FOOD FIGHT

By the end of Year 8, students are able to understand that interactions between organisms can be described in terms of food chains and food webs and understand how human activity can affect these interactions.

A visit to Currumbin Wildlife Sanctuary provides a holistic experience where the curriculum area is presented using real world examples and encounters, creating a meaningful teaching and learning experience.

By combining the knowledge from one of our experienced Education Officers, with the experience of "seeing" the curriculum, students will become engaged in the topic area.

YEAR LEVEL: Year 7/8, Stage 4

DESCRIPTION: Currumbin Wildlife Sanctuary has more than 1000 animals on display from impressive top order predator carnivores like crocodiles and dingoes to endangered omnivores like the Greater Bilby and vulnerable herbivores like the Koala. The food web is a complex and ever changing structure and during this lesson, students will learn about the delicate balance of food webs, and how they can change! Food Fight has an introduced species focus so ensure to visit the dingoes to find out more about their role in the Australian ecosystem.

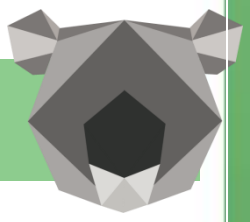
EXCURSION FORMAT: This excursion provides a mix of self-guided activities as well as a lesson presented by one of our educators. Students will be able to explore the properties of desert animals, as well as meet, and interact with some of our resident animals.

AUSTRALIAN CURRICULUM LINKS:

YEAR 7: ACSSU112; ACSHE120 ; ACSIS124; ACHGK045

YEAR 8: SC4-14LW; GE4-3

ACTIVITIES



BEFORE YOUR VISIT:

http://www.scootle.edu.au/ec/viewing/R11901/index.html

In pairs, have students draw a labelled diagram of an ecosystem which they are familiar with. Have students label living and non-living components including producers, consumers and decomposers as well as dead and inorganic matter.

Ask students to present and explain to the class where each living component in the ecosystem gets its energy (All ecosystems require energy from an external source - this is usually the sun). Ask students to classify each animal or consumer as a carnivore, herbivore or omnivore as they explain.

Helpful digital curriculum resources:

http://www.scootle.edu.au/ec/viewing/R11816/index.html#

As a class, brainstorm a list of human activities that affect ecosystems (e.g. deforestation, agriculture, introduced species, fire).

In pairs, have students discuss how a particular human activity affects their ecosystem.

Ask students to present and explain (Choose at least one each from the class brainstorm list to present to the class).

More activities -

Flow of Energy pond (game)

http://www.scootle.edu.au/ec/viewing/R11900/index.html

How Wolves Change Rivers (video)

https://www.youtube.com/watch?v=ysa5OBhXz-Q

DURING YOUR VISIT – SELF GUIDED:

In small groups (with an adult), have students complete the work sheet, 'Food Fight' downloadable from our website, to draw food webs for various animals on display, identify producers and consumers, including introduced species and list human activities that directly affect the food web.

WILDLIFE DISCOVERY EXPERIENCE – LESSON – OPTIONAL – GUIDED TOUR

Our Education Officer will introduce your students to three various animals and discuss the role that each plays in a food web. Animals may include python, Barking Owl, lizard **or** Spiny Leaf Insect.

The Education Officer will also discuss introduced species and human activities that directly affect the animal's food web and explain how.

Students will also be able to have a close look at these animals, while our Education Officers discuss and point out a few of their key adaptations that assist them with their role as a carnivore, herbivore or omnivore in the food web.

Students will have time to ask questions of our Education Officers (it would be great if questions could be prepared beforehand).

AFTER YOUR VISIT:

As a class, conduct a debate about dingoes BEFORE reading the suggested articles. In small groups, have students justify their position on the question -

Has the introduction of dingoes by humans had a positive or negative impact on Australian ecosystems?

Have the students read the following suggested articles -

https://www.smithsonianmag.com/smart-news/australias-dingo-proof-fence-changing-ecosystem-outback-180963273/

https://www.nature.com/news/how-dingoes-could-be-shaping-australia-s-landscape-1.21962

After reading the above suggested articles as a class, survey the students by asking the question again and have the students raise their hands to agree if the introduction of dingoes by humans has had positive or negative impact on Australian ecosystems. Many scientific bodies agree that the introduction of the dingo has had a positive impact on Australian ecosystems. This is a rare occurrence.

How can we protect our precious ecosystems?

As a class, discuss simple achievable actions that students can undertake to minimise the effect of human activities on habitat liveability for animals e.g. introduced species, responsible pet ownership and deforestation, planting a wildlife friendly habitat in your backyard and constructing and erecting a nest box in your backyard.

GLOSSARY

What is an ecosystem? An ecosystem is a community of living things and their non-living environment, and may be as large as a desert or as small as a puddle. An ecosystem must contain producers, consumers, decomposers, and dead and inorganic matter.

All ecosystems require energy from an external source – this is usually the sun.

What is a food web? Food webs show the feeding relationships between organisms in an ecosystem.

What is a producer? Producers make food from inorganic matter. (Plants are producers – they make sugar through photosynthesis – they use sunlight, water and carbon dioxide to produce food).

What is a consumer? Consumers eat producers – they are unable to make their own food and so must eat other plants and animals. (All animals are consumers).

What is a decomposer? Decomposers break down dead matter – these may be bacteria or animals that feed off dead plants and animals.

What is a carnivore? An animal or plant (particularly insect and invertebrate-eating plants) that requires a staple diet consisting mainly or exclusively of animal tissue through predation or scavenging.

What is a herbivore? An animal that consumes herbaceous vegetation.

What is an omnivore? An animal that includes both plants and animals in its normal diet.

What is an introduced species? An introduced species (also known as an exotic species) is an organism that is not native to the place or area where it is considered introduced and instead has been accidentally or deliberately transported to the new location by human activity.

DETAILED AUSTRALIAN CURRICULUM LINKS

Australian Curriculum links:		Elaborations:
Year 7 Biological Sciences ACSSU112	Interactions between organisms can be described in terms of food chains and food webs; human activity can effect these interactions	• using food chains to show feeding relationships in a habitat • constructing and interpreting food webs to show relationships between organisms in an environment • classifying organisms of an environment according to their position in a food chain • recognising the role of microorganisms within food chains and food webs • investigating the effect of human activity on local habitats, such as deforestation, agriculture or the introduction of new species • exploring how living things can cause changes to their environment and impact other living things, such as the effect of cane toads • researching specific examples of human activity, such as the use of fire by traditional Aboriginal people and the effects of palm oil harvesting in Sumatra and Borneo
Science as a Human Endeavour ACSHE120	Solutions to contemporary issues that are found using science and technology may impact on other areas of society and may involve ethical considerations.	• relating regulations about wearing seatbelts or safety helmets to knowledge of forces and motion • considering issues relating to the use and management of water within a community • considering decisions made in relation to the recycling of greywater and blackwater • considering how human activity in the community can have positive and negative effects on the sustainability of ecosystems • investigating ways to control the spread of the cane toad
Science Inquiry Skills ACSIS124	Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge	• working collaboratively to identify a problem to investigate • recognising that the solution of some questions and problems requires consideration of social, cultural, economic or moral aspects rather than or as well as scientific investigation • using information and knowledge from previous investigations to predict the expected results from an investigation
Geography ACHGK045	The influence of environmental quality on the liveability of	• researching the effects of air pollution on the liveability of cities • explaining the importance of water quality to the liveability of places, now and into the future • investigating the concept of environmental quality and surveying the environmental quality of their local area and its effect on liveability

	places	
NSW Syllabus links:	**Outcomes:**	**Content:**
Stage 4 Biological Sciences SC4-14LW	A student relates the structure and function of living things to their classification, survival and reproduction	Interactions between organisms can be described in terms of food chains and food webs; human activity can affect these interactions (ACSSU112) LW5 Science and technology contribute to finding solutions to conserving and managing sustainable ecosystems. Students: a. construct and interpret food chains and food webs, including examples from Australian ecosystems b. describe interactions between organisms in food chains and food webs, including producers, consumers and decomposers c. describe examples of beneficial and harmful effects that micro-organisms can have on living things and the environment d. predict how human activities can affect interactions in food chains and food webs, including examples from Australian land or marine ecosystems e. explain, using examples, how scientific evidence and/or technological developments contribute to developing solutions to manage the impact of natural events on Australian ecosystems f. describe how scientific knowledge has influenced the development of practices in agriculture, e.g. animal husbandry or crop cultivation to improve yields and sustainability, or the effect of plant-cloning techniques in horticulture.
Geography Stage 4 GE4-3	explains how interactions and connections between people, places and environments result in change	**Environmental quality** Students: investigate the impact of environmental quality on the liveability of places, for example (ACHGK045): discussion of factors that reduce environmental quality e.g. natural hazard, conflict, population pressures, land degradation comparison of the impact of environmental quality on the liveability of places across a range of scales e.g. local neighbourhoods, large cities, countries.