



national science week 2024

scienceweek.net.au

10-18 AUGUST 2024

SPECIES SURVIVAL

**MORE THAN JUST
SUSTAINABILITY**

**STUDENT
JOURNAL**



**AUSTRALIAN
SCIENCE
TEACHERS
ASSOCIATION**


An Australian Government Initiative

Inspiring
AUSTRALIA 

CONSERVATION CRISIS GAME - STUDENT NOTES

INSTRUCTIONS

1. Form a group of 3 to 5 students
2. Decide on a species-related team name, such as Fabulous Frogs, Awesome Owls, and add it to the top of both the Ecosystem Sheet and the Game Card Record Sheet.
3. Add your individual names to the top of both the sheets also.
4. Set up your starting ecosystem by collecting the following species and Blu Tacking each one of them on your Ecosystem Sheet:

- | | | | |
|-------------------|------------------------|------------------------|-------------------|
| • 4 worms | • 3 bees | • 2 parrots | • 1 owl |
| • 4 snails | • 3 butterflies | • 2 shore birds | • 1 lizard |
| | • 3 moths | • 2 trees | • 1 koala |
| | • 3 flowers | • 2 shrubs | • 1 possum |
| | | • 2 frogs | |

5. Flip a coin (or spin a wheel) to randomly indicate the selection of a **Positive** or **Negative** chance card. For example, if you flip 'heads' on a coin, select a **Positive** card, if 'tails' select a **Negative** card.
6. Once you have selected a card, read the scenario and carry out the instructions by either adding or removing species from your ecosystem.
7. In the Game Card Record Sheet, record the details of the change in species due to the action on the card.
 - a. At Column 1, write the number at the top of the card. Each card has a specific number identification.
 - b. At Column 2, add or subtract the total number of organisms added or taken away. This is a running total so will change each time you action a card.
 - c. At Column 3, subtract any total loss in species; for example if you lose all the sea birds, then -1 from this total on the previous row. If you lose an owl or a koala, -2.
 - d. At Column 4, write a few words to describe the event on the card, such as 'clean up Australia' or 'bushfire'.
8. Replace the card back in the pile randomly, face down, so it is shuffled.
9. Flip the coin again to select another **Positive** or **Negative** chance card. Carry out the action on the card and record it in the Game Card Record Sheet.
10. Repeat steps 8 and 9 several times before using the data in your Game Card Record Sheet to answer the questions related to your experience with this Species Diversity Game.

SAFETY FIRST - WHEN USING SCISSORS, DON'T FORGET: HOLD THEM BY THE HANDLES, CUT AWAY FROM YOURSELF, STORE WITH THE BLADES CLOSED, CARRY THEM WITH THE BLADES CLOSED AND FACING DOWN AND ALERT YOUR TEACHER IS YOU HAVE ANY QUERIES OR CONCERNS.



GAME CARDS – PRIMARY – POSITIVE CARDS

CARD 1

You participate in Clean Up Australia Day to help create a healthy habitat for wildlife.

Add 1 more of each different plant and animal you have in your ecosystem.

CARD 2

You have long, grassy areas of the lawn covered with clover flowers that attract bees. You leave old pieces of wood there, too, where insects and lizards make their home.

Add 4 more flowers, 2 more butterflies and 2 more bees, and 1 lizard that comes in to eat the insects.

CARD 3

Your friends get together to build some possum boxes for the park.

Add 2 more possums to your ecosystem and 1 shrub, which has been nourished by the possum poo.

CARD 4

You help clean up rubbish and weeds from the beach or river.

Add 3 shore birds to your ecosystem.

CARD 5

The spring weather has been perfect, with plenty of warm sunshine and plenty of light rain.

Add 2 of each of your plant species to your ecosystem.

CARD 6

You plant some herbs on your balcony or window box.

Add 2 more of each insect, 2 snails that like to eat the herbs, and 1 lizard that comes in to eat the insects and snails.

CARD 7

You install a pond in your garden to attract the local frogs.

Add 2 frogs, 4 worms and 10 more insects to your ecosystem, as well as a parrot and a koala, which sometimes come to drink from the pond.

CARD 8

Your family has a compost bin, which you put in your garden to promote healthy plant growth.

Add 4 worms and 2 flowers to your ecosystem.

CARD 9

You collect and use the water from showers and baths to water your garden, instead of using tap water. This reduces how much water you use.

Add 1 tree, 1 shrub, 3 worms and 2 snails.

CARD 10

With your friends and neighbours, you help remove weeds from a bushland or park. This means there's more space for the plants and animals that live here to do better.

Add 1 flower, 1 shrub and 1 tree to your ecosystem. Also add 1 possum and 1 owl that come to use the tree.



GAME CARDS – PRIMARY – NEGATIVE CARDS

CARD 2

Your house keeps bright lights on all night, confusing insects, which think it is the Moon.

Remove all of your moths and 1 owl that came to eat some of the moths.

CARD 1

Mum mows the lawn very short each week. There are no hidey-holes left for insects to live.

Remove 4 insects from your ecosystem, 1 snail that would eat some of the insects and all the flowers.

CARD 4

An oil spill nearby affects your ecosystem. The oil gets into the feathers and food of the shore birds and they die.

Remove all the shore birds from your ecosystem.

CARD 3

Your dog runs loose at the beach, scaring off shore birds and their babies.

Remove 1 shore bird from your ecosystem.

CARD 6

You let your cat out at night, and it kills some of the animals that are nocturnal.

Remove 1 possum (if you have one) and 2 birds.

CARD 5

Climate change causes bushfires, which are happening more often than they used to occur. There's less time for plants to recover between fires and many animals are killed.

Remove 1 koala, 2 birds, 2 snails and all the flowers in your ecosystem, and only 1 shrub and 1 tree are left.

CARD 8

People who don't know that prickly pear is a weed start growing prickly pear plants at home and then sell them online to people in the local area.

Remove all of your shrubs or all of your flowers due to them not having space to live with all the extra prickly pear growing.

CARD 7

You feed the local wildlife but the diet of white bread and crackers actually ends up causing harm to them.

Remove 1 of each type of bird from your ecosystem.

CARD 10

A flood in the area leaves many plants under water for days and kills many land-dwelling animals.

Remove 2 flowers and 1 lizard.

CARD 9

Pollution in the soil and waterways poison plants and animals.

Remove all the trees, 1 shrub, 2 worms and snails, and 1 bird that eats them.



GAME CARDS – SECONDARY ADDITIONAL POSITIVE CARDS

CARD 11

You make a bird feeder for your garden that parrots use to feed.

Add 5 parrots to your ecosystem.

CARD 12

You use a fly swat instead of fly spray, reducing the use of toxic chemicals that harm other insect life.

Add in 2 insects, 1 snail and 1 lizard.

CARD 13

You plant some bird and insect-friendly flowers.

Add 4 insects, 4 flowers and 1 bird to your ecosystem.

CARD 14

After volunteering at your local animal conservation park, the number of koalas increases.

Add 2 more koalas to your ecosystem.

CARD 15

You help set up a wetland park that attracts a range of wildlife.

Add 2 more of each bird, 2 of each insect and a frog or a lizard.

CARD 16

Biologists have genetically engineered a drought-resistant tree.

Double the number of trees in your ecosystem.

CARD 17

Scientists work out how to use the preserved DNA of extinct organisms to make them de-extinct.

Return 1 of any species that have been 100% removed or lost back into the ecosystem.

CARD 18

The local council creates a green space for residents by planting lots of native trees.

Add in 5 trees one of each kind of tree-dwelling organism.



GAME CARDS – PRIMARY SECONDARY ADDITIONAL NEGATIVE CARDS

CARD 12

An extended summer heatwave makes it difficult for many plants and animals to survive without water.

Remove 2 shrubs, a bird, 2 butterflies and all the snails.

CARD 11

You neglect the houseplants on the balcony, leaving the plants suffering and removing habitat for small animals.

Remove 2 flowers and 1 lizard.

CARD 14

A flu-like disease spreads through the bird population.

Remove all but 2 of your birds.

CARD 13

Natural Australian bush land is cleared near your ecosystem to make way for food production and housing. This means that the natural habitat of many species is reduced.

Remove 1 koala, 1 possum and 1 each of the different birds you have in your ecosystem.

CARD 16

Cane toads outcompete local frogs for resources.

Remove any frogs from your ecosystem.

CARD 15

Animals suffer from eating plastic because they think it is food.

Remove 1 lizard and 2 birds from your ecosystem.

CARD 18

A developer clears land to prepare a building site.

Remove all tree dwellers that can't fly elsewhere such as koalas and possums.

CARD 17

The local bee community is infested with a parasitic mite called *Varroa destructor* that is killing all the bees.

Remove any bees from your ecosystem

SPECIES DIVERSITY ECOSYSTEM SHEET

TEAM NAME: _____ STUDENT NAMES: _____

BEES	MOTHS	BUTTERFLIES

OWLS	PARROTS	SHORE BIRDS

WORMS	SNAILS	FROGS

KOALAS	POSSUMS	LIZARDS

TREES	FLOWERS	SHRUBS

GAME CARD RECORD SHEET

TEAM NAME: _____ STUDENT NAMES: _____

FOR EACH CARD YOU SELECT, SUMMARISE THE CHANGE IN YOUR SPECIES OVER TIME.

1. CARD NUMBER	2. TOTAL NUMBER OF ORGANISMS LEFT	3. TOTAL NUMBER OF DIFFERENT SPECIES LEFT	4. SUMMARY OF SCENARIO: WHAT HELPED OR HARMED THE NUMBER OF SPECIES?	OVERALL, IS THERE A POSITIVE OR NEGATIVE IMPACT ON THE SPECIES DIVERSITY?
STARTED WITH	34	15		

Add in any extra rows if you use more than eight cards.

SPECIES GAME: CONSERVATION CRISIS!



