

## 9. Environment-friendly Pest Busters

<b>Aim</b>	After identifying pests in the school garden and doing some research (or carrying out Activity 8), students do research on environmentally-friendly, non-pollutive, garden pest management products and plan strategies to remove pests in the school garden. They use their self-made products to remove pests from the school garden.
<b>Recommended for</b>	Sec 1-3
<b>Subject Links</b>	Science, Geography: managing the environment, IT
<b>Horticultural Skills</b>	Integrated Pest Management
<b>Process Skills</b>	Observing, classifying, generating, evaluating
<b>Equipment/Materials</b>	Spray bottle, blender, ingredients for pest removal sprays, Optional: 'Community In Bloom: A Concise Guide to Tropical Gardening', netting and wood for building barrier structures
<b>Duration</b>	1-2 gardening sessions (1-2 hours) (installing a garden netting, might take longer)
<b>Preparation</b>	Photocopy the handouts, obtain the materials and book the computer room (for web research) and laboratory
<b>Safety</b>	Brief students on Garden Nasties (see page 4). Look out for students who may be allergic to pollen in the air or plant sap.

### Procedure

1. Students could carry out Activity 8 before this activity. If they have not, ask students to go to the school garden to observe, identify and photograph the pests which are present on the plants.
2. Introduce the activity by discussing the problems of using pesticides on our plants and food plants, when removing garden pests.
3. Distribute the handout, explain the activity and briefly run through the main points on the handout.
4. Let students go to the computer room to do their web research. They then collect plant material for their project. Book the laboratory for them to process the plant material to make their own environmentally-friendly pest products.
5. Guide students as they test and evaluate the effectiveness of their environmentally-friendly 'pesticide' and make improvements if needed.
6. Once successful, students try out their methods to remove the pests from the school garden.
7. Teams can post their super recipes on your school blog or the NParks Gardening blog 'Young Gardeners' ([http://www.nparks.gov.sg/blogs/young\\_gardeners/](http://www.nparks.gov.sg/blogs/young_gardeners/)).
8. Extension: they can even sell their pest removal products as part of Activity 2 – Home Grown Business.

## Debrief

§ Some of the common environmentally-friendly pest removal products:

- Natural, biodegradable, or soap-based pest and weed sprays. Oil-based sprays acts to clog up the openings of the spiracles (breathing tubes) of the insect pests, while soap-based sprays break the surface tension, allowing water to enter the spiracles and 'drown' the insect.

- Barrier nets - to prevent flying pests from reaching plants.
- Sticky tape or surfaces - to attract and trap flying adult insect pests

§ Some of the common environment-friendly methods of pest control:

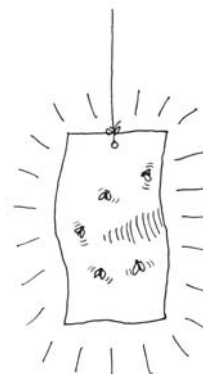
- Attracting the natural predators of the pest-insects (e.g. lizards, birds by providing a lush habitat for them to live in)
- Removing pests by hand

§ Can we label our environmentally-friendly product as 'organic'?

No, products have to be certified by an organic farming authority before being labelled as 'organic.'

§ Commend the teams with well-researched and products.

§ Ask the students 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.





Name :

Members of your team :

## 9. Environment-friendly Pest Busters

### Project Objectives

#### Your Team has to:

- Make or build environment-friendly, non-pollutive, garden pest management products to remove pests in your school garden

### Duration of activity

1-2 gardening session/s (1-2 hours) (installing a garden netting, might take longer)

### Suggested Steps

1. Find out what types of pests are found in your school garden and collect them (you could carry out Activity 8 Garden Friendlies or Pests?)
2. With of the list of pests in your school garden, carry out some research on environment-friendly, non-pollutive pest management methods.
3. Decide on one or two pest-removal methods that your team wants to make or build. Ask your teacher for guidance and feedback on your team's plans.
4. Obtain the materials and equipment you need to make or build the product. (e.g. plant parts like chilli from the garden or netting and wood for building a net barrier for the flower bed).
5. Collect some pests and test the products in the lab.
6. Evaluate the effectiveness of your product and make improvements if needed.
7. Once successful, try out your products to remove pests from the school garden.
8. You can post pictures of your products on your school's blog or on the NParks Gardening blog 'Young Gardeners' ([http://www.nparks.gov.sg/blogs/young\\_gardeners/](http://www.nparks.gov.sg/blogs/young_gardeners/)).

### Tips!

- Some environmentally-friendly, non-pollutive methods of pest management include using natural pest sprays, building of nettings and creating traps for pests e.g. sticky-tape etc.
- Read more about gardening organically and integrated pest management from pages 37-40 and 96-99 of the 'Community In Bloom: A Concise Guide to Tropical Gardening'.

### Extension

Your team can offer your products as part of Activity 2 – Home Grown Business.

*The spraying of chemical pesticides is one of the most commonly used methods for removing pests. However, pesticides are essentially poisons, polluting the environment and may adversely affect living things (including human beings) they come into contact with. Today, environment-friendly methods of pest management are gaining popularity. They are just as effective and do not pollute the environment, giving us safer and healthier plants. In this activity, you get to make or build your own products and test them out on the pests in your school!*

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

- Equipment/Materials**
- Spray bottle
  - Blender
  - Ingredients for pest removal sprays
  - Optional: 'Community In Bloom: A Concise Guide to Tropical Gardening' (National Parks Board)
  - Netting and wood for building barrier structures

