

## 7. Growing New Plants

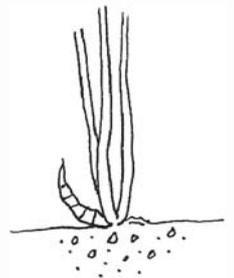
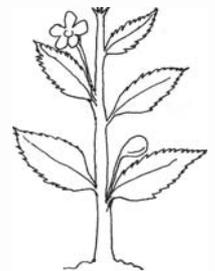
<b>Aim</b>	Students identify plants in the school garden and find out how they are commonly propagated. They choose one or two plants and try propagating new plants.
<b>Recommended for</b>	Sec 1-3
<b>Subject Links</b>	Science: plant reproduction; IT
<b>Horticultural Skills</b>	Plant propagation
<b>Process Skills</b>	Generating
<b>Equipment/Materials</b>	Soil, plant parts, other gardening needs, secateurs. Optional: digital camera, 'Community In Bloom: A Concise Guide to Tropical Gardening' (National Parks Board)
<b>Duration</b>	2-4 gardening sessions (2- 4 hours)
<b>Preparation</b>	Photocopy the handouts and obtain the materials
<b>Safety</b>	Look out for students who may be allergic to pollen in the air or plant sap.

### Procedure

1. Distribute the handout, briefly run through the main points on the handout. Highlight the differences between sexual and asexual reproduction and some examples of these methods.
2. Let students identify plants in the school garden and how they are commonly propagated.
3. Guide the students as they select their plants and propagation methods. For a brief introduction to propagating plants, see pages 21-25 of the 'Community In Bloom: A Concise Guide to Tropical Gardening'.
4. Advise the students on how they may obtain the plant parts, soil and other gardening needs.
5. Debrief the activity after the new plants have established.
6. They can post pictures of their new plants 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/)).
7. Extension: students could sell their new plants as part of Activity 2-Home Grown Business or transplant them to other parts of the school garden.

### Debrief

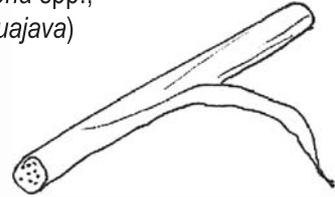
- § Commend the teams who have propagated healthy new plants.
- § If plants have died or not grown well, help students to troubleshoot the process or conditions.
- § Ask the students to share with the class what have learnt from this activity. Alternatively, you could ask them to fill in the reflection sheet in Annex 3 and discuss their reflections.



Activity 7

- Plants which can be propagated by **stem cuttings**

Sweet Potato (*Ipomoea batatas*), Sugar Cane (*Saccharum officinarum*), Hibiscus (*Hibiscus rosa – sinensis cultivars*), *Dracaena* spp., Paper Flower (*Bougainvillea* sp.), Guava (*Psidium guajava*)



- Plants propagated by **offshoots/ offsets**

*Heliconia*, Lemon Grass (*Cymbopogon citratus*), Banana (*Musa* spp.), Sugar Cane (*Saccharum officinarum*), Bamboo, Ginger (*Zingiber officinale*)

- Plants propagated by **dividing**

Boston fern, *Calathea*

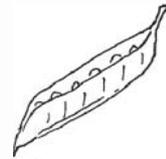
- Plants propagated by **leaves**

Snake plant (*Sansevieria* sp.), Begonia (*Begonia* spp.) and *Bryophyllum* sp.



- Plants propagated by **seeds**

Sunflower (*Helianthus annuus*), Balsam (*Impatiens balsamina*), Chinese Spinach (*Amaranthus gangeticus*)



For more information on other asexual propagation methods, see pages 23-25 of the 'Community In Bloom: A Concise Guide to Tropical Gardening' or other gardening books.



Name :

Members of your team :

## 7. Growing New Plants

Plants can reproduce by sexual (seeds or spores) or asexual (cloning) methods. Here is a comparison of sexual and asexual reproduction:

Sexual reproduction – through seeds, spores	Asexual reproduction - through stem cutting, offshoots, etc.
<ul style="list-style-type: none"> <li>The new plant has DNA different from both parents. This better allows the new plant to adapt to changes in the environment, increasing its chance for survival</li> </ul> <p><b>Implications for Gardening</b></p> <ul style="list-style-type: none"> <li>Used for crossing two plants with desired characteristics, to get a new plant with both these characteristics.</li> </ul>	<ul style="list-style-type: none"> <li>New plants are clones of their parent plants (same genetic material)</li> </ul> <p><b>Implications for Gardening</b></p> <ul style="list-style-type: none"> <li>Takes a shorter time to produce new plants</li> <li>Used for preserving a good strain of plant e.g. durian strains</li> <li>Only method of propagation for plants which do not flower often in our climate</li> </ul>



### Project Objectives

Your Team has to:

- Identify some common plants in the school garden
- Find out how they are commonly propagated (seeds, dividing, suckers or offshoots, leaf cutting, marcotting etc.)
- Obtain some plant material (seeds, stem cuttings etc.) and growing new plants

### Duration of activity

2-4 gardening sessions (2-4 hours)

### Suggested Steps

- Go to the school garden, identify some common plants there.
- With the list, go the computer lab to do research to find out how these plants are commonly propagated.
- Select one or two plants to propagate.
- Obtain the plant parts from existing garden plants (seeds, suckers or offshoots, stem, root or leaf cuttings) and start propagating your plants.
- Prepare suitable soil in the new plant beds or pots. Plant the seeds, offshoots, root or leaf cuttings etc. at regular intervals (5-10cm apart), depending on the size of the plant. For stem cuttings, remove all leaves from the cutting and stick each stem at regular intervals into the soil, with the buds facing upwards.
- Check your new plants and water them once every few days.
- Take photographs of the various steps when propagating your team's plant/s. You can post pictures of your new plants 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/)).

#### Equipment/Materials

- Soil, plant parts, other gardening needs
- Secateurs
- Shears
- Optional: digital camera, 'Community In Bloom: A Concise Guide to Tropical Gardening' (National Parks Board)

### Tips!

- Consult a plant expert or the school gardener for advice!
- See pages 21-25 of the 'Community In Bloom: A Concise Guide to Tropical Gardening' for a brief introduction to propagating plants
- Go to the library to look for books on gardening

### Extensions

- Try more complex propagation methods like marcotting or grafting.
- Your team can offer your new plants as part of Activity 2 – Home Grown Business.

