ACELY1660)

Teaching suggestions and links to the curriculum:

The Australian Curriculum states that by the end of Year 1 students should understand the different purposes of texts and identify how the purpose of the texts affects how the text is organised. Students describe characters, settings and events, while making connections to their personal experiences. As students recall key ideas and recognise the literal and implied meanings, they listen to others and interact in pair, group and class discussions, taking turns when responding. To achieve this, the unit has been designed to enable students to recognise the literal and implied meanings while using a text where the main character is a Microbat. This will enable students to develop empathy as they are able to connect with these animals and relate to emotional responses that are felt by bats (Flying Foxes and Microbats).



This lesson suggestion will base content on *Nightsong* by Ari Berk, as it provides numerous opportunities for students to discuss the literal and implied meanings within the text. While the rich language and images enable students to discuss and evaluate how author has created and conveyed the character and settings. However, you may choose from one of the many other picture-books which discuss Flying Foxes or Microbats (such as *Bangu the Flying Fox* - an Indigenous story as retold

by Jillian Taylor; *KUN-MUN-GUR the Rainbow Serpent* by James Cowan; or *Stellaluna* by Janell Cannon).

Whilst reading the text remember to build comprehension by thinking aloud and guiding students to use one of the many comprehension strategies you have been working on in class. Look at the front cover with students. What can students see on the front cover? What do they think the story is about? You can prompt students through questions such as, “who do you think might be the main character? What kind of animal is the main character? Have you heard of or read any books written by Ari Berk? Are there any other characters in the book? What do you think is going to happen?” Get the students to pay attention to the colour of the background, is this night or day? Students may comment that the character on the front cover is a bat. Pay attention to the students’ perceptions of “bats” at this time and any feelings that they may have towards them. It is quite common for people to have negative images of Flying Foxes or Microbats due to Halloween, movies or the media. Why does the “bat” have such large ears? Chiro, the main character is a Microbat who uses echolocation to navigate and find their prey. Therefore, structurally Microbats have large ears and small eyes, which is adapted to its ability to use echolocation; however, they are not blind as they can still see but their vision is bad. While Flying Foxes or primates like in the image to the left have much larger eyes and smaller ears, meaning they are able to rely on their sight and do not echolocate as Microbats do. It is important to note that Flying Foxes have the same vision and hearing as us, but their vision is 25% better at night (for further information please refer to the links below).



Links to information:

- <http://animals.howstuffworks.com/animal-facts/echolocation-info.htm>
- Echolocation song - <https://www.youtube.com/watch?v=Hr-Y2Tt8gFE>
- <http://bats.org.au/about-bats/microbats.php>
- <https://www.youtube.com/watch?v=2LHUNLkmwbc>
- <http://www.bats4kids.org/echo.htm>

You may wish to read the text to the students all the way through initially so that the students can have the opportunity to enjoy the text and images and experience the book as a whole. Next read the story to the students again, pausing at sections to allow the students to examine the text for literal and implied meaning and discuss these as a class. Why was Chiro so afraid to go out on his own? Ask the students to relate this to their experiences; have they ever been afraid, perhaps on their first day of school? Highlight the passage “sense is the song you sing out into the world and the song the world sings back to you. (p.5) Model a think aloud, “a song the world sings back? Does the world sing? I wonder what the author means here...”. Do you think the world is really going to sing? I’m going to pay a lot of attention to this in the story to figure out if the world sings back to Chiro.”

What does mother mean when she says, "...do not go farther than the pond, not unless your song is sure"? (p.5) Re-read this sentence a couple times. What does it mean when something is "sure?" For example, if your mom tells you not to go into the pool unless you're sure you can swim well, what does she mean? Have they ever had an experience where they had to be "sure"? Now that you know what "sure" means, why do you think Chiro's mom wanted his song to be sure?

Look at the image on page 9, what are the "arms" that Chiro was afraid of? Look carefully at the images; does it look like Chiro can see? Is he using his good sense? Compare this to page 13 ask, "Why is the picture coloured in front of Chiro and not behind him?" On each page, ask students, "How is Chiro's song helping him?" Ask the students, what does it mean that the songs of the flying tasty things sounded like breakfast? Students may respond that he was hungry, and you can discuss with the students that Microbats use echolocation to locate their prey which is mainly insects, Microbats can eat up to 1,200 mosquitos in an hour! For Chiro he may have been hungry and instinctively the insects sounded like food.

You may wish to show them a video on how Microbats use echolocation on YouTube: <https://www.youtube.com/watch?v=p08Y0oRAX3g>. However, please note that the video refers to them as "bats", but it is important to model the correct language and refer to them as Microbats. As previously mentioned not all bats use echolocation, Microbats use echolocation while Flying Foxes do not.

There are numerous opportunities presented throughout *Nightsong* where students can examine and discuss the use of language and images to convey the characters, settings, events and the literal and implied meanings. This unit has been adapted from a unit outline which can be retrieved from the link below for further information and lesson ideas.

Link to unit: www.tangischools.net/ciweb/common%20core/ela/nightsong_1_lit.docx

Resources:

- Berk, A. (2012). *Nightsong*. New York, NY: Simon & Schuster Books for Young Readers.
- *Nightsong* read aloud: <https://www.youtube.com/watch?v=LUvFrPLYMog>

Australian Curriculum English: Year Two

Language:

Language variation and change: Understand that spoken, visual and written forms of language are different modes of communication with different features and their use varies according to the audience, purpose, context and cultural background (ACELA1460)

Literature:

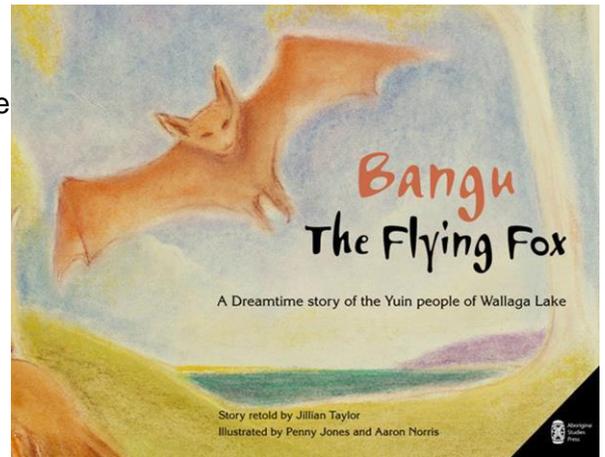
Literature and context: Discuss how depictions of characters in print, sound and images reflect the contexts in which they were created (ACELT1587)

Literacy:

Creating texts: Create short imaginative, informative and persuasive texts using growing knowledge of text structures and language features for familiar and some less familiar audiences, selecting print and multimodal elements appropriate to the audience and purpose (ACELY1671)

Teaching suggestions and links to the curriculum:

The Australian Curriculum states that students should be able to identify the literal and implied meaning, main ideas and supporting ideas, make connections between texts and listen for particular purposes. This unit is built around “Bangu the Flying Fox” an Indigenous story as retold by Jillian Taylor, from the Yuin people of Wallaga Lake, in south New South Wales.



The use of “Bangu the Flying Fox” provides an opportunity to incorporate Australia’s First peoples’ perspectives, therefore it would be a great time to touch base with your local Aboriginal or Torres Straits Islander community and/or Elders and find out more about the traditional people who lived in your area. This will enable them to share valuable knowledge, when appropriate, and to build relationships, you could invite someone from your local Aboriginal or Torres Straits Islander community to come and speak with your students about the local knowledge of the importance of building relationships, passing on knowledge and values through oral traditions and connecting with nature.

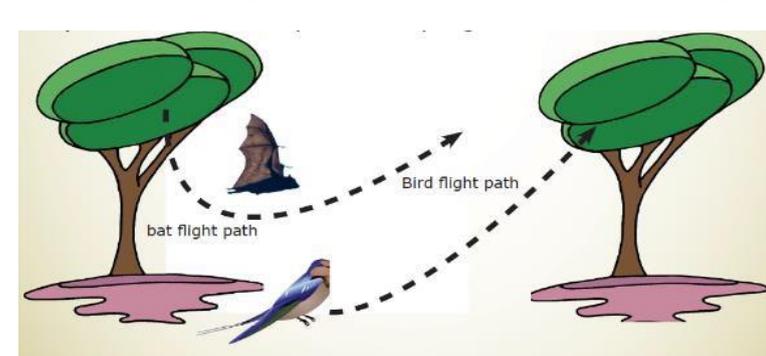
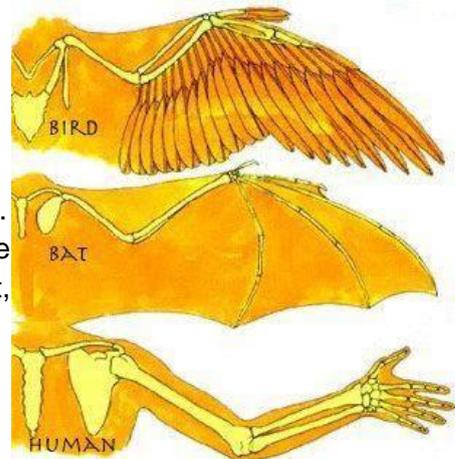


When the students first view the cover of the book point out to them that the story is retold by Jillian Taylor and that she does not own the story, rather it was told to her by Mervyn Penrith. Introduce the story by informing the students where it comes from, the Yuin people of Wallaga Lake, in south New South Wales. It is important to point out that this may not be their local Aboriginal or Torres Straits Islander community and you may wish to point out using the interactive map (refer to link below) who their local Aboriginal or Torres Straits Islander community are before commencing the story. This would be a good opportunity to invite a Knowledge Keeper in from your local Aboriginal or Torres Straits Islander community into your classroom.

Image retrieved from: <http://www.abc.net.au/indigenous/map/> (please refer to this link for the interactive map; however, please note there may be some discrepancies and to consult your local Aboriginal or Torres Straits Islander community and/or Elders)

Ask the students to view the cover and make predictions about the book and ask them questions to check their perception of Flying Foxes. What is a Flying Fox? What kind of animal are they? Knowing that this story is a Dreaming story what do they think happen? Will there be a message?

Read the story to the students, continually pausing to allow the students to reflect and alter on their predictions and questions. At the end of the story ask the students why didn't know whether she was a bird or an animal (mammal)? Get the students to think about what features do birds have and what features do mammals have. For instance, birds have feathers, can fly, have beaks and lay eggs. While most mammals have fur, do not lay eggs, cannot fly and have noses. Bangu is a Flying Fox and they have fur, eat nectar and fruit, do not lay eggs but rather give birth to a live pup but they can fly. A Flying Fox is the only mammal capable of true flight, they have a large chest and thin legs, making them aerodynamic. They have hands and not wings (just like a human) but they have longer fingers and are covered in a membrane. Their hand can be folded in between strokes as they fly, allowing them to make sudden swift turns or suddenly rest upside down on a branch. Whereas birds fly by flapping their wings and the do not have finger bones like a human. However, due to



being top-heavy a bat cannot take off standing like a bird, rather the first fall like a hang glider, which makes it seem as though they are swooping us but that is just how they fly. For further information on the difference between birds and bats refer to the notes for teachers at the start of this document and the links below.

Image retrieved from: <http://mrsgebauer.com/bats/birds/bird.html>

Links to further information:

<https://www.youtube.com/watch?v=2LHUNLkmwbc>

<https://www.youtube.com/watch?v=9FVoTMOorXA> <http://ausbats.org.au/cool-facts-about-bats/4569172153> <http://mrsgebauer.com/bats/birds/bird.html>

<http://www.differencebetween.com/difference-between-bats-and-vs-birds/>

Inform the students that often Aboriginal peoples' stories exist to teach young people about natural events, warn about dangers, explain relationships and identity and teach them about the law and the right behaviour. While many are also about ideas such as; love, belonging, strength of family and country, duties and responsibilities, journeys and identity. What do they think "Bangu the Flying Fox" is trying to achieve? Get the students to use the text to support their answers. How do the feel for Bangu? Should we be mean to Flying Foxes?

Ensure that you spend time discussing with the students that we should not be mean to each other and any animals (what does 'mean' look like to each child?), including Flying Foxes as they play a vital role in looking after our environment. While we sleep at night, they are busy pollinating Australia's native trees and many fruit trees. Without them the Australian hardwood industry and koalas would suffer (no me, no tree). Students may have negative images or misconceptions of bats so you may wish to show them some images of Flying Foxes and try to establish a more

empathetic view and understanding of these misunderstood mammals.



Show the students these images of Lana (left) and Bruce (right) who are Flying Fox orphans raised by carer. Does this image change their perceptions about a bat now? How do you think Bruce or Lana feels about losing their mother? What would you say them? Begin discussing with the students the importance of stories like “Bangu the Flying Fox’ that convey a message or moral. To extend the students they could write their own story with a moral such as being kind to Flying Foxes or you could write one as a class. It is important to remind students that this story would not be a Dreaming story.

Contact your local bat conservation and rescue organisation to obtain resources and information about how they raise and care for orphaned. Invite a member of a local bat group to come in and talk with the students, they might even bring an orphaned bat in for the students to meet. Your students will love this link to real world situations. By conducting a Google or YouTube search of “Bat conservation and rescue”, you will easily find a wide range of images, stories and videos to share with your students.

Note: Now is a good time to ensure your students know what to do if they ever find a Flying Fox or Microbat who is in trouble. Students need to understand that their health and safety is paramount and that a bat should never be picked up with bare hands. If a bat is on the ground or on barbed wire, it can be covered carefully with a towel and rescue services should be contacted immediately. Students must know that if they are scratched or bitten by a bat, they should always tell an adult and they will need to go to the hospital to review a series of 3 post bite injections. This is ensuring they do not catch the only disease a human can catch from a bat: ABLV. Your local bat conservation organisation will have further information should you require it. What to do if you find a bat:

<http://www.bats.org.au/rescue.php>

Australian Curriculum English Year Three:

Language:

Text structure and organisation: Understand how different types of texts vary in use of language choices, depending on their purpose and context (for example, tense and types of sentences) ([ACELA1478](#))

Literature:

Responding to literature: Draw connections between personal experiences and the worlds of texts, and share responses with others ([ACELT1596](#))

Literacy:

Texts in context: Identify the point of view in a text and suggest alternative points of view ([ACELY1675](#))

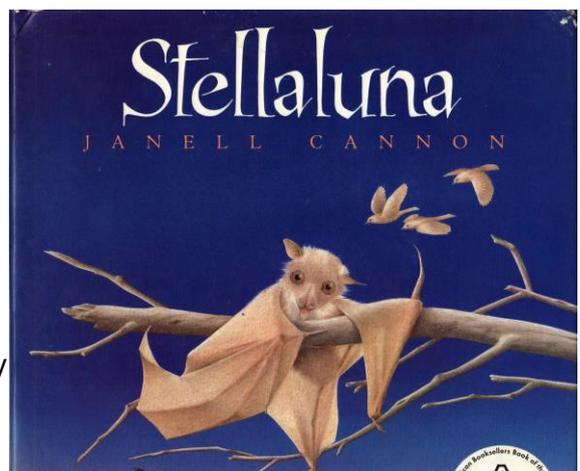
Teaching suggestions and links to the curriculum:

The Australian Curriculum states that, by the end of Year 3, students need to be able to understand how content can be organised using different text structures depending on the purpose of the text. In developing this understanding, students need to explore how language features, vocabulary choices and images are used for different effects across different texts. Reading and evaluating different text types on the topic of Flying Foxes and Microbats offers the perfect opportunity to guide students in developing the abovementioned skills.

With this series of lessons, your students will be exploring two different texts on the same topic, a narrative and an informational text. Begin with the fictional text. This lesson suggestion will base content on *Stellaluna* by Janell Cannon, however you may choose from one of the many other picture books which discuss Flying Foxes or Microbats (such as *Bangu the Flying Fox* - an Indigenous story as retold by Jillian Taylor; or *Nightsong* by Ari Berk).

Whilst reading the text remember to build comprehension by thinking aloud and guiding students to use one of the many comprehension strategies you have been working on in class.

Look at the front cover with students. What can students see on the front cover? What do they think the story is about? Students may comment that *Stellaluna* is a “bat”, ask students what they know about “bats”. Would a “bat” normally hang on to a tree in this manner? Why do they think she is clinging to the tree in this manner? Link students’ own experiences with the story. Have they ever seen a “bat”?



Do any students have trees in their backyard which are visited by “bats”? Are any students scared of “bats”? Remember to ask students if they think this is a narrative or a non-fictional text. Ask students to justify their response.

As you are reading the story, remember to stop and discuss language features and images. What tense is used? How do we know? How do the images help us to understand the story? Do they offer an insight into how *Stellaluna* may be feeling? Look at her facial expressions.

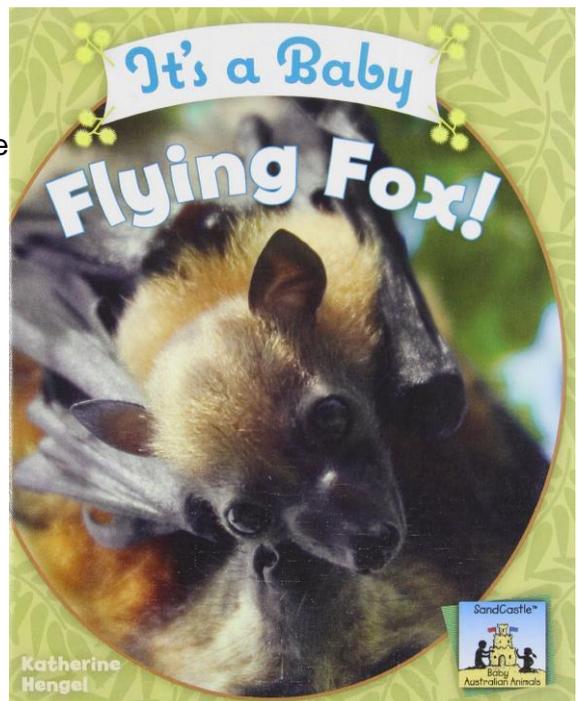
Link the story to students' personal experiences. Have they ever had to stay with another family where all the routines were different? Maybe the food was different to what their family would normally eat. Maybe they felt a little scared or shy because everything was unusual or different. How do they think Stellaluna may be feeling to be separated from her mother? Use the opportunity to build social and emotional skills such as empathy and resilience.

You may choose to extend the activity further by having students compose their own narrative piece based on Stellaluna. Have students consider how the birds may have been feeling about Stellaluna's presence. Did they think she was strange? Maybe they didn't want her there? What could they have done to make Stellaluna feel better? Have students retell the story from the bird's point of view. This activity will also lead students to understanding that their behaviour will affect others around them. You may choose to discuss situations of empathy both towards other people and towards animals such as Stellaluna.

Once you have analysed the textual features of Stellaluna, move onto a non-fiction text. A wonderful text you may choose to use is "It's a baby flying fox" by Katherine Hengel. This text is great to use as it makes particular note of Flying Foxes rather than just "bats". At some point during this activity, it is a good idea to explain to students that there are two classifications of "bats" in Australia, the Flying Fox and the Microbat. Link this idea to Stellaluna by explaining to students that Stellaluna is a Flying Fox who eats fruit and nectar from trees.

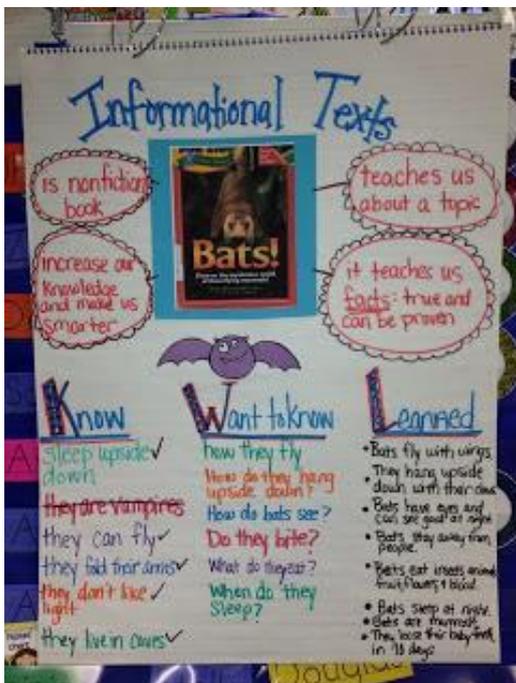
Microbats, on the other hand, have much bigger ears and smaller eyes and use echolocation to navigate and catch prey. They eat insects.

When introducing the text "It's a baby flying fox", link the text to Stellaluna by stating that you will be reading another book similar to Stellaluna.



Show students the front cover and discuss the differences. Based on the images do the students think this book will be a fictional story like Stellaluna or a non-fiction text which tells us about Flying Foxes. It would be a great idea to create a chart similar to the one in the image below. Make note of features of a non-fiction text and create a KWL chart about Flying Foxes. What do students already know about Flying Foxes?

They can draw on what they learnt from the Stellaluna. They may remember that Stellaluna liked to be awake at night or that Stellaluna ate fruit (in reality, Flying Foxes like the pollen from native flowers more than they like eating fruit) or even that Stellaluna liked to hang upside down from trees. Ask student where they think the old name of 'fruit bat' came from but remind students that they are called Flying Foxes now. Remember to continue to discuss textual features as you are reading the text. Is this text written in past tense like Stellaluna?



Point out to students that informative texts are always written in present tense, unless you are discussing an extinct animal such as Christmas Island pipistrelle (*Pipistrellus murrayi*) that was an Australian native bat that become listed as extinct in 2012!

See
<http://www.smh.com.au/environment/conservation/unmourned-death-of-a-sole-survivor-20121116-29hbg.html>

Discuss with student why currently, our native animals are becoming extinct. What does that extinction mean for the ecosystem? What information can we gain from the images in these books? Have students make observations about the images. What can they see? How is it similar or different to what they saw in Stلالuna?

(Note, this image was sourced from the “Kreative in Kinder blog” at
<http://www.kreativeinkinder.com/2013/01/picture-palooza-day-four.html>)

Australian Curriculum English: Year Four

Language:

Text structure and organisation: Understand how texts vary in complexity and technicality depending on the approach to the topic, the purpose and the intended audience (ACELA1490).

Literature:

Responding to literature: Use metalanguage to describe the effects of ideas, text structures and language features of literary texts (ACELT1604)

Literacy:

Identifying, analysing and evaluating: Identify characteristic features used in imaginative, informative and persuasive texts to meet the purpose of the text (ACELY1690)

Creating texts: Plan, draft and publish imaginative, informative and persuasive texts containing key information and supporting details for a widening range of audiences, demonstrating increasing control over text structures and language features (ACELY1694)

Teaching suggestions and links to the curriculum:

According to the Australian Curriculum students should use language features to create detail and add coherence to their texts, while understanding how to express their opinion, using images and details to extend key ideas. During this unit students will plan, draft and publish a persuasive text for their target audience to teach others about the importance of Flying Foxes and Microbats and how we can support and protect them. Students are encouraged to use any multimodal they choose to suit their intended audience, for example, if their audience is in the early years, they can make a picture book.

As students construct a meaningful and persuasive text this will enable them to establish an empathetic understanding of Flying Foxes and Microbats, while enabling them to become active and informed global citizens. As they share their persuasive texts within the school, they are creating a meaning text that has a purpose and a real audience which will engage the students. However, needless to say, their created texts do not need to stay within the school environment and can be shared with other schools in a Project Based learning environment.

This unit is designed to work with the Year 4 Science unit as this will provide most of the information for the students. The following information has been taken from that unit to provide you

with some background information for yourself and your students if you cannot use both the unit together.

Discuss the different places Flying Foxes or Microbats may choose to roost. Discuss that whilst Flying Foxes will seek nourishment from the fruit or nectar of different trees, they will also seek shade in trees during extreme heat. An incredibly detailed example of how this occurs can be viewed in the BBC video “Flying Foxes Vs Freshwater Crocodile – Lands of the Monsoon”. Please note, this shows scenes of crocodiles catching Flying foxes and may upset some students. Please prepare them for this and why crocodiles would need to eat Flying Foxes. Please also note that Bats (Flying Foxes and Microbats) all like and need the sun for vitamin D, just like us. However, as flying makes you very hot, and it is hotter during the day, bats fly at night to ensure they do not overheat. <https://www.youtube.com/watch?v=wi30w-Mk2yQ>

Introduce higher order thought processes by having students consider what could happen to Flying Foxes when their trees (food and shelter) are cut down. These trees are cut down so humans can use that land (build houses, farm etc.). The trees and the land that is left for the Flying Foxes is usually the land we don't want (the area may be too hot, have little water, shade or breeze). If this is the only place the Flying Foxes can live, then when it gets really hot, they are usually trapped there (as it is too hot during the day to fly). If they can find shade in the trees, they can be fine, but if there is little shade, they move from the safe, top of the tree, to the lower levels of the tree where the air is cooler. The Flying Foxes will also stay on the shady side of the tree trunk. They will keep moving lower down the tree. If there is long grass (called an understory), this grass will shade them from the direct sunlight when they are at that level on the tree, and the cooler air will cool them down. But they are vulnerable to predators at this height. If there is no understory, the Flying Foxes will not be able to find shade or cool down during periods of extreme heat.

You may choose to share with your students the extent of the disaster which occurred in November of 2014 when over 5000 Flying Foxes died as a result of a heatwave. Use the information found at the following link to show how the shade plants provide is essential to these native Australian mammals (<http://www.fourthcrossingwildlife.com/HeatStress-StanvicMcDonaldCollins.pdf> or <https://vimeo.com/86222807>). Your local bat conservation organisation will have more details of the event. (Please note that there are 2 kinds of Bats - Flying Foxes and Microbats. It is important to model the correct use of terms, even if the videos do not)

Additional information:

- An article that discusses the effects of the ‘killer climate’ on bats
- <http://ausbats.org.au/australias-flying-foxes/4583295057>
- <http://www.hindustantimes.com/bhopal/bhopal-bats-belly-dip-in-upper-lake-to-beat-the-heat-and-survive/story-cxJB3SPKTUjpPRIPafDtpM.html>
- Managing heat stress in Flying Fox colonies
- <http://www.fourthcrossingwildlife.com/HeatStress-StanvicMcDonaldCollins.pdf>
- <https://vimeo.com/86222807>

Key persuasive videos:

- Behind the News offers a student friendly report about how Microbats are often misunderstood. The report can be found at the following link: https://www.google.com/url?q=http%3A%2F%2Fwww.abc.net.au%2Fbtn%2Fstory%2Fs284_8332.htm

- An eye-opening video by Tim Pearson that discusses how Flying Foxes are often vilified, common misconceptions people have and their importance to our environment. No me, no tree: Tim Pearson at TED X Canberra <https://youtu.be/qnOhS5jVBFk>

While viewing the videos or articles above get the students to think about the kind of language and features used. If there was music what kind of music did they play and when did they play it? What kind of camera angles did they use? What effect did this have on you as an audience? Who do you think the intended audience was? Do they believe that they achieve their intended purpose? Why or why not? How could it be improved? How could this information be adapted to suit a younger audience?

In small groups students can begin to brainstorm how they could take this information and adapt it to suit an audience within their school. For example, how could they adapt this information to create a presentation for assembly or for the Prep students? What kind of language should they use? Encourage students to think of modality, which sounds more persuasive, should we help, or we must act now!? What kind of language or features suited to their type of text could they use to create an emotional response? As students continue their planning and draft stages, the teacher continues to act as a guide and question students to ensure that they are on the right track. You may wish to create a whole class checklist that the students can use for this process. Once the students have finalised their persuasive texts, allow them to share it with their intended audience and to reflect on how effective they thought it was and if they would make any changes.

Links for further information on conservation:

- Read about what to plant to attract wildlife and keep bats happy: http://bats.org.au/uploads/about-bats/native_food_for_wildlife.pdf
- Organisations that can be contacted for more information about bats or to locate someone who could come to the classroom to discuss what they are doing to conserve our wildlife: <http://www.allaboutbats.org.au/15/Flying-fox+Education+Kit/41/Working+with+bats>
- List of Australia wide bat carers/organisations: https://www.tolgabathospital.org/links_batrescue.htm
- Boxes for bats: <http://ausbats.org.au/bat-boxes/4569171999>
- Tips to make, install and monitor a bat box: <http://ausbats.org.au/install-a-microbat-house/4582876246>

Australian Curriculum English Year Five:

Language:

- Text structure and organisation: Understand how texts vary in purpose, structure and topic as well as the degree of formality ([ACELA1504](#))

Literature:

- Examining literature: Recognise that ideas in literary texts can be conveyed from different viewpoints, which can lead to different kinds of interpretations and responses ([ACELT1610](#))

Literacy:

- Interpreting, analysing, and evaluating: Navigate and read texts for specific purposes applying appropriate text processing strategies, for example predicting and confirming, monitoring meaning, skimming and scanning ([ACELY1702](#))

Creating texts: Plan, draft and publish imaginative, informative and persuasive print and multimodal texts, choosing text structures, language features, images and sound appropriate to purpose and audience ([ACELY1704](#)).

Teaching suggestions and links to the curriculum:

In year 5, students are being exposed to more complex texts and are beginning to understand that specific language features can be used to offer differing viewpoints which others may or may not agree with, particularly where ethical dilemmas may arise. By exploring texts on the topic of Flying Foxes and Microbats, students will be given opportunity to develop a variety of skills from comprehension of informative texts, to analysis or evaluation of the accuracy of content to understanding perspectives and developing and communicating their own viewpoints.

Start by having students develop their understanding of Flying Foxes and Microbats. Expose them to a variety of informative texts with which they can both develop reading and comprehension skills as well as their knowledge of Flying Foxes and Microbats. Have students record their research by asking them to complete a Venn diagram of the similarities and differences between Flying Foxes and Microbats. Your students may make observations such as noting that both creatures are nocturnal or that a Flying Fox will eat nectar and fruit whereas a Microbat primarily eats insects. They may make observations about their difference in size or the ability of the Microbat to echolocate (a feature not found in the Flying Fox).

Once students have collected this information, discuss how they could structure it into a written text. You may choose to discuss with your students the structure of a discussion or the language of comparison (such as “both...and...”; “On the other hand...”; “However,”; “Similarly...”).

Extend the activity to include an element of persuasion. Ask students, if they could choose to be a Flying Fox or Microbat, which would they choose and why? Have students include this information in their written piece and ensure they understand how to justify their responses and persuade their reader that their chosen species is the “best”.

For higher achieving students that require extension, have them explore the reasons why these keystone species are vilified in the media. Have them consider the viewpoints and consider whether or not the viewpoints expressed or implied are supported by science.

What language features has the author used to express these viewpoints?

Whilst there are many sources of information available to students, the following are some videos and textual pieces which your students may use in their research.

- Behind the News offers a student friendly report about how Microbats are often misunderstood. The report can be found at the following link:
<https://www.google.com/url?q=http%3A%2F%2Fwww.abc.net.au%2Fbtn%2Fstory%2Fs2848332.htm>
- The information in this report can also be coupled with the pdf Wildlife Preservation Society of Australia resource suggested by the site which is found at:

(<http://www.australianwildlife.net.au/pdf/school/Microbats.pdf>).

- The Victorian Government offers accurate and easy to understand information which students may use to complete their Venn Diagrams. This information can be found at: <http://www.depi.vic.gov.au/environment-and-wildlife/wildlife/flying-foxes/facts-about-flying-foxes>. The following YouTube videos can offer a great platform for observations of Flying Foxes:
- Meet the world's biggest bat (National Geographic) <https://www.youtube.com/watch?v=5FK9tWT5pA4>
- Sydney Wildlife Conservationists discuss the importance of Flying Foxes as a keystone species in our ecosystem: <https://www.youtube.com/watch?v=e-KL9xmyU>

Students will learn a lot from the educational information discussed in this video. They will also enjoy the adorable images of rescued Flying Foxes feeding on little bottles of milk ensure your students understand that they should never handle an injured bat, but rather contact their local bat rescue organisation as soon as possible.

The Australian Bat Society offers some very informative, student friendly information packs which you may choose to share with your students in their investigation of the abovementioned issues. The information packs and many other resources can be accessed at www.ausbats.org.au.

Australian Curriculum English Year Six:

Language:

Language for interaction: Understand the uses of objective and subjective language and bias ([ACELA1517](#))

Literature:

Responding to literature: Identify and explain how choices in language, for example modality, emphasis, repetition and metaphor, influence personal response to different texts ([ACELT1615](#))

Literacy:

Interpreting, analysing, and evaluating: Use comprehension strategies to interpret and analyse information and ideas, comparing content from a variety of textual sources including media and digital texts ([ACELY1713](#))

Teaching suggestions and links to the curriculum:

As students grow and develop, it is important they begin to understand how to apply their literacy skills to not just understand but to connect ideas and critically analyse information and viewpoints. This is a particularly important skill to hold when interacting with articles in the media. The Australian Curriculum states that by the end of Year 6, students need to be able to “compare and analyse information in different and complex texts, explaining literal and implied meaning”. When interacting with these texts, students need to be able to clarify content, explain their point of view based on evidence within the text and, most importantly, challenge ideas. With the amount of controversy surrounding the issue, the study of Flying Foxes and Microbats will provide plenty of

opportunities to instil these skills within your students.

Prior to beginning the unit, you may wish to ensure students have some background knowledge about the importance of Flying Foxes and Microbats as a keystone species in our ecosystem. Ensure they understand that the Flying Fox is Australia's most important long- range pollinator. In contrast to the bee, who can travel only 3km per day, the Flying Fox will travel up to 100km per night, ensuring the long range spread of pollen from trees which pollinate only in the night. Have students consider the effects on Australia's hardwood industry or banana plantations were these Flying Foxes unavailable to play this crucial role. What would happen to other native animals such as koalas if the Flying Fox was not available to pollinate the Eucalyptus tree?

Just like the Flying Fox, our Microbats play an important role in our ecosystem. With their ability to consume up to 600 mosquitoes per hour, the Microbat can play a huge role in pest control and the minimisation of diseases such as Ross River Fever.

You may ask your students to prepare and bring to class, or you may wish to expose them to examples of, articles about Microbats or Flying Foxes in Australia. Have students read through these articles, highlighting key issues or points raised. Where arguments are made, have your students analyse the language used. What is being said or implied? Have them challenge these ideas by verifying the facts with scientific information.

For instance, the ABC ran a story on Landline in September of 2014 titled "Bat Crazy". The story and its transcript can be accessed at <http://www.abc.net.au/landline/content/2014/s4091737.htm>. It tells of how humans and Flying Foxes are often in conflict in their choice of residence. Farmers in Gippsland, Victoria are struggling to upkeep their fruit orchards as a result of growing numbers of Flying Foxes seeking habitat in the area. In developing the argument, the journalist tells the story of a farmer who "started getting sick when the bats began arriving in ever-increasing numbers". The farmer states that "Yeah, well, I've got a lung problem and I never had it before I came here. A bug that's airborne - that's why I think it's from the bats. Whether it is or not, nobody'll tell me. But I know that some of our neighbours have got respiratory problems the same as I have". Have students analyse these points. What are the scientifically proven ways you can get "sick" from a Flying Fox or Microbat? How many people have died as a direct result of their diseases? Use the online Australian Bureau of Statistics to investigate animal related deaths in your State or Territory - how many of them are linked to bats? It might be interesting to create a graph depicting this information.



Ensure that as you are analysing both the written and video articles, students understand the difference between “objective” (factual) and “subjective” (opinion) language. Discuss what bias is and how readers can identify where it is present. Viewer responses to the Landline article can be found at <https://www.facebook.com/LandlineABC/posts/768967549830161>.

Discuss these responses. Do students agree? Have the viewers justified their views with evidence from the text or other scientific argument? You may choose to ask your students to develop their own responses such as these to the abovementioned articles. Now is a great time to incorporate digital technology by creating a classroom blog which students can contribute their responses to. Students will love sharing their opinions or even posting articles they may have found on the topic. Ensure students understand issues regarding cyber safety and cyberbullying. Remember to remind students that if they do not agree with another’s opinion, they should present alternative viewpoints by addressing the opinion, not attacking the person.

Remember to share a variety of texts with students which promote both sides of the argument. The following are links to some resources which you may choose to use:

You may choose to share with your students the following article which shows how Griffith University is endeavouring to help reduce the incidence of Ross River Fever by installing homes for Microbats on its campus.

(<https://app.griffith.edu.au/news/2015/06/04/microbats-find-home-at-griffiths-new-car-park/>).

Behind the News offers a student friendly report about how Microbats are often misunderstood. The report can be found at the following link:

<https://www.google.com/url?q=http%3A%2F%2Fwww.abc.net.au%2Fbtn%2Fstory%2Fs2848332.htm>

The information in this report can also be coupled with the pdf Wildlife Preservation Society of Australia resource suggested by the site which is found at:

(<http://www.australianwildlife.net.au/pdf/school/Microbats.pdf>).

The following article “Bats use brain just like humans” is a great opportunity to discuss objective language:

<http://www.thehindu.com/sci-tech/science/bats-use-brain-just-like-humans-study/article7147077.ece>



If you believe Hollywood bats have a pretty creepy image.

When they're not hanging upside-down screeching at each other they're flying silently at night, under orders from blood-sucking vampires.

But of course reality's a bit different. Bats are delicate creatures and many are under threat.



An article discussing how the Sunshine Coast City Council is working to develop a greater understanding of the Flying Fox: <http://mysunshinecoast.com.au/news/news-display/council-leads-the-way-in-flying-fox-research,38549>

Another ABC news story, this time on The Catalyst titled “In defense of the Flying Fox” <http://www.abc.net.au/catalyst/stories/3000668.htm>.

The following article discusses the Australian Bat Lyssavirus: <http://www.cqnews.com.au/news/deadly-lyssavirus-confirmed-clermont-flying-fox/2825824/>

Have students consider some of the “statements” in the article such as:

1. “A dog attacked by a Flying Fox that was on the ground” (Flying Foxes only feel safe when they are up high in
2. trees. The closer they come to the ground the more their instincts tell them they are in danger from predators. They show physical signs of fear the closer to the ground. If the Flying Fox was lying on the ground it was sick or injured, and likely going to die. It is not running around on the ground looking for victims to attack, as the article chooses to indicate. The truth here has clearly been twisted to promote a biased message. The journalist’s point would sound less dramatic had the journalist written that the dog made the first move).
3. “Lyssavirus is an ever-present risk” (Ensure students understand that the only disease that humans can contract from bats is the Australian Bat Lyssavirus. In Australia’s recorded history, **only three people** have contracted and died from the disease. You can only contract it if you are bitten by an infected bat. Only a very small percentage of bats are infected. This, of course, is avoidable if you do not touch or handle wild animals. Even if you are bitten, the disease is easily avoided with three post-bite injections that you can receive for free for any hospital in Australia. It is important students understand that if they see a sick or injured bat, never to touch it. If they are bitten, they should tell an adult immediately - one injection and they will be fine).
4. It is interesting to note that the disease of Rabies is widespread around the world, but the Australian media focuses on bats and ABLV and does not put this disease in perspective. Australians travel widely, and yet the media does not report on the deaths that occur to Australians from rabies they have contracted overseas or strategies for prevention. The number of deaths to Australians due to rabies caught overseas is higher than the 3 people who have died in Australia from ABLV. The World Health Organisation states:
 - Dogs are the source of the vast majority of human rabies deaths.
 - Infection causes tens of thousands of deaths every year, mostly in Asia and Africa.
 - 40% of people who are bitten by suspect rabid animals are children under 15 years of age.

[\(http://www.who.int/mediacentre/factsheets/fs099/en/\)](http://www.who.int/mediacentre/factsheets/fs099/en/)

The Queensland Government states that:

- Over 55,000 people die of rabies worldwide each year. More than 95% of human deaths

occur in Asia and Africa.

- Although rabies virus is exotic to Australia, there have been 2 confirmed human rabies deaths here (*in Queensland - added*) (1987 and 1990). Both people were infected while overseas. (<https://www.business.qld.gov.au/industry/agriculture/species/diseases-disorders/animals/rabies>)

A simple internet search will uncover many more news articles you can share with your students.

The Australian Bat Society offers some very informative, student friendly information packs which you may choose to share with your students in their investigation of the abovementioned issues. The information packs and many other resources can be accessed at www.ausbats.org.au.

Australian Curriculum English Year Seven:

Language:

- Language for interaction: Understand how language is used to evaluate texts and how evaluations about a text can be substantiated by reference to the text and other sources ([ACELA1782](#))

Literacy:

- Interpreting, analysing, and evaluating: Use prior knowledge and text processing strategies to interpret a range of types of texts ([ACELA1722](#))
- Creating texts: Plan, draft and publish imaginative, informative and persuasive texts selecting aspects of subject matter and particular language, visual, and audio features to convey information and ideas ([ACELA1726](#))

Teaching suggestions and links to the curriculum:

The Australian Curriculum states that, by the end of Year 7, students should be able to use information they have gathered from a variety of sources to explain issues by analysing supporting evidence and implied meaning. Students are then to develop their own responses by reflecting on, expressing or challenging a point of view. The debate surrounding the importance of Flying Foxes and Microbats versus their ability to create “nuisance” situations for humans is an ever-present issue in the media today. There is constant to-ing and fro-ing between farmers, residents of urban populations, scientists and bat conservation organisations. As this is an issue that will affect the lives of students in their immediate community, it is a good idea to have students analyse the evidence and arguments presented and thus form their own opinions on the matter.

It would be a good idea to begin by creating a class discussion which surrounds student prior knowledge on the issue. You may choose to create a KWL chart and note down the opinions students have formed based on their interactions with either media or factual reports. It will be interesting to see how student opinions or knowledge have changed or developed by the end of the unit of work. You could even have students begin a “journal” style activity which they can use to reflect upon their learning as they develop more knowledge on the topic. What reports have they heard through the media? Are they afraid of contracting viruses from “bats”? Do they think “bats” are becoming a growing problem, that their numbers are expanding and that the problem needs to be “controlled”? Even if students claim they do not watch the news or know anything about “bats”, they will have encountered the dark imagery of them in Halloween celebrations or cartoons and movies.

The approach you take with the subject may vary depending on your students and their interests, knowledge and viewpoints. In a classroom where students have only negative viewpoints, you may choose to play “Devil’s Advocate” and begin by sharing news stories and articles which promote this negative image. This may create controversy and trigger class discussion. Some stories you may choose to share include:



ABC’s Landline report “Bat Crazy” which promotes the idea that our farmers are struggling to grow healthy crops because of the ever- increasing “bat” population. It even suggests there may be an airborne virus being spread by the deadly critters. The report can be accessed at <http://www.abc.net.au/landlin>

A simple google search will also uncover a plethora of articles warning against deadly diseases Flying Foxes carry. An example of this can be found in the following article: <http://www.cqnews.com.au/news/deadly-lyssavirus-confirmed-clermont-flying-fox/2825824/>

Ask students to explore the scientifically proven ways you can get “sick” from a Flying Fox or Microbat? How many people have died as a direct result of their diseases? Use the online Australian Bureau of Statistics to investigate animal related deaths in your State or Territory - how many of them are linked to bats? It might be interesting to create a graph depicting this information.

Have students consider some of the “statements” in the article such as:

5. “A dog attacked by a Flying Fox that was on the ground” (Flying Foxes only feel safe when they are up high in
6. trees. The closer they come to the ground the more their instincts tell them they are in danger from predators. They show physical signs of fear the closer to the ground. If the Flying Fox was lying on the ground it was sick or injured, and likely going to die. It is not running around on the ground looking for victims to attack, as the article chooses to indicate. The truth here has clearly been twisted to promote a biased message. The journalist’s point would sound less dramatic had the journalist written that the dog made the first move).
7. “Lyssavirus is an ever-present risk” (Ensure students understand that the only disease that humans can contract from bats is the Australian Bat Lyssavirus. In Australia’s recorded history, **only three people** have contracted and died from the disease. You can only contract it if you are bitten by an infected bat. Only a very small percentage of bats are infected. This, of course, is avoidable if you do not touch or handle wild animals. Even if you are bitten, the disease is easily avoided with three post-bite injections that you can receive for free for any hospital in Australia. It is important students understand that if they see a sick or injured bat, never to touch it. If they are bitten, they should tell an adult immediately - one injection and they will be fine).
8. It is interesting to note that the disease of Rabies is widespread around the world, but the Australian media focuses on bats and ABLV and does not put this disease in perspective. Australians travel widely, and yet the media does not report on the deaths that occur to

Australians from rabies they have contracted overseas or strategies for prevention. The number of deaths to Australians due to rabies caught overseas is higher than the 3 people who have died in Australia from ABLV. The World Health Organisation states:

- Dogs are the source of the vast majority of human rabies deaths.
- Infection causes tens of thousands of deaths every year, mostly in Asia and Africa.
- 40% of people who are bitten by suspect rabid animals are children under 15 years of age.

[\(http://www.who.int/mediacentre/factsheets/fs099/en/\)](http://www.who.int/mediacentre/factsheets/fs099/en/)

The Queensland Government states that:

- Over 55,000 people die of rabies worldwide each year. More than 95% of human deaths occur in Asia and Africa.
- Although rabies virus is exotic to Australia, there have been 2 confirmed human rabies deaths here (*in Queensland - added*) (1987 and 1990). Both people were infected while overseas. (<https://www.business.qld.gov.au/industry/agriculture/species/diseases-disorders/animals/rabies>)

A simple internet search will uncover many more news articles you can share with your students.

Once students have interacted with these articles, have them reflect upon them in their journal.

Do they completely agree? Why or why not?

Once they have heard this side of the argument, have students begin to analyse the information and seek evidence in scientific facts and information reports. Could there really be an airborne virus? Would a Flying Fox be running around on the ground attacking dogs? Is the Lyssavirus really as deadly as they say? Most importantly, why are scientists so adamant that we need to protect this species? What would happen if they ceased to exist?

The No Me, No Tree campaign explains that Flying Foxes and Microbats are a keystone species in our ecosystem. The following two videos explain that the Flying Fox is Australia's most important pollinator, without which our trees would cease to exist.



The implications on our hardwood industry, fruit supplies and habitat for other native animals such as koalas would be detrimental.

Sydney Wildlife Conservationists discuss the importance of Flying Foxes as a keystone species in our ecosystem:

<https://www.youtube.com/watch?v=e-KL9xmyU>

(Students will learn a lot from the educational information discussed in this video. They will also enjoy the adorable images of rescued Flying Foxes feeding on little bottles of milk - ensure your students understand that they should never handle an injured bat, but rather contact their local bat rescue organisation as soon as possible).

Tim Pearson at TED X Canberra

<https://www.youtube.com/watch?v=qnOhS5jVBFk>

(This video offers an entertaining insight into how Flying Foxes are actually a lot more like humans than we may have originally imagined)

The ABC also produced a report “In defence of the Flying Fox” which can be accessed at

<http://www.abc.net.au/catalyst/stories/3000668.htm>.

Your students may even benefit from having a local Aboriginal Elder discuss aspects of the Indigenous cultures in promoting respectful coexistence between man and animals.



Information about Microbats can be found in Behind the News, story “Mini Bats” which offers a student friendly report about how the little creatures are often misunderstood.

The report can be found at the following link:

<https://www.google.com/url?q=http%3A%2F%2Fwww.abc.net.au%2Fbtn%2Fstory%2Fs2848332.htm>

The information in this report can also be coupled with the pdf Wildlife Preservation Society of Australia resource suggested by the site which is found at: (<http://www.australianwildlife.net.au/pdf/school/Microbats.pdf>)

It is important that students understand that by consuming up to 600 mosquitoes per hour, the Microbats offer a natural solution to pest control and eradication of viruses such as Ross River Fever. The following is an article about how Griffith University is endeavouring to help reduce the incidence of Ross River Fever by installing homes for Microbats on its campus.

(<https://app.griffith.edu.au/news/2015/06/04/microbats-find-home-at-griffiths-new-car-park/>).

Remember to have students continuously reflecting upon their understanding and viewpoints throughout the activity. Discuss how their views may be changing and why. How do they now feel about the negative articles discussed at the beginning of the unit? How does this shape the way in which they will approach other news articles in the future?



Once students have a better understanding of the importance of Flying Foxes and Microbats, you may choose to go back to the original “negative” articles and discuss the language features used to present arguments. Do the students feel there is a bias in the articles? Ask students to use evidence from the text to justify their response.

Have students collate the information to form an opinion and create a persuasive text. You may choose to create an open-ended task by giving students autonomy in determining the way in which they present their report. Some students may wish to write a news report, others may wish to create video report. You may also choose to hold a class debate.

Ensure you discuss the correct structure of a persuasive text and language features such as modality. Remind students of the correct terminology when referring to Flying Foxes and Microbats. Ensure they understand the difference and can justify their arguments using factual information.

Australian Curriculum English Year Eight

Interpreting, analysing, evaluating

- Use comprehension strategies to interpret and evaluate texts by reflecting on the validity of content and the credibility of sources, including finding evidence in the text for the author’s point of view ([ACELY1734](#))

Creating texts

- Create imaginative, informative and persuasive texts that raise issues, report events and advance opinions, using deliberate language and textual choices, and including digital elements as appropriate ([ACELY1736](#))

Teaching Suggestions Linked to the Curriculum

The Australian Curriculum expects students to be able to interpret texts, questioning the reliability of sources of ideas and information. They select evidence from the text to show how events, situations and people can be represented from different viewpoints. They listen for and identify different emphases in texts, using that understanding to elaborate on discussions. (Australian Curriculum 2015).

To begin this unit, ensure that your students understand that Flying Foxes are vital to our environment as they are a long-range pollinator as they travel up to 100 km a night, ensuring the long range pollination of trees that only pollinate at night. While bees can only travel 3 km per day. If there were no Flying Foxes, what effect would this have on Australia’s hardwood industry? While we advocate for Koalas that if there is no tree there is no koala but if there are no Flying Foxes, who would pollinate the Eucalyptus trees? “No me [Flying Fox], no tree.”



To continue you may wish to show your students the first one and half minutes of [Tim Pearson’s No me, no tree video](#), ensuring you stop just before he reveals what group in society it is.

Discuss with the students are there groups in our school or society who are persecuted like Tim Pearson describes? Is this a human group or could it be an animal group? If it could be a group of animal species, what species would it be? Now show the students the next few moments where he reveals what group in society it is, the Flying Foxes. Pause it there and discuss their response. What

do they think about Flying Foxes? Why do they feel like this? Is it because of what their parents or friends think? Is it from something they read or saw on the television?

Next ask the students if they know what a Microbat is? Get them to note down their opinions on an opinions chart again and why they have this opinion. Then get them to view [BTN's report Mini Bats](#) making sure they note down any facts. Once they have finished this, ask the students if they had to correct many of their opinions.

Where did they develop these opinions? Did a friend of a friend say it? How reliable was that source of information?

The information in this report can also be coupled with the pdf Wildlife Preservation Society of Australia resource suggested by the site which is found at:
(<http://www.australianwildlife.net.au/pdf/school/Microbats.pdf>).

It would be interesting to explore how human populations have grown and how bat populations have changed. Ask students to use this information to comment on what is happening to the health of our native forests if Flying Fox populations decrease or become extinct. The Victorian State Government says:

Flying-fox numbers in Australia have changed markedly since European settlement. Loss of natural habitat and food supply in New South Wales and Queensland due to land clearing and human culling has rapidly reduced numbers of some species in eastern Australia.

Grey-headed flying-fox and spectacled flying-fox numbers have decreased to such an extent that they are both listed as vulnerable under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.

Flying-fox distribution has also changed over the past 30 years due to loss of habitat, the creation of new habitat and the year-round food supply in suburban areas.

For example, the range of the grey-headed flying-fox has contracted in the northern area (southern Queensland and northern New South Wales) and expanded southwards into Victoria.

<http://www.depi.vic.gov.au/environment-and-wildlife/wildlife/flying-foxes>

For example, the range of the Grey-headed Flying-Fox has contracted in the northern area (southern Queensland and northern New South Wales) and expanded southwards into Victoria. Students could investigate these distinctions and how they the designations are all based on population numbers, and then link to which bats are classified as what through to extinct and resources to explore this...ask them to think about what they can do with this information. Work with a local bat group to do some kind of educational activity.

The following activity asks students to evaluate a media article that reports "The Gayndah flying fox colony contains about 250,000 animals, made up of black and little red flying foxes." Find the full article at <http://www.smh.com.au/environment/conservation/bat-colony-to-be-removed-20110812-1iqcm.html#ixzz3wbchja3J>

Students can use the National Flying Fox Monitoring Website to confirm or deny this information. The National Flying Fox Monitoring program has an interactive Flying Fox web Viewer. This can be found at <http://www.environment.gov.au/biodiversity/threatened/species/flying-fox-monitoring>

This map is an interactive map which can generate graphs of the population of various Flying Fox species. Students may become more involved if they can choose their own data. This can be done by clicking on the map and choosing the roost area. The following link is a help page with steps to finding the data. <http://www.environment.gov.au/webgis-framework/apps/ffc-wide/ffc-wide-help.jsf>

The following article also claims Inverell to have “a large colony of Flying Foxes”
<http://www.abc.net.au/news/2013-11-27/inverell-sc-discusses-flying-fox-infestation-with-oe/5121278>

Again, students can use the National Flying Fox monitoring website to confirm or deny these reports of large colonies. A discussion can be had over what constitutes a “large” colony, and what numbers are needed to ensure the species survives. Encourage students to research more articles regarding the number of Flying Foxes in colonies and evaluate the claims in the reports.

Please Note: For accurate results students will need to look at the date of the articles and ensure they are looking at the same time period in their research.

Have students collate the information so as to form an opinion and create a persuasive text. You may choose to create an open-ended task by giving students autonomy in determining the way in which they present their report. Some students may wish to write a news report, others may wish to create video report. You may also choose to hold a class debate.

Ensure you discuss the correct structure of a persuasive text and language features such as modality. Remind students of the correct terminology when referring to Flying Foxes and Microbats. Ensure they understand the difference and are able to justify their arguments using factual information. Finally the students can create their own informative and persuasive texts that raise issues our country will face without Flying Foxes, they can present their own opinions and use deliberate language and textual choices to persuade their peers of the importance of Flying Foxes.

Whilst there are many sources of information available to students, the following are some videos and textual pieces which you may find useful to introduce the topic to your class. The following websites use information based on accurate scientific and statistical data rather than fun interesting facts.

- Australian Government, Department of Environment National Flying Fox Monitoring Program. This can be found at <https://www.environment.gov.au/biodiversity/threatened/species/flying-fox-monitoring>
- Qld Government Department of Environment and Heritage Website <https://www.ehp.qld.gov.au/wildlife/livingwith/flyingfoxes/index.html>
- NSW Government Department of Environment and Heritage Website <http://www.environment.nsw.gov.au/animals/flyingfoxes.htm>
- VIC Government Department of Environment, Land, Water and Planning <http://www.depi.vic.gov.au/environment-and-wildlife/wildlife/flying-foxes>
- SA Government Department of Environment Water and Natural Resources http://www.environment.sa.gov.au/managing-natural-resources/Plants_Animals/Living_with_wildlife/Grey-headed_flying_foxes
- Parks and Wildlife Commission NT <http://www.parksandwildlife.nt.gov.au/wildlife/living-with-animals/flyingfox#.VrAXpvl95pk>
- Parks and Wildlife Service Tasmania <http://www.parks.tas.gov.au/index.aspX?base=4905>

Australian Curriculum English Year Nine:

Interpreting, analysing, evaluating

- Interpret, analyse and evaluate how different perspectives of issue, event, situation, individuals or groups are constructed to serve specific purposes in texts (ACELY1742)

Creating texts

- Create imaginative, informative and persuasive texts that present a view and advance or illustrate arguments, including texts that integrate visual, print and/or audio features (ACELY1746)

Teaching Suggestions linked to curriculum

The Australian Curriculum expects that by the end of Year 9, students analyse the ways that text structures can be manipulated for effect. Students are also expected to Create imaginative, informative and persuasive texts that present a point of view and advance or illustrate arguments, including texts that integrate visual, print and/or audio features (ACELY1746)

A unit on Flying Foxes and Microbats is a fantastic way to incorporate many of the Year 9 Content Descriptors. The unit will start by examining literature. Students will be exposed to many articles and reports on Australia's Flying Foxes and Microbats. We want to start with all of the articles supporting scientific and statistical valid information about these mammals. Students need to understand the role they play in our ecosystem and what would happen if they were no longer around. The purpose of this activity is for students to interpret, analyse and evaluate how different perspectives of issue, event, situation, individuals or groups are constructed to serve specific purposes in texts (ACELY1742)

Whilst there are many sources of information available to students, the following are some videos and textual pieces which you may find useful to introduce the topic to your class.



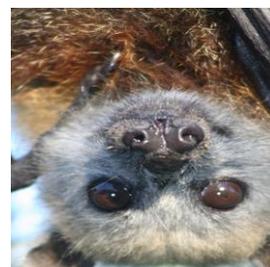
Grey-Headed flying foxes.
Photo © Vivien Jones

<http://lubee.org/bats/our-bats/spectacled-flying-fox/>

- Behind the News offers a student friendly report about how Microbats are often misunderstood. The report can be found at the following link:
<https://www.google.com/url?q=http%3A%2F%2Fwww.abc.net.au%2Fbtn%2Fstory%2Fs2848332.htm>
- The information in this report can also be coupled with the pdf Wildlife Preservation Society of Australia resource suggested by the site which is found at:
<http://www.australianwildlife.net.au/pdf/school/Microbats.pdf>.
- The following YouTube videos can offer a great platform for observations of Flying Foxes:
- Meet the world's biggest bat (National Geographic): <https://www.youtube.com/watch?v=5FK9tWT5pA4>
- Sydney Wildlife Conservationists discuss the importance of Flying Foxes as a keystone species in our ecosystem: https://www.youtube.com/watch?v=e-K_L9xmyU

Students will learn a lot from the educational information discussed in this video. They will also enjoy the adorable images of rescued Flying Foxes feeding on little bottles of milk - ensure your students understand that they should never handle an injured bat, but rather contact their local bat rescue organisation as soon as possible.

The Australian Bat Society offers some very informative, student friendly information packs which you may choose to share with your students in their research. The information packs and many other resources can be accessed at www.ausbats.org.au. Once your students have an understanding and empathy towards Flying Foxes and Microbats, it is time to show the negative narrow-minded articles written to put fear in our community. A good place to start with this is this article on how the media reports have changed from the scary myth to the far more interesting reality.



Picture

https://www.google.com.au/search?q=grey+headed+flying+fox&rlz=1C1NOOH_enAU625AU626&espv=2&biw=1517&bih=695&source=lnms&tbn=isch&sa=X&ved=0ahUKEwig7Nf3g5nKAhXC46YKHd_9CckQ_AUIBigB&dpr=0.9

Ask students to explore the scientifically proven ways you can get “sick” from a Flying Fox or Microbat? How many people have died as a direct result of their diseases? Use the online Australian Bureau of Statistics to investigate animal related deaths in your State or Territory - how many of them are linked to bats? It might be interesting to create a graph depicting this information.

It would be interesting to explore how human populations have grown and how bat populations have changed. Ask students to use this information to comment on what is happening to the health of our native forests if Flying Fox populations decrease or become extinct. The Victorian State Government says:

- Flying-fox numbers in Australia have changed markedly since European settlement.

- Loss of natural habitat and food supply in New South Wales and Queensland due to land clearing and human culling has rapidly reduced numbers of some species in eastern Australia.
- Grey-headed flying-fox and spectacled flying-fox numbers have decreased to such an extent that they are both listed as vulnerable under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.
- Flying-fox distribution has also changed over the past 30 years due to loss of habitat, the creation of new habitat and the year-round food supply in suburban areas.
- For example, the range of the grey-headed flying-fox has contracted in the northern area (southern Queensland and northern New South Wales) and expanded southwards into Victoria.

(<http://www.depi.vic.gov.au/environment-and-wildlife/wildlife/flying-foxes>)

Compare this information with media messages about Flying Foxes. This article shows just how negative the media image of these creatures used to be. http://www.batcon.org/resources/media-education/bats-magazine/bat_article/518

Some other suggestions include:

- <http://www.brisbanetimes.com.au/queensland/australians-too-relaxed-about-bat-virus-expert-20141214-1270mt.html>
- <http://www.cqnews.com.au/news/deadly-lyssavirus-confirmed-clermont-flying-fox/2825824/>

The task for the student's is to now use all of the scientific and statistical information and write a persuasive and informative newspaper report or letter to the local council on why we need Flying Foxes and Microbats. The article needs to inform and persuade the audience to understand the need for these creatures in our community. (ACELY1746)

Australian Curriculum English Year Ten:

Creating texts

- Create sustained texts, including texts that combine specific digital or media content, for imaginative, informative, or persuasive purposes that reflect upon challenging and complex issues (ACELY1756)

Teaching Suggestions Linked to Curriculum

By the end of Year 10 the Australian Curriculum expects that students can explain different viewpoints, attitudes and perspectives through the development of cohesive and logical arguments. They develop their own style by experimenting with language features, stylistic devices, text structures and images.



Picture Retrieved from <http://www.incrediblesnaps.com/wp-content/uploads/2015/06/grey-headed-flying-fox-by-of-levy-1.jpg>

Students can create a wide range of texts to articulate complex ideas. They make presentations and contribute actively to class and group discussions, building on others' ideas, solving problems, justifying opinions and developing and expanding arguments. They demonstrate understanding of grammar, vary vocabulary choices for impact, and accurately use spelling and punctuation when creating and editing texts.

This leaves a great opportunity to create a mini assignment for your year 10 students. Students can research Flying Foxes and create their own informative, persuasive text to present on assembly. The purpose is to make the whole school aware of the issues that Flying Foxes face in our community. Their presentation should discuss why we need Flying Foxes in our community and the important role they play in our ecosystem. It should empathise with the species and inform the audience of their needs for survival. The presentation should show which parts of Australia are home to Flying Fox colonies and why they are at risk of extinction.

The presentation should touch on the negative perceptions from the media and argue as to why these magnificent creatures are simply being misunderstood. The presentations will be informative, persuasive and create a school wide empathy and understanding towards these beautiful mammals.

Picture Retrieved from
<https://candobetter.net/files/beatiful%20bats.JPG>



Animals Australia, the voice of Animals tells us that “There are four mainland species of flying fox: Black, Grey headed, Spectacled and Little Red. Tragically, populations of flying foxes across Queensland, NSW and Victoria are in decline. Both the Grey-headed flying fox and spectacled flying fox have declined by at least 95% in the past century, with massive losses in the past 30 years. Some researchers believe they could be functionally extinct by 2050. The causes include habitat loss (land clearing), camp disturbance, starvation, increased heat events, legal and illegal shooting, and man-made hazards like power lines, barbed wire and backyard fruit tree netting.”

<http://www.animalsaustralia.org/issues/flying-foxes.php>

It would be interesting to explore how human populations have grown and how bat populations have changed. Ask students to use this information to comment on what is happening to the health of our native forests if Flying Fox populations decrease or become extinct. The Victorian State Government says:

- Flying-fox numbers in Australia have changed markedly since European settlement.
- Loss of natural habitat and food supply in New South Wales and Queensland due to land clearing and human culling has rapidly reduced numbers of some species in eastern Australia.
- Grey-headed flying-fox and spectacled flying-fox numbers have decreased to such an extent that they are both listed as vulnerable under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.
- Flying-fox distribution has also changed over the past 30 years due to loss of habitat, the

creation of new habitat and the year-round food supply in suburban areas.

- For example, the range of the grey-headed flying-fox has contracted in the northern area (southern Queensland and northern New South Wales) and expanded southwards into Victoria.

(<http://www.depi.vic.gov.au/environment-and-wildlife/wildlife/flying-foxes>)

The following article is about the Christmas Island pipistrelle (*Pipistrellus murrayi*) that was an Australian native bat that become listed as extinct in 2012! Analyse this article with students and discuss why, in this day and age our native animals are becoming extinct.

What does that extinction mean for the ecosystem? Why is it important to stop the extinction of any more of our native animals? <http://www.smh.com.au/environment/conservation/unmourned-death-of-a-sole-survivor-20121116-29hbq.html>

You might like to discuss with your students how the Indigenous Australians lived in harmony with all of the native animals and plants. It is only since European settlement that native animal populations have been on the decline. Why is this the case? This would be a great time to touch base with your local Aboriginal or Torres Straits Islander community and/or Elders and find out more about the traditional people who lived in your area. To share this valuable knowledge, when appropriate, and to build relationships, you could invite someone from your local Aboriginal or Torres Straits Islander community to come and speak with your students about the local knowledge of the importance of connecting with nature.

Have students collate the information so as to form an opinion and create their persuasive text. You may choose to create an open-ended task by giving students autonomy in determining the way in which they present their report. Some students may wish to write a news report, others may wish to create video report. You may also choose to hold a class debate. Ensure you discuss the correct structure of a persuasive text and language features such as modality. Remind students of the correct terminology when referring to Flying Foxes and Microbats. Ensure they understand the difference and are able to justify their arguments using factual information.

Whilst there are many sources of information available to students, the following are some videos and textual pieces which you may find useful to extend on the topic with your class.

Some websites for students to start their research are:

- Australian Government, Department of Environment National Flying Fox Monitoring Program. This can be found at <https://www.environment.gov.au/biodiversity/threatened/species/flying-fox-monitoring>
- Qld Government Department of Environment and Heritage Website <https://www.ehp.qld.gov.au/wildlife/livingwith/flyingfoxes/index.html>
- NSW Government Department of Environment and Heritage Website <http://www.environment.nsw.gov.au/animals/flyingfoxes.htm>
- VIC Government Department of Environment, Land, Water and Planning <http://www.depi.vic.gov.au/environment-and-wildlife/wildlife/flying-foxes>
- SA Government Department of Environment Water and Natural Resources http://www.environment.sa.gov.au/managing-natural-resources/Plants_Animals/Living_with_wildlife/Grey-headed_flying_foxes
- Parks and Wildlife Commission NT
- <http://www.parksandwildlife.nt.gov.au/wildlife/living-with-animals/flyingfox#.VrAXpvl95pk>
- Parks and Wildlife Service Tasmania <http://www.parks.tas.gov.au/index.aspx?base=4905>

The No Me, No Tree campaign explains that Flying Foxes and Microbats are actually a keystone species in our ecosystem. The following two videos explain that the Flying Fox is actually Australia's most important pollinator, without which our trees would cease to exist. The implications on our hardwood industry, fruit supplies and habitat for other native animals such as koalas would be detrimental.

- Sydney Wildlife Conservationists discuss the importance of Flying Foxes as a keystone species in our ecosystem: <https://www.youtube.com/watch?v=e-KL9xmyU>

Students will learn a lot from the educational information discussed in this video. They will also enjoy the adorable images of rescued Flying Foxes feeding on little bottles of milk - ensure your students understand that they should never handle an injured bat, but rather contact their local bat rescue organisation as soon as possible.

- Tim Pearson at TED X Canberra: <https://www.youtube.com/watch?v=qnOhS5jVBFk>
This video offers an entertaining insight into how Flying Foxes are actually a lot more like humans than we may have originally imagined.

- The ABC also produced a report "In defence of the Flying Fox" which can be accessed at <http://www.abc.net.au/catalyst/stories/3000668.htm>.

- Information about Microbats can be found in Behind the News story "Mini Bats" which offers a student friendly report about how the little creatures are often misunderstood. The report can be found at the following link:
<https://www.google.com/url?q=http%3A%2F%2Fwww.abc.net.au%2Fbtn%2Fstory%2Fs2848332.htm>

The information in this report can also be coupled with the pdf Wildlife Preservation Society of Australia resource suggested by the site which is found at: <http://www.australianwildlife.net.au/pdf/school/Microbats.pdf>

- It is important that students understand that by consuming up to 600 mosquitoes per hour, the Microbats offer a natural solution to pest control and eradication of viruses such as Ross River Fever. The following is an article about how Griffith University is endeavouring to help reduce the incidence of Ross River Fever by installing homes for Microbats on its campus. (<https://app.griffith.edu.au/news/2015/06/04/microbats-find-home-at-griffiths-new-car-park/>).