








Components

	NAME	DESCRIPTION	AUDIENCE
	<i>Food webs</i> teacher guide	This guide describes activities that help to explain how to construct and interpret food chains and food webs.	teachers
	<i>Explaining feeding relationships</i> background sheet	This background sheet describes food chains, food webs and energy.	students
	<i>All about food webs</i> fact sheet	This fact sheet explains food chains and food webs. It includes information about: producers and consumers; food as an energy source; and direction of arrows in a food chain or web.	students
	<i>Making food webs</i> procedure sheet	In this cut-and-paste activity, students create a food web using flora and fauna from an Indigenous community near Kununurra. Then they add cane toads to see the effects on a food web. Resources to create food webs for two other environments are included.	
	<i>Food webs</i> iPad™ app	This app allows students to create a food web of plants and animals found in the Kimberley. Once complete, a cane toad may be introduced so students can see how numbers of each species in the food web change in response to increasing numbers of cane toads. Food webs for Herdsman Lake and Cottesloe Reef may also be investigated.	students
	<i>Looking at food webs</i> worksheet	This worksheet may be used with the iPad app or the cut-and-paste worksheet activity. It questions students about the food web they have created and the impacts of cane toads on their food web.	students
	<i>Cottesloe reef</i> background sheet	Food webs can be constructed for marine environments as well as terrestrial. This background sheet describes the environment and organisms associated with Cottesloe Reef.	teachers

Purpose

To **Explain** how food chains and food webs can be used to show feeding relationships in an environment. Impacts of an introduced species on an environment are also examined.

Outcomes

Students:

- understand that food chains and food webs show feeding relationships between organisms in an environment;
- classify organisms in an environment, according to their position in a food chain;
- construct and interpret food chains and food webs; and
- explain how introduction of a new species into an environment may effect existing organisms.

Activity summary

ACTIVITY	POSSIBLE STRATEGY
Students read the fact sheet, <i>All about food webs</i> .	individually
Students either do the worksheet activity, <i>Making food webs</i> , or the iPad™ app, <i>Food webs</i> .	individually or in pairs
Students answer questions on the worksheet, <i>Looking at food webs</i> .	individually
Discuss answers.	in groups

Teachers notes

Activity: *Food web*

Students create a food web on an iPad in this activity. They will use their food web to answer questions on the worksheet, *Looking at food webs*. It may be useful to print out the food webs that students create. This can be done by saving a copy of the screen to photos on the iPad, then printing it out.

Activity: *Making food webs*

This is an alternative to the iPad-based activity. Students are asked to create a food web by cutting out and arranging pictures of animals. The task can be made simpler and faster by eliminating some species.

Resources to create three food webs are provided. They match those found in the *Food webs* app: Kimberley, Herdsman Lake and Cottesloe Reef.

Information on what each animal eats is included in the procedure sheet, *Making food webs*.

The worksheet, *Looking at food webs*, may be used after creating one or more food webs.

Kimberley

For an easy food web, use: eucalyptus, cicada, frill-necked lizard, yellow-spotted monitor, northern quoll. Add cane toad in part 2.

For a harder food web, use: eucalyptus, cicada, frill-necked lizard, yellow-spotted monitor, northern quoll, tussock grasses, meat ant, green tree frog. Add cane toad in part 2.

Herdsman Lake

For an easy food web, use: water weed, water flea, dragonfly nymph, black duck, swamp harrier. Add cane toad in part 2.

For a harder food web, use: grass, gambusia, water flea, coot, swamp harrier, water weed, dragonfly nymph, tiger snake. Add cane toad in part 2.

Cottesloe Reef

For an easy food web, use: kelp, seagrass, blue swimmer crab, brown-lipped abalone, 11-armed sea star, gloomy octopus.

For a harder food web, use: kelp, seagrass, phytoplankton, scallop, western scalyfin, blue swimmer crab, mysid shrimp, brown-lipped abalone.

Technical requirements

The teachers guide, procedure sheet and worksheet require Adobe Reader (version 5 or later), which is a free download from www.adobe.com. The procedure sheet and worksheet are also available in Microsoft Word format.

Food webs is an app for iPad that may be downloaded for free from the App Store. For more information, see <https://itunes.apple.com/au/app/food-web/id565839214>

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Associated SPICE resources

Feeding relationships 3: Food webs may be used in conjunction with related SPICE resources to address the broader topic of food chains and webs.

DESCRIPTION	LEARNING PURPOSE
<p><i>Feeding relationships (overview)</i></p> <p>This learning pathway shows how a number of SPICE resources can be combined to teach the topic of food chains and webs.</p>	
<p><i>Feeding relationships 1: Animal interactions</i></p> <p>Students watch a video designed to engage students and provoke questions about animal feeding relationships and introduced species. Students then read a book extract, raising further discussion about cane toads and their impacts.</p>	Engage
<p><i>Feeding relationships 2: Predators and prey</i></p> <p>Students explore concepts of feeding relationships and food chains by competing against each other in three activities: a quiz about what animals eat; a card game; and an outdoor role-play game.</p>	Explore
<p><i>Feeding relationships 3: Food webs</i></p> <p>Food webs are explained in a student fact sheet. Students use an iPad app or a cut-and-paste activity to create a food web that shows feeding relationships between animals in the Kimberley. Students introduce cane toads into their web to examine effects on other species in the ecosystem. They answer questions on an accompanying worksheet to check understanding.</p>	Explain
<p><i>Feeding relationships 4: Impact of cane toads</i></p> <p>This resource elaborates the topic of introduced species. Students watch video clips of people living in the Kimberley describing impacts of cane toads. An accompanying worksheet probes students' understanding.</p>	Elaborate
<p><i>Feeding relationships 5: Managing cane toads</i></p> <p>This resource extends and applies students' understanding of cane toads as an example of impacts caused by introduced species. Students suggest ways to solve the cane toad problem; read fact sheets that include up-to-date science research; and participate in a class debate to determine the best solution. They need to develop a persuasive argument that considers ethics, cost and viability of their option.</p>	Elaborate
<p><i>Feeding relationships 6: Kimberley creations</i></p> <p>This resource encourages students to employ techniques used in Aboriginal art to make their own symbolic representation of feeding relationships in an environment of their choice.</p>	Elaborate