

8. Garden Friendlies or Pests?

Aim	Students observe, identify, classify and photograph animals in the garden. They determine if these animals are beneficial to their garden plants or are garden pests. They do research about local pests and create a pest guide for your school garden.
Recommended for	Sec 1-3
Subject Links	Science: classification
Horticultural Skills	Beneficial garden animals, garden pests
Process Skills	Observing, classifying, generating
Equipment/Materials	Digital camera, a few pairs of magnifying glass. Optional: 'A Guide to Common Garden Animals' (Singapore Science Centre Guide Book)
Duration	1 gardening session (1 hour)
Preparation	Photocopy the handouts, obtain the materials and book the computer room (for web research)
Safety	Brief students on 'Garden Nasties' (see page 4). Look out for students who may be allergic to pollen in the air or plant sap. Remind students not to be cruel or harm animals.

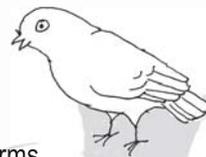


Procedure

1. Distribute the handout, explain the activity and briefly run through the main points on the handout.
2. Brief the students on the safety issues (see page 4) and let them start the activity.
3. After observing the animals in the school garden, they go to the computer room, do web research on garden pests they had found and to download the pictures from their digital cameras.
4. They can post pictures of their findings on your school blog or the NParks Gardening blog 'Young Gardeners' (http://www.nparks.gov.sg/blogs/young_gardeners/).
5. Extension: students could continue with Activity 9 Environment-friendly pest busters.

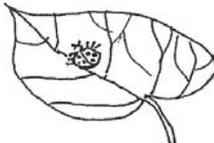
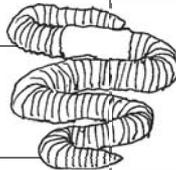
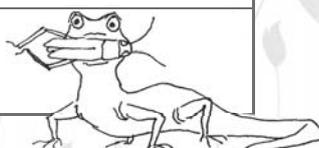
Debrief

- § Run through the students' findings using the suggested answers on the next page.
- § Summarise how some animals benefit the gardens.
- Beneficial garden animals:
- Are predators of pests - spiders, lizards and birds
 - Pollinate flowers – bees, sunbirds and butterflies
 - Help disperse seeds – birds and bats
 - Help loosen soil and improve soil quality and drainage - earthworms
 - Help break down dead plant material – woodlice, termites
- § Summarise how garden pests harm garden plants:
- Pests harm the plants:
- By eating their leaves and reducing the photosynthetic surface of the plant - grasshoppers, caterpillars, bagworms, garden snails, etc.
 - By creating 'open wounds' which can be infected by bacteria or viruses – thrips
 - By sucking plant sap, depriving leaf parts of nutrients and weakening them (causing leaves to curl) - leaf hoppers, mealy bugs, scale insects.



§ Ask questions e.g. where animals are usually found - taking shelter under leaves, structures etc. Why? They do this to escape from predators and the heat of the sun, to stay in an area of high humidity to prevent drying out (e.g. slugs)

Suggested Answers

Animals	Major Grouping	B: Beneficial to plants	P: Garden Pest
INVERTEBRATES			
Garden cockroaches Ants Bees Wasps Termites Dragonflies	Insects	B (eat anything, clean up the garden) B (eat anything, clean up the garden) B (pollinate flowers) B (predators of pests) B (break down dead wood) B (predators of pests)	
Butterflies and moths and their caterpillars Aphids Scale insects Mealy bugs Leaf hoppers Grasshoppers Thrips Beetles e.g. ladybirds		Both B and P (butterflies help in pollination, but caterpillars eat leaves and are pests) P (suck plant sap) P (suck plant sap) P (suck plant sap) P (suck plant sap) P (eat leaves) P (eat leaves) P (eat leaves) Both B and P: Many beetles eat leaves and are pests, but carnivorous beetles like ladybirds eat pests like aphids	
Bagworms		P (eat leaves)	
Earthworms Roundworms (microscopic)	Annelid Nematode	B (loosen soil and improve soil drainage) P: harm the roots of plants	
Land snails Slugs	Molluscs	P (eat leaves) P (eat leaves)	
Spiders Centipedes Millipedes Mites	Arthropods	B (predators of pests) B (predators of pests) Neutral P (suck plant sap)	
Woodlice	Crustaceans	B (help in the breakdown of dead plant material)	
VERTEBRATES			
Sun birds Mynas Sparrows	Birds	B (pollinate flowers) B (predators of pests) B (predators of pests)	
Asian toad Banded bullfrog	Amphibians	B (predator of pests) B (predator of pests)	
Changeable lizard Garden lizard Blind snake	Reptiles	B (predator of pests) B (predator of pests) Neutral	

§ After the activity, ask the students to share with the class what they have learnt from this activity. Alternatively, you could ask them to fill in the reflection sheet in Annex 3 and discuss their reflections.

Activity 8



Name :

Members of your team :

8. Garden Friendlies or Pests?

Project Objectives

Your Team has to:

- Observe, identify, classify and photograph animals in the garden - determine if these animals are beneficial to your garden or are pests
- Find out how they benefit or harm the garden through research
- Create a pest guide for your school garden

Duration of activity

1 gardening session (1 hour)



Suggested Steps

1. Go to your school garden, observe, identify, classify and photograph animals in your school garden for about 20 minutes.
2. With your list of garden animals and observations, determine if these animals are beneficial or harmful to your school garden.
3. Find out more about these animals through research. Download your pictures and create a pest guide for your school garden.
4. You can post pictures of your pests or pest guide in your school blog or the NParks Gardening blog 'Young Gardeners' (http://www.nparks.gov.sg/blogs/young_gardeners/).

Tips!

- Where to find the animals? Animals are seldom found in the open. Most of them can be observed under leaves, or even under concrete slabs or underground. Why?
- Some interesting animals which you can look out for are frogs (and tadpoles), blind snake, slugs, different types of birds and butterflies.

Extension

Go on to Activity 9 Environment-friendly Pest Busters, where you can help rid the garden pests in your school garden.

Gardens bring nature to the school – turning bare land (with only grass) into a rich, lush habitat, teeming with life! The school garden can be an exciting place for encountering insects, frogs and birds. Some may even nest and breed in the garden! Your garden will also attract unwanted animals, which we term as 'pests'. Instead of enriching the garden, these harm and weaken plants. Which are the garden friendly animals and which are the pests?

Be careful of 'Garden nasties' like centipedes, bees and wasps!

Equipment/Materials

- Digital camera
- A few pairs of magnifying glass
- Optional: 'A Guide to Common Garden Animals' (Singapore Science Centre Guide Book)



