

8. Garden Community – Friend or Foe?

Aim	Pupils observe, identify, classify and photograph animals in the garden. They determine if these animals are beneficial to their garden plants or are garden pests.
Recommended for	Primary 3-6
Subject Links	Science: living things, classification (Primary 3,6); SEL (values): respect for life
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 hour
Preparation	Photocopy the handouts and obtain the materials
Safety	Brief pupils on 'Garden Nasties' (see page 4). Look out for pupils who may be allergic to pollen in the air or plant sap. Warn pupils about plants which have thorns.

Procedure

1. Explain how the garden is a habitat, with its community of living things that interact with each other and with the physical environment (soil, water and air).
2. Explain the activity - pupils go to the school garden to observe, identify, classify and photograph animals in the school garden. Give them a hint – animals are often hiding under leaves or are underground, to escape predators or the heat from the sun.
3. They then need to determine if these animals are beneficial to their garden plants, or are garden pests that damage plants. They could refer to 'A Guide to Common Garden Animals' (Singapore Science Centre Guide Book).
4. Brief the pupils on the safety issues (see page 4).
5. Distribute the handouts and let them start the activity.
6. Debrief the activity after they have completed it.
7. Encourage the pupils to post pictures of garden animals and/or their reflections on your school blog or the NParks Gardening blog 'Young Gardeners' (http://www.nparks.gov.sg/blogs/young_gardeners/).
8. Extension: pupils do web research to find out more about garden pests. Older pupils can continue with Activity 9 Pest Potion.

Debrief/Background Knowledge

- § Run through pupils' 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




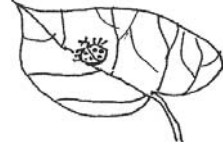
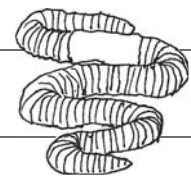


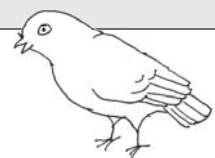

§ Summarise how garden pests harm garden plants.

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 pupils what they have learnt through this activity. Alternatively, you could ask them to fill in the reflection sheet in Annex 3 and discuss their reflections.

Suggested Answers:

Animals	B: Beneficial to plants	P: Garden Pest
INVERTEBRATES		
Insects Garden cockroaches Ants Bees Wasps Termites Dragonfly Butterflies and moths and their caterpillars Aphids Scale insects Mealy bugs Leaf hoppers Grasshoppers Thrips Beetles e.g. ladybirds Bagworms	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) 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 P (eat leaves)	  
Worms Earthworms	B (loosen soil and improve soil drainage)	
Molluscs Land snails Slugs	P (eat leaves) P (eat leaves)	
Arthropods Spiders Centipedes Millipedes Mites	B (predators of pests) B (predators of pests) Neutral P (suck plant sap)	
Crustaceans Woodlice	B (help in the breakdown of dead plant material)	
VERTEBRATES		
Birds Sun birds Mynas Sparrow	B (pollinate flowers) B (predators of pests) B (predators of pests)	
Amphibians Asian toad Banded bullfrog	B (predators of pests) B (predatosr of pests)	
Reptiles Changeable lizard Garden lizard Blind snake	B (predators of pests) B (predators of pests) Neutral	

Activity 8



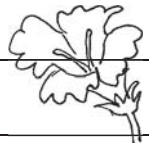
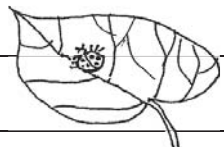
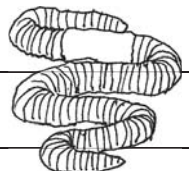
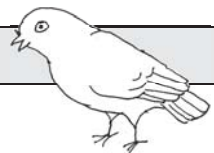
Name :

Members of your team :

8. Garden Community – Friend or Foe?

1. Look for animals in your school garden.
2. Classify them as 'Vertebrates' or 'Invertebrates'
3. Determine if they are beneficial to your garden (B) or they are pests (P) and how they help or harm your garden.



Animals	B: Beneficial to plants	P: Garden Pest How is the animal beneficial or damaging to your garden?
INVERTEBRATES		
		
		
		
		
VERTEBRATES		
		