SCIENCE

Lesson 11

Year 7

Topic: Native food webs

Investigating native food webs

Today you will:

- ► evaluate interactions between an animal population and environmental factors.

Resources

Find and prepare

Sheet 5 — Native food web cards

Exercise book

Key terms

disease, environmental resources, population

For definitions and explanations of terms, please see the Glossary.

Science start-up

Review impacts on food webs

Food webs can be affected by many things, including human and environmental factors. Sunlight, temperature and water availability can all affect the survival of living things, which in turn influences the food web they are part of. Non-living parts of the environment that impact food webs are called **abiotic factors**.

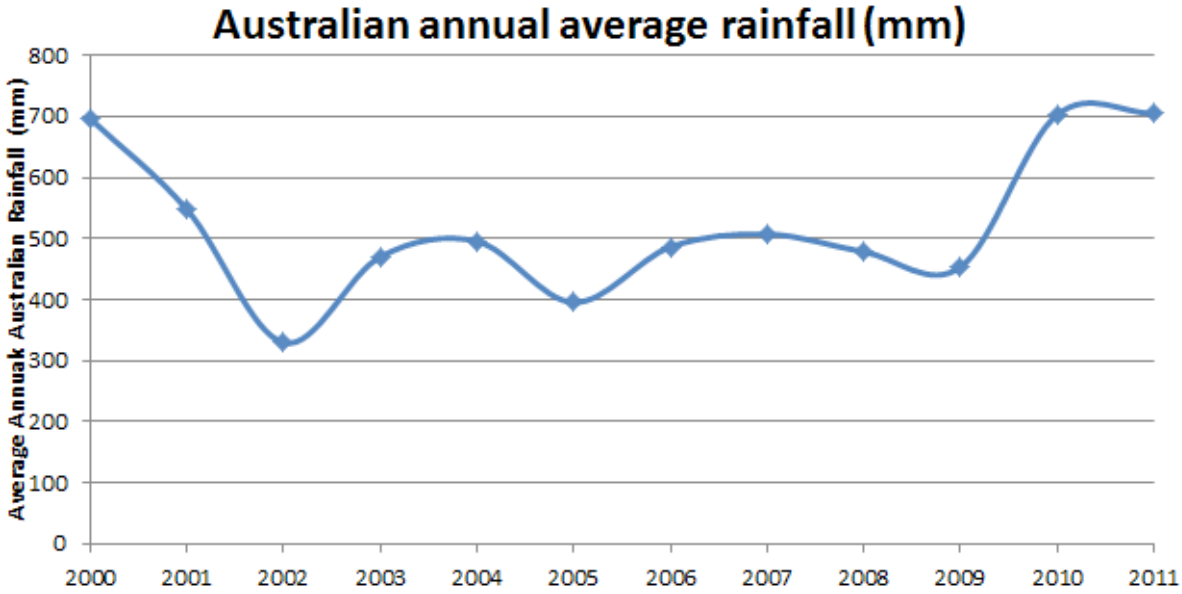
1. In parts of Australia, overnight sub-zero temperatures can cause frosts, where water in plants and dew on leaf surfaces can freeze during the night. This can kill plants and some animals. How could a series of frosts over a number of weeks affect a food web?

2. Australia is prone to long droughts when there can be very little rainfall in certain areas for a number of years. Suggest how a drought would affect the food web of a grassland environment.

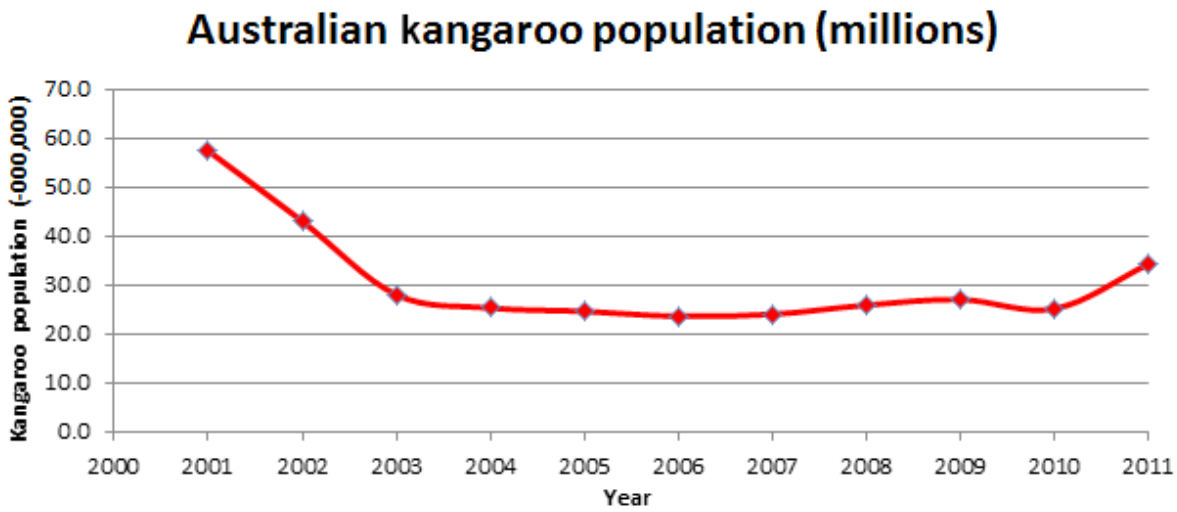
Lesson

Examine environmental impacts of an animal population

3. The following graphs display the average annual rainfall for Australia between 2000 and 2011, and the estimated kangaroo population in Australia between 2001 and 2011. Compare the population of kangaroos with the rainfall of the area and answer the questions that follow.



Data sourced from: *Year Book Australia 2012* © Commonwealth of Australia (Australian Bureau of Statistics)
http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1301.0~2012~Main%20Features~Australia's%20climate~143 CC BY 2.5 creativecommons.org/licenses/by/2.5/au/



Data sourced from: *Kangaroo population estimates* © Commonwealth of Australia (Department of the Environment and Energy)
https://www.environment.gov.au/biodiversity/wildlife-trade/natives/wild-harvest/kangaroo-wallaby-statistics/kangaroo-population CC BY 3.0 creativecommons.org/licenses/by/3.0/au/

a. Describe the rainfall pattern between 2000 and 2011.

b. Describe the kangaroo population between 2001 and 2011.

c. Describe the relationship between average rainfall and the kangaroo population.

d. What do think is the cause of the relationship between average rainfall and the kangaroo population?

4. The table below shows available population statistics of possums and fruit, relative to total capacity in a tropical rainforest area in far North Queensland over a four-year period. During this period, a tropical cyclone decimated much of the seasonal fruit that was on the rainforest trees at the time.

	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec
Fruit	95%	60%	70%	95%	70%	50%	80%	20%	10%	5%	20%	40%	20%	10%	50%	80%
Possums	95%	90%	95%	100%	95%	90%	95%	80%	40%	35%	30%	30%	30%	30%	35%	40%

a. Using the data from the table, draw a line graph that charts the variation in population of possums and fruit across the given time period. You may use a spreadsheet program or graph paper. Attach your completed graph to your exercise book.

b. At what time, according to the data, did the local area experience a tropical cyclone? How can you tell?

c. What accounts for the variation of fruit availability before the cyclone?

d. Compare the population changes of fruit and possums due to the cyclone.

e. Why didn't the possum population start to recover until the second summer after the cyclone?

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Examine a native food web

5. Open **Sheet 5 —** Native food web cards. In this activity, you will create a food web that includes traditional food sources of Aboriginal peoples.

   a. Draw a food web using the information from **Sheet 5**, or cut out the food web cards and construct a food web in the space provided below.

   b. From your native food web, list two examples of each of these trophic groups.

Producers	
First-order consumers	
Second-order consumers	
Omnivores	
Carnivores	

c. Describe the secondary effects on this food web as a result of population changes in fruit and possums.